

**A REVIEW OF THE CURRENT OVERWEIGHT PERMIT FEE STRUCTURE  
IN VIRGINIA (HB 1551)**

**Virginia Transportation Research Council  
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## EXECUTIVE SUMMARY

### Introduction

House Bill 1551 (HB 1551) from the 2008 Session of the Virginia General Assembly directs the Virginia Department of Transportation (VDOT) to review the current permit fee structure applied to overweight vehicles operating on Virginia's highways (see Appendix A). The review is to determine what, if any, additional fees should be associated with damage and added maintenance costs caused by such vehicles and what mechanism is best suited for the collection of such additional fees. HB1551 specifies that VDOT's review is to be done in consultation with the Department of Motor Vehicles (DMV) and representatives of the industries that own and/or operate overload and overweight vehicles. Based on this review, the VDOT Commissioner is to recommend legislation on the fee structure for overweight vehicles to the Governor and the members of the Senate Finance and Transportation Committees and the House Appropriations and Transportation Committees by December 1, 2008.

The Virginia Transportation Research Council (VTRC) conducted a review of the current permit fee structure applied to overweight vehicles traveling on state-maintained roads. VTRC has developed a two-part fee calculation method based on the vehicle characteristics that cause pavement and bridge damage. The resulting fees are in proportion to the damage that overweight vehicles cause and are consistent with VDOT's pavement and bridge design practices. The fee calculation method allows policymakers to choose whether to impose fees for pavement damage, bridge damage, or both. The VTRC fee calculation method also allows policymakers to make choices that affect the amount of the resulting fees.

Although both pavements and bridges are susceptible to load-related damage, the mechanisms by which it occurs are different. As a result, VTRC developed separate methods for calculating permit fees for load-related pavement and bridge damage. Although pavement damage costs can be distributed across *all* vehicles, only *some* overweight trucks damage bridges. VTRC identified a way to calculate pavement damage fees on an equitable unit cost basis that is applicable to all heavy vehicles. This could not be done for bridges without the resulting fees being very high (since so few overweight trucks damage bridges). For that reason, VTRC developed a method for calculating bridge damage fees that achieves *relative* equity between the overweight vehicles that cause the damage. The bridge damage fee calculation method also affords an opportunity for policymakers to provide input. The report offers three policy options for consideration. The cost to complete this report was \$46,300.

### Background and Objectives

In the spring of 2008, VDOT Commissioner Ekern requested that VTRC conduct the review mandated in HB1551. VTRC had conducted related work in three 2007 legislative studies of overweight damage caused by three specific types of trucks (petroleum tank wagons, underground pipe cleaning trucks, and sand and gravel trucks in coal severance tax counties). In the 2007 studies, VTRC researchers focused on developing a pavement damage cost model that

could be applied not only to the three specific types of overweight trucks but also to any overweight vehicle. In 2008, VTRC did additional work on the pavement damage cost model and developed a bridge damage cost model as well.

It is well established that higher vehicle axle loads increase the damage done to pavements. Engineering research for the past 50 years has demonstrated that as axle loads increase, pavement damage increases exponentially (American Association of State Highway and Transportation Officials, 1993). A 24,000-pound single axle load will cause about twice as much damage to a typical interstate pavement as will a 20,000-pound single axle load. The damage will be greater for pavements in poorer condition, pavements not built to interstate standards, etc. All vehicles damage pavements, although the damage may be miniscule for vehicles with very light axle loads.

Unlike pavements, Virginia's bridges are usually designed to safely carry much heavier vehicles for a much longer period of time than are pavements. Bridge moment—or bending—is influenced by vehicle weight and configuration and a bridge's maximum span length. Only some overweight trucks—not all—are capable of damaging bridges.

The objective of this study was to quantify the costs of overweight damage to Virginia's highways and bridges and to identify alternative permit fee structures based on the costs of that damage. Damage caused by vehicles that are not overweight was not part of the analysis.

## Methods

The study's objectives were achieved through conducting the following tasks:

1. Review the sections of the *Code of Virginia* on overload and overweight permits and their current fee structure.
2. Identify the total FY07 cost of load-related damage to state-maintained highways and bridges.
3. Develop a pavement damage model based on equivalent single-axle loads (ESALs) of different vehicles.
4. Quantify the cost per overweight ESAL-mile of travel on Virginia's highways using VDOT-budgeted maintenance costs.
5. Develop a bridge damage cost model comparing the *moment* effects of overweight vehicles with the load-bearing capacity of bridges in the state-maintained inventory.
6. Identify unresolved policy questions for agency executives to consider

## Data Used in the Study

Several types and sources of data were required for this study:

- annual vehicle miles of travel (VMT) data for different classes of vehicles in Virginia from VDOT's Traffic Engineering Division
- Virginia weigh-in-motion (WIM) data
- VDOT's needs-based maintenance budget (NBB) for FY 07
- DMV data on all overweight permits issued in FY08
- VDOT Structure and Bridge (S&B) Division calculations for overweight permit applicants.

The WIM data used in this study are collected at five sites located on Virginia interstate routes and four sites located on Virginia primary routes. WIM data collected for every vehicle crossing the scales includes vehicle class (e.g., Class 9, 5 axle tractor trailers), gross vehicle weight (GVW), individual axle weights and axle spacings, and the vehicle's ESAL values. WIM data reflect some trucks traveling fully loaded, some traveling partially loaded, and some traveling empty.

An *ESAL* is defined to be one 18,000-pound single axle load traveling over a pavement. The ESAL concept is used within the American Association of State Highway and Transportation Officials' (AASHTO's) pavement design methodology (AASHTO, 1993) as a means to compare axles of differing load and configuration (e.g., single, tandem, etc.). As VDOT follows the *AASHTO Guide for the Design of Pavement Structures*, pavements are designed to carry a pre-determined number of ESALs before needing repair or rehabilitation (AASHTO, 1993). Thus, trucks with higher ESALs make more frequent pavement repairs necessary.

Budgeted costs for highway maintenance were obtained from VDOT's FY 07 NBB. Staff of VDOT's Maintenance Division advised the research team that the NBB was a more accurate indicator of the true condition of the state's highways than were actual maintenance expenditures (which can reflect unforeseen outlays for hurricanes, floods, etc.) or assessed maintenance needs. The maintenance budget includes numerous combinations of maintenance assets (e.g., flexible pavements) and maintenance activities (e.g. thin hot-mix asphalt overlays), general cost centers (e.g., administrative items), and federal projects.

## How FY07 Costs of Load-Related Pavement and Bridge Damage Were Identified

Not all damage to roadways is load related. Some maintenance needs (e.g., replacement of pavement markings) are attributable to wear (i.e., number of wheel passes over the pavement) rather than axle loads, per se. To quantify the total amount of *load- and moment-related damage* represented in the FY 07 maintenance budget, five VTRC engineers separately reviewed each asset × activity combination in the budget and identified the percentage of the cost that was ESAL related (from 0% to 100%). If there was disagreement about the percentages among the engineer panel, discussion continued until a consensus was reached.

For items in the maintenance budget that were not 100 percent attributable to axle load damage in the judgment of the engineer panel, the remaining damage that could be attributed to specific vehicle characteristics was assigned to any combination of the following categories, as appropriate:

- wear (number of axles, wheel passes)
- moment (for bridges)
- bus-related costs
- non-truck related costs
- truck only costs

Those costs judged to be unrelated to any specific characteristics of vehicles were assigned to the category of “common costs” (e.g., snow removal). *Common costs* are maintenance needs attributable to all vehicles in proportion to their use of the state’s highways (i.e., their number of vehicles miles traveled [VMT]). Only the ESAL- and moment-related maintenance costs were considered in this study.

## Results

### DMV’s Current Overweight Permit Process

Currently, haulers who wish their overweight vehicles to travel on Virginia highways apply to the DMV for an overweight permit. Any hauler may obtain a 1-year permit for a 1 to 5 percent *overload* extension of the axle and gross vehicle weight limits specified in the *Code*. The cost of a 5 percent extension is \$200. Growers of Virginia-grown farm or forest products may obtain an additional 5 percent extension (for a total of 10 percent).

Haulers with non-reducible loads that exceed the gross and/or axle weight limits in the *Code* and for which no other form of transportation is available may apply to DMV for an overweight permit. DMV issues *blanket permits* for qualifying vehicles at a cost of \$45 per year, with a \$40/year mileage fee (if applicable). Vehicles that do not qualify for blanket permits because of their gross or axle weights may be eligible for *single trip permits* at a cost of \$12.00 each with a mileage fee of \$0.10 per mile, if applicable. These haulers are given a specified restricted route to follow (to minimize damage to bridges). The heaviest vehicles may be eligible for a *superload* permit at a cost of \$12 each plus a structures research fee of \$4.00 per structure to be crossed and a mileage fee of \$0.10 per mile (if applicable). These haulers are also given restricted routes to follow (DMV, 2008). The VDOT Structure & Bridge (S&B) Division reviews all permit applications to determine which type of permit an applicant should be issued, based on potential damage to structures.

The *Code* also makes a number of haulers eligible for exempt (no cost) overweight permits. The exempt permit category includes haulers for concrete; containerized cargo; excavated material; cotton module; specialized well-drilling equipment; solid waste; Virginia-grown farm products in Accomack and Northampton counties; and sand, gravel, and crushed stone in the seven southwest Virginia coal severance counties. For most exempt permit holders,

travel on interstate highways is prohibited. Vehicles hauling coal are allowed to travel overweight, but the hauler must pay coal severance taxes in lieu of any permit fee. Petroleum tank wagons and water-blasting trucks are allowed to travel overweight, but the haulers must pay permit fees (DMV, 2008).

Table 1 summarizes DMV permits issued and permit revenues collected for FY08.

**Table 1. FY08 Overweight Permits Issued by the Virginia DMV**

Type of Permit	Number Issued	Permit Revenue
<b>Single trip</b>	75,500	\$1,647,000
<b>Blanket</b>	6,273	\$975,000
<b>Exempt (no cost)</b>		
Concrete Haulers (3 axles)	680	
Concrete Haulers (4 axles)	909	
Containerized Cargo	7386	
Cotton Module (3+ axles)	24	
Excavated Materials (3+ axles)	171	
Excavated Materials (4+ axles)	190	
Farm Produce, Virginia (5 axles)	52	
Solid Waste (2 axle)	64	
Solid Waste (3 axle)	1007	
Specialized Mobile Well Tender Trucks (3+ axles)	28	
<b>Other</b>		
Petroleum Tank Wagons	53	\$42,400
Underground Pipe Cleaning Trucks	12	\$1,580
Coal Hauling Trucks	750	
<b>Total Overweight Permits Issued</b>	<b>93,099</b>	<b>\$2,665,980</b>

### **FY07 Costs of Load- and Moment-Related Damage**

Table 2 shows the results of VTRC’s analysis of the FY07 maintenance budget. Not surprisingly, 81 percent of the costs were “common costs” unrelated to any characteristic of the vehicles themselves; 15.5 percent was attributable to load-related damage and 2.1 percent to moment damage to bridges.

**Table 2. Distribution of FY 07 Needs-Based Budget to ESAL-related Damage and Other Types of Damage**

Type of Damage	Estimated Cost	% Total Budget
ESAL related	\$ 174,922,957.70	15.55
Wear related (wheel passes)	\$ 10,574,684.00	0.94
Moment (Bridges)	\$ 23,701,466.74	2.11
Bus related	\$ 87,845.95	0.01
Non-truck	\$ 109,722.78	0.01
Truck only	\$ 2,046,688.56	0.18
Common costs	\$ 913,436,719.12	81.20
Total	\$1,124,880,084.85	100.00

### **Average ESAL Values for Vehicle Classes in Virginia**

Table 3 shows the average ESAL values for vehicle classes in Virginia from the WIM data. ESAL values for passenger cars were very small and were substantially larger for 5+ axle tractor trailers.

**Table 3. Average ESAL Values for Federal Highway Administration (FHWA) Vehicle Classes from WIM Data**

FHWA Vehicle Class	Vehicle Description	Average ESAL
1	Motorcycles	0.0002
2	Passenger Cars	0.0002
3	2 Axle, 4 Tire Single Unit Vehicles	0.0002
4	Buses	0.349
5	2 Axle, 6 Tire Single Unit Trucks	0.318
6	3 Axle Single Unit Trucks	0.602
7	4 or More Axle Single Unit Trucks	1.498
8	4 Axle or Fewer Single Trailers	0.464
9	5 Axle Single Trailers	1.052
10	6 or More Axle Single Trailers	1.120
11	5 Axle or Fewer Multi-Trailers	1.441
12	6 Axle Multi-Trailers	0.789
13	7 or More Axle Multi-Trailers	1.815

### ESAL-Miles of Travel by Vehicle Classes

The average ESAL value for each vehicle class multiplied by that class's average daily VMT yields *average daily ESAL-miles* of travel. *Total annual ESAL-miles of travel* on the state highway system can be calculated by summing the values for all classes and multiplying by 365. Table 4 shows average daily VMT and daily ESAL-miles for each vehicle class. All vehicle classes combined travel an average of 13.4 million ESAL-miles daily on Virginia's highways. Tractor-trailer trucks with 5 or more axles (Class 9) contribute 81 percent of total daily ESAL-miles of travel, and passenger vehicles contribute only 3 percent of the total. Even though passenger cars have far higher VMT, Class 9 tractor-trailers have a substantially higher ESAL-mile value.

**Table 4. Average Daily Vehicle-Miles and ESAL-Miles of Travel for FHWA Vehicle Classes in Virginia**

FHWA Class	Vehicle Description	Average Daily VMT	Average ESAL <sup>a</sup>	Daily ESAL-Miles
01	Motorcycles	745,360	0.0002	149.07
02	Passenger Cars	173,806,903	0.0002	34,761.38
03	2 Axle, 4 Tire Single Unit Vehicles	34,829,543	0.0002	6,965.91
04	Buses	1,260,520	0.349	439,906.14
05	2 Axle, 6 Tire Single Unit Trucks	1,748,275	0.318	556,296.36
06	3 Axle Single Unit Trucks	1,257,500	0.602	757,024.27
07	4 or More Axle Single Unit Trucks	293,524	1.498	439,585.14
08	4 Axle or Fewer Single Trailers	695,881	0.464	322,649.90
09	5 Axle Single Trailers	9,555,617	1.052	10,052,905.04
10	6 or More Axle Single Trailers	186,069	1.120	208,324.61
11	5 Axle or Fewer Multi-Trailers	367,658	1.441	529,806.27
12	6 Axle Multi-Trailers	121,382	0.789	95,805.91
13	7 or More Axle Multi-Trailers	767	1.815	1,391.88
<b>Total</b>		224,868,999		13,445,571.87

<sup>a</sup>Source: VDOT WIM data sample collected for this study.

## Maintenance Cost per ESAL-Mile of Travel on Virginia's Highways

The research approach used to calculate the overall *maintenance cost per ESAL-mile of travel* was as follows:

$$\frac{\text{FY 07 ESAL-related damage (in \$)}}{\text{Average daily ESAL-miles of travel x 365 days}} = \frac{\$174,922,958}{13,445,572 \times 365}$$

= \$0.0356 per ESAL-mile.

This value can be applied to all of a vehicle's ESALs or to only the overweight ESALs and can be used to calculate permit fees based on maintenance damage. In VTRC's 2007 legislative study on petroleum tank wagons, the overweight ESAL value from a 4,000-pound increase on the rear axle of a 2 axle truck (0.24 overweight ESALs) was multiplied by their average mileage of 30,000 miles/year and then by \$0.0366 for a recommended permit fee of \$265. (*Note:* \$0.0366 was the calculated ESAL-mile cost based on VMT data available in 2007. The VMT data and the ESAL-mile cost have been updated to reflect VMT data available in 2008.) The \$265 fee was approved by the General Assembly for 1 year (July 1, 2008 to June 30, 2009) pending completion of the HB1551 study.

## Development of the Bridge Damage Cost Model

Unlike pavements, Virginia bridges are usually designed to safely carry much heavier vehicles for a much longer period than are pavements. Nevertheless, certain heavy vehicles do damage bridges, shortening their service life. A bridge's response to a vehicle crossing is called *moment* (bending) in engineering terminology. Although moment is a complex calculation, for a given gross vehicle weight, it will generally be higher the more concentrated the load and the lower and the more dispersed the load is across a longer wheelbase, for a given vehicle weight and bridge span. Bridges of different span lengths are designed for a specific maximum value of bending, or moment. When that value is exceeded by a particular vehicle, bridge damage occurs. Over time, the damage necessitates costly bridge repair or rehabilitation.

The moment effect of any overweight vehicle on any bridge in VDOT's inventory can be calculated mathematically. That is, structural engineers can determine whether a vehicle will exceed the moment threshold for damage for a specific bridge. During the permit review process, VDOT's S&B Division routinely does this calculation for individual overweight permit applicants, comparing the vehicle's calculated moment effects to the design parameters for bridges of different span lengths. The final output of the permit evaluation process by the S&B Division is *one* of the following: (1) authorization for a blanket permit with possible restriction from a specified bridge group deemed to be insufficiently strong for the vehicle, (2) authorization for a single trip permit with a specified route and specified bridges, or (3) denial of authorization to travel on Virginia roads (i.e., no permit).

VTRC used the routine output of the S&B Division's permit reviews as the basis for its bridge damage cost methodology. The methodology differentiates between blanket and single trip permits, since blanket permit holders are granted unrestricted (or nearly unrestricted) use of

state-maintained bridges and single trip permit holders are not. The methodology differentiates overweight vehicles capable of damaging bridges based on a threshold value in the S&B Division calculations (i.e., overweight vehicles with an *effective tonnage* value of 36 or higher).

When VTRC researchers reviewed the S&B Division's damage (moment) calculations for all FY08 overweight permit applicants, they discovered that only 30,000 of the 92,000 overweight permitted vehicles were capable of damaging state-maintained bridges. The estimated FY07 cost of moment-related damage to bridges was \$23.7 million, however (Table 2). It did not appear feasible to distribute total bridge damage costs across such a small number of overweight vehicles. VTRC researchers, therefore, sought to develop a calculation method for bridge damage fees that would equitably distribute some amount of the total bridge damage costs across vehicles causing the damage. Policymakers would have the opportunity to make decisions about the amount of bridge damage to be recovered by fees.

VTRC's calculation method for *blanket permit* fees was based on an *annual* cost for each excess calculated effective ton the vehicle imposes on bridges. VTRC's fee calculation method requires that policymakers set a target bridge damage revenue amount to be collected for all blanket permits issued. Once that amount is set, VTRC's method allows the fees for individual overweight trucks to be calculated in an equitable way, based on their proportional share of all of the excess tonnage causing damage to bridges. Fees for individual vehicles are adjusted for the percentage of the state-maintained bridge inventory that the permit applicant is allowed to use (if less than 100%). Presumably, policymakers would be guided in selecting a revenue target by the amount of the resulting fees.

The VTRC method for calculating *single trip permit* fees differs from the method for calculating *blanket permit* fees because the single trip permit holders' use of bridges is restricted. The two methods are similar in several respects. Single trip permit fees would also be influenced by a policymaker-established base fee, adjusted to reflect the number of the state's bridges that the vehicle was eligible to use under the permit issued and the ratio of the vehicle's *effective tonnage* to that of the bridge's *operating rating*.. Bridges prohibited for use by the single trip permit holder would be excluded from the fee calculation.

Table 5 shows some sample fees using the VTRC pavement and bridge damage cost models that would result from actual FY08 overweight permit applications processed by the DMV. The table entries with distances under 500 miles reflect single trip permits. The pavement damage fees are sensitive to both the amount of the overweight ESALs and the mileage, as the table illustrates. Higher ESALs increase and/or lower mileage decreases the fee amounts.

**Table 5. Sample Overweight Pavement and Bridge Damage Fees from VTRC Calculation Methods**

Truck	Gross Vehicle Weight in Pounds (000)		Length (ft)	Distance (mi)	Permit Fee			
	Permit	Legal			Current	VTRC Damage Cost Model		
						Pavement	Bridge	Total
5 Axle Tractor Truck	100	80	54	50,000	\$165	\$3072	\$336	\$3,408
5 Axle Tractor Truck	92	80	48	50,000	\$165	\$1688	\$208	\$1,896
3 Axle Dump Truck	60	46	22	10,000	\$45	\$519	\$277	\$796
4 Axle Concrete Truck	70	58	25	10,000	\$0	\$971	\$187	\$1,158
7 Axle Tractor Truck	122	80	64	20	\$14	\$10	\$44	\$54
7 Axle Tractor Truck	132	80	78	335	\$46	\$50	\$100	\$150
7 Axle Tractor Truck	132	80	57	335	\$36	\$50	\$111	\$161
9 Axle Tractor Truck	168	80	92	335	\$50	\$96	\$121	\$217

### Fee Administration

The VTRC fee calculation methods take advantage of a number of kinds of information that are already routinely reported in the permit application process (e.g., truck configuration, gross- and axle weight increases sought, and in some cases, mileage). The bridge damage fee calculation methods build upon structural analysis that is already routinely performed by the VDOT S&B Division as part of the permit review process.

For cases in which the mileage to be traveled under the permit is not currently obtained, this could be readily added to the application form. Alternatively, average annual VMT is available by both vehicle class and GVW from the FHWA. Mileage reported by the permit applicant could be more accurate.

### Industry Stakeholder Participation in the Study

The stakeholder group for the study was nominated in several ways. Some individuals were nominated by the patron of HB 1551, Delegate Dan C. Bowling; some were contacts of the staff of DMV Motor Carrier Services (the entity responsible for issuing overweight permits); and some stakeholders, once contacted, suggested additional members for the group. The HB 1551 stakeholder group included the following individuals:

- Mr. Doug Easter and Mr. Peter Easter, Easter Associates—representing the Ready-Mixed Concrete Association
- Ms. Donna Pugh Johnson—representing Virginia AgriBusiness
- Mr. Andrew Smith—representing the Virginia Farm Bureau
- Mr. Paul Howe—representing the Virginia Forestry Association
- Mr. Randy Bush—representing the Virginia Forest Products Association
- Mr. Ron Dunlap—representing the Virginia Mobile Manufacturing Housing Association
- Mr. Michael O’Connor—representing the Virginia Petroleum, Convenience, and Grocery Association
- Mr. P. Dale Bennett—representing the Virginia Trucking Association
- Mr. Mark Singer—representing the Virginia Utility and Heavy Contractors Council

Mr. Philip Abraham—representing the VECTRE Corporation, a Virginia government relations and lobbying firm

Ms. Jill Lavoie—representing Falcon UHP, a hydroexcavation firm

Mr. Donald Ratliff—representing Alpha Natural Resources, a coal company

Mr. Kenneth Taylor—representing W&L Construction and Paving.

Ms. Lavoie and Mr. O'Connor had been interviewed by the researchers during the information-gathering phase of the 2007 legislative studies of hydroexcavation trucks and tank wagons.

After the first stakeholder meeting in June, 2008, Mr. Dunlap said that his industry's concern was not overweight permits but oversize permits for manufactured housing and did not think HB 1551 was relevant to his industry.

Two meetings with the stakeholders were held in Charlottesville: the first in June 2008 and the second in November 2008. The 5-month period between the meetings was due to the difficulty and complexity of developing the bridge damage cost model, which was not completed until the end of October 2008.

At the first stakeholder meeting, participants were briefed on the study mandate. Mr. Ken Jennings of DMV's Motor Carrier Services Division made a presentation on Virginia's current overload and overweight permitting processes, and VTRC staff made a presentation on the pavement damage cost model and the findings of the three 2007 legislative studies on overweight trucks. An open discussion of the business impacts of the current overload and overweight allowances in Virginia followed.

Stakeholders made the following comments about the importance of overweight allowances in their industry:

- The length of timber affects weight.
- The moisture content of farm products affects weight.
- It would be very difficult for the companies to operate without overweight axle loads.
- It is very difficult to determine the trucks' weight at the job site.
- The trucks travel empty half the time.
- Hauling companies are trying to minimize costs to customers by carrying added weight.
- The cost of transportation as a percentage of product costs has increased significantly.
- Trucking companies, not shippers, pay fines for overweight violations.
- In some industries (e.g., ready-mix concrete), the truck body alone is so heavy that overweight allowances are crucial.
- Some industries (e.g., underground pipe cleaning) want to be able to dump their loads as close to job sites as possible.
- Many of the current exempt overweight permits in Virginia are for "first phase" production.
- It is a very difficult time economically for haulers—nobody wants any additional costs.
- Haulers greatly dislike localities exercising enforcement powers.

- Truck registration fees went up substantially in 2007 as a result of actions by the General Assembly.
- Virginia's economic competitiveness needs to be considered (e.g., containerized cargo volumes).
- If overweight permit fees are imposed or increased, the costs will be passed on to VDOT (i.e., by excavation, paving, or construction companies).
- Haulers are going out of business; demand is down.

At the second stakeholder meeting, participants were briefed on the VTRC bridge damage cost model and how bridges are damaged by some (but not all) overweight trucks. In addition, participants were shown some examples of calculated pavement and bridge damage fees. There was a discussion of unresolved policy questions, and the participants were again invited to share the perspectives of the business they represented. These perspectives included the following:

- They were unsure whether the WIM data that were used in the VTRC pavement damage cost model capture as many miles as some haulers travel empty.
- They thought that the statewide average ESAL values for truck classes from the WIM data might be higher than the average ESALs for their trucks; they thought that their trucks may travel empty more of the time than a statewide sample of trucks
- They suggested that presentations of the VTRC pavement and bridge damage cost methods be made as accessible (non-technical) as possible to lay audiences.
- They pointed out that overweight permitting is different for coal trucks because of the coal severance taxes the companies pay. That is, overweight permits for coal trucks are not exempt (no-cost). Severance tax proceeds can be used in part by counties for road improvements.
- They questioned whether FHWA average annual mileage for trucks by vehicle class was accurate for some haulers in Virginia. Some FHWA mileage figures for specific truck configurations seemed high to stakeholders representing particular industries (FHWA mileage figures were used in sample fee calculations).
- They asked if the researchers would do some additional sample fee calculations, using specifications of trucks similar to those of the haulers they represent.
- They asked whether other states are collecting damage fees from overweight permit applicants.
- They said that an overarching policy question related to the study was: "Should the few pay for the many?"
- They asked whether haulers in Virginia were already paying enough if all of the various fees and taxes they pay were considered. A related comment was that overweight trucks have lower fuel efficiency and, therefore, these haulers contribute more to transportation funding.

In response to some of the stakeholders' questions and comments, the VTRC researchers offered the following comments:

- Although the VTRC research uses a large amount of WIM data, the data are for vehicle *classes*. Industry-specific mileage data within the vehicle classes were not available to the researchers.
- It is probable that many haulers represented in the study's WIM data are traveling empty on return trips.
- In the absence of industry-specific average annual mileage figures, the researchers had no choice but to use FHWA data on average annual mileage by vehicle GVW in sample fee calculations.
- Unfortunately, the data simply do not exist in Virginia to allow a cost allocation study that could fully account for all taxes and fees paid by the owners of trucks or other vehicle classes.
- DMV staff said that Virginia's permit fees are comparatively low.
- DMV staff said that some states (e.g., New York) impose ton-mile fees for highway damage.
- VTRC staff agreed to separate coal-haul permits from the exempt, no-cost group.
- VTRC staff agreed to calculate sample fees for trucks more typical of those used by the stakeholders' industries. Staff encouraged stakeholders to send them typical truck configurations and weights for use in examples.
- VTRC staff invited the stakeholders to send them written input on the business needs of their industries to travel overweight and related constraints (see Appendix B).

### **Policy Questions to Be Addressed**

Although the VTRC pavement and bridge damage calculation methods are based upon current design procedures for both types of infrastructure and yield fees in proportion to the damage different vehicles cause, some important policy considerations or questions remain. These include:

- *Whether policymakers wish to charge fees for overweight pavement damage, bridge damage, or both.* Based on VTRC's analysis of the NBB, the cost of load-related damage to pavements is about 7.5 times the cost of load-related damage to bridges.
- *The balance between recovering maintenance impacts and potential impact on industries.*
- *Whether policymakers wish to continue to exempt any categories of haulers from paying overweight fees (if legislation is proposed).*
- *The reasonableness of fee amounts resulting from the VTRC calculation methods in some cases.*
  - A related question is whether policymakers would choose to cap the maximum fee amount, as is done for some other kinds of fees in the *Code*.

- The bridge damage fee calculations necessarily use inputs from policymakers (either a fee revenue target for blanket permits or a base fee for single trip permits).

### References

American Association of State Highway and Transportation Officials. *Guide for Design of Pavement Structures*. Washington, DC, 1993.

Virginia Department of Motor Vehicles. *Virginia's Size, Weight, and Equipment Requirements*. Publication 109. Richmond. <https://www.dmv.virginia.gov/webdoc/pdf/dmv109.pdf>  
Accessed November 4, 2008.

## APPENDIX A

### CHAPTER 864

*An Act to authorize the review of the current fee structure applied to vehicles operating under permits for weight pursuant to Articles 17 and 18 of Chapter 10 of Title 46.2 of the Code of Virginia and to amend and reenact the second enactment of Chapter 738 of the Acts of Assembly of 2007, relating to vehicle weights; fee structure.*

[H 1551]

Approved April 23, 2008

Be it enacted by the General Assembly of Virginia:

**1.** *§ 1. The Department of Transportation, in consultation with the Department of Motor Vehicles and representatives of the industries that own and/or operate overload and overweight vehicles, shall review the current fee structure applied to overload and overweight vehicles operating on the highways of the Commonwealth pursuant to Articles 17 (§ 46.2-1122 et seq.) and 18 (§ 46.2-1139 et seq.) of Chapter 10 of Title 46.2 of the Code of Virginia.*

*The review shall endeavor to determine what, if any, additional fees should be associated with damage and additional maintenance costs caused by such vehicles and what mechanism is best suited for the collection of such additional fees.*

*Based on this review, the Commissioner of the Department of Transportation, in consultation with the Department of Motor Vehicles and affected industry representatives, shall recommend legislation regarding the fee structure applied to overload and overweight vehicles operating on the highways of the Commonwealth to the Governor and the members of the Senate Finance and Transportation Committees and the House Appropriations and Transportation Committees no later than December 1, 2008.*

**2.** That the second enactment of Chapter 738 of the Acts of Assembly of 2007 is amended and reenacted as follows:

**2.** That from July 1, 2007, to ~~July 1, 2008~~ *June 30, 2008*, the annual overweight permit fee shall be \$800 for each eligible vehicle. *Such vehicles shall pay an annual overweight permit fee of \$265 from July 1, 2008, to June 30, 2009.* The Commonwealth Transportation Board, in consultation with the Commissioner of the Department of Motor Vehicles, shall establish a fee structure that shall become effective on July 1, ~~2008~~ *2009*, based on the results of a study of overweight vehicles.



**APPENDIX B**

**WRITTEN COMMENTS RECEIVED FROM MEMBERS  
OF THE STUDY'S STAKEHOLDER GROUP**



November 14, 2008

Amy,

Thank you for including Virginia Farm Bureau in the meetings on the study as a result of HB 1551 looking into the overweight and overload permits fee schedule.

You previously requested bullet points on the importance of the exemptions and allowances for out industries.

As mentioned in the meetings, our exemptions and permit allowances are in place because of the limited loads that travel the Virginia highways and difficulty in estimating loaded weights. In general these loaded trucks are during harvest season and the agricultural producer only hauls a few loads in a year's time. During harvest they are dealing with trying to get the crop to the market before it is lost in the field and are dealing with the varying moisture content of the crop being harvested. In each crop there is optimal % moisture they strive to harvest at, but Mother Nature doesn't always cooperate. When a crop is harvested that may be a few percent higher in moisture it can add significantly to the gross weight of the truck. Since they are not able to have a scale in each field a harvest is taking place they will have to estimate the loaded weight.

In reviewing the presentation made during Monday's meeting, we agree with the comment made concerning the report that will be submitted to the General Assembly. Any report must have examples in the typical trucks traveling the Virginia highways. So when the tables are updated, in addition the "extreme" examples, we believe a companion table should be created to show the impact the average trucks makes.

We believe the fuel tax increase and registration increases all of the truck industry has experienced in the recent years is sufficient burden to place on this segment at this time. The exemptions that our industry is allowed are certainly needed in the difficult situations they are in during harvest.

Again, thank you for allowing our participation. We look forward to reviewing the final report.

Andrew W. Smith

Andrew W. Smith  
Senior Assistant Director  
Governmental Relations  
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P.O. Box 2345  
Abingdon, VA 24212

November 12, 2008

Dear Ms. O'Leary:

Please consider the following comments as the sentiments of Alpha Natural Resources. First let me state that Alpha is one of the largest employers of Southwest Virginia and is the nation's largest producer of metallurgical coal, as well as the largest exporter of coal in the United States. Please consider this brief history in support of our position that coal trucks in the Commonwealth should be exempt from being charged fee for permits.

In 1979, the coal industry in Southwest Virginia supported paying a Severance Tax in the coal producing counties in exchange for the current method of calibration of each truck. It is based on the maximum volume each truck can haul. The calibration system has worked well in the industry. In return, the coal companies have paid the required percentage of severance tax to each coal producing county. Half the severance tax goes to each county's General Fund and the other half is used to repair the roads where the coal trucks operate. Additionally, a percentage funds the Virginia Coalfield Economic Development Authority (VCEDA), and another bill was introduced later to help with water projects. This past year, the coal industry paid the counties based on the sales price of coal. The amounts collected by each county are as follows:

***For FY08 (7/1/07 to 6/30/08) from coal and gas tax:  
Full 2 % (Source---VECDA)***

Buchanan	\$14,366,472
Dickenson	\$8,495,864
Lee	\$380,272
Norton	\$0
Russell	\$2,508,704
Scott	\$28,504
Tazewell	\$1,411,776
Wise	\$12,005,128
<b>Total</b>	<b>\$39,196,720</b>

As you can see, we pay our share of revenue into the system. It is our opinion that the coal industry pays more than most. Granted it does not all go to VDOT, but it does provide funds to repair roads damaged by the coal trucks and VDOT is involved on the local level.

The sand and gravel trucks in Southwest Virginia were put under this section of the code 8 or 10 years ago when the coal industry was in a decline. At that time, several small companies, many

that only owned one truck, began to earn a living by hauling sand and gravel in what was once a truck used to haul coal. This whole review began when Delegate Dan Bowling put in a bill to remove the sunset on that group of truckers. It is true that they do not pay into a severance tax fund as required of the coal industry, but is it also true that if this exemption is removed, they will be forced out of business. This will add to a declining economy at a time when we need to keep people working. The financial impact to these truck owners will be great and this should be taken into consideration while this code is being reviewed.

Furthermore, the trucks associated with the gas and oil industry will likewise be impacted by HB 1551. The service trucks and drill rigs of these companies should be exempt from permanent fees for many of the same reasons noted above. The Gas industry pays a percentage of Severance Tax for gas sold in the same counties that coal is being produced. Virginia has over 6,000 gas wells in Southwest VA.

Your consideration of these comments will be appreciated.

Respectively submitted,

A handwritten signature in cursive script that reads "Donald L. Ratliff". The signature is written in black ink and is positioned above the printed name.

Donald L. Ratliff  
Vice President of External Affairs

November 17, 2008

Amy,

Though we have multiple clients who would be impacted by increased fees for special truck weight permits, my main concern at this point is the ready-mixed industry.

As you are well aware, the construction economy, both residential and commercial, is in a very serious recession, and the ready-mixed concrete suppliers are starving for business.

Accordingly, it would be an imposition on these companies when their sales are very low, but it would be one more disincentive to getting the construction economy back on track.

Regards,  
Peter

Peter Easter  
Virginia Ready-Mixed Concrete Association  
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Fax: 434-979-2439  
[peter.easter@easterassociates.com](mailto:peter.easter@easterassociates.com)



November 17, 2008

Amy:

I represent the Old Dominion Highway Contractors Association which is comprised of mostly small and medium size highway contractors. Our members are struggling greatly under current economic conditions, repeated cuts in the VDOT construction and maintenance program and significant increases in materials costs. Many of our members have had to layoff employees and scale back their operations as a result of these economic conditions. Some are struggling to stay in business or are being forced to sell their operations to survive. I am very concerned about any proposal that would further increase the cost of doing business on our members during such dire economic times. I am also concerned that the examples of increased permits presented at the last meeting are significantly higher than those presented by Gary Allen regarding the sand and gravel trucks operating in the coalfields. I am also concerned that these increased costs will ultimately have to be passed back onto VDOT by its contractors thereby putting even greater strain on ever-dwindling VDOT maintenance and construction revenues. In short, now is not the time to be raising taxes and fees on Virginia's highway contractors, its construction industry or truckers. Thank you for the opportunity to present our views. Please contact me if you have any questions on this. Phil

Philip F. Abraham  
Director and General Counsel  
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Richmond, VA 23219  
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Virginia Loggers Association  
33 Morewood Pl.  
Palmyra, VA 22963  
434-589-1942

November 17, 2008

Amy A. O'Leary, Ph.D.  
Associate Director  
Virginia Transportation Research Council

Dear Amy:

The Virginia Loggers Association would like to offer the following comments regarding the HB 1550 study. While we appreciate the complexity of the issue and acknowledge that your findings are “theoretically” possible, in the real world there are some flawed assumptions. Loggers, farmers, and construction contractors that use the blanket permits discussed, in general only make short and infrequent moves. The large equipment moved is only done job to job and these moves are held to a minimum since the equipment must be on site and working to provide income. Moving these machines is a cost to the business. I would ask that you include more “real world” comparisons to give to the legislators.

Further more, these industries including logging have had increasing transportation costs and are currently struggling. Any addition cost could prove detrimental to the entire industry. We would ask that consideration be given to the entire economic picture.

The other permits loggers use for product weight tolerance, are needed due to the extreme weight variability of our product and the lack of accurate weight options in the field and woods. We are pleased this permit is not under consideration for the study. This permit is very necessary for a viable industry and further cost increases would have strong negative impacts.

Jim Mooney, Executive director

November 18, 2008



Hi Amy:

I just want to reiterate some of the comments I am sure you heard loud and clearly at our last meeting.

First, truck configuration examples need to be based on real-world vehicles, not magical ones created by bureaucrats to help them perform calculations for a bridge-weight formula.

Second, it would be helpful to take a mega large, large, and mid-size overweight truck and apply the proposed ESAP formula. Then determine all annual fees and taxes paid by each of these vehicles (fuel tax, license and registration fees, etc.). Finally subtract the total of fees and taxes from the ESAP cost to determine the "unfunded balance."

Thanks for all of your work on this issue.

Mark Singer  
Virginia Utility & Heavy Contractors Council  
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ph - 804.346.1020  
fx - 804.346.8287  
email - [mark.singer@vuhcc.org](mailto:mark.singer@vuhcc.org)  
[www.vuhcc.org](http://www.vuhcc.org)



**From:** Dale Bennett [mailto:dbennett@vatrucking.org]

**Sent:** Wednesday, November 19, 2008 4:19 PM

**To:** O'Leary, Amy A.

**Cc:** Andrew Smith; Donald Ratliff; Donna Pugh Johnson; Doug Easter; Jill Lavoie; Jim Mooney; Kenneth Taylor; Mark Singer; Michael O'Connor; Paul Howe; Peter Easter; Philip Abraham; Randy Bush; Steve Catalano

**Subject:** Re: Input from Your Business for HB 1551 Overweight Trucks

Amy:

As requested, below are some comments on our perspective of the overload/overweight permit study. But, considering that the presentation on the study is being given to the CTB as I type this, I assume they won't be given much consideration at this point.

Sincerely,

Dale

First, I forwarded a copy of the power point presentation to the Director of Highway Policy for the American Trucking Associations for his review. Because it is difficult for him to do a good evaluation based just on the presentation, he has asked if the full study or some other document that contains more details and explanations of the concepts and formulas in the presentation is available for him to review.

Second, we would like to see what the proposed fee for a blanket for the following 2 tractor-trailer combinations would be:

Combination # 1

Minimum wheel base = 44 ft.

Minimum # axles = 5

Maximum gross weight = 90,000 lbs.

Maximum single axle weight = 24,000 lbs.

Maximum tandem axle weight = 44,000 lbs.

Assume annual loaded mileage of 40,000 miles

Combination # 2

Minimum wheel base = 33 ft.

Minimum # axles = 5

Maximum gross weight = 83,000 lbs.

Maximum single axle weight = 24,000 lbs.

Maximum tandem axle weight = 44,000 lbs.

Assume annual loaded mileage of 40,000 miles

Finally, here are some general points/observations:

- Any permit fee increases proposed as a result of the HB 1551 study must be considered in conjunction with the hauling permit fee increases contained in DMV's proposed Hauling Permit Regulation published in the October 27, 2008 issue of the Virginia Register of

Regulations. DMV is proposing increases of 66% to 150%, which will compound the negative impact on the industry of any fee increases proposed by the HB 1551 study.

- The General Assembly recently imposed tax and fee increases on the trucking industry in 2007 through a 1.5 cents per gallon increase in the tax on diesel fuel and the motor carrier road tax, resulting in a tax that is 3.5 cents higher than the gas tax; a 22% increase in registration fees for certain motor carriers; increases in the registration fees for heavy trailers; and significant increases in the overweight penalties and fines.
- Current economic conditions preclude the trucking industry from being able to absorb any increases in the permit fees. This year's record-high fuel prices and soft freight demand have taken the deepest ever toll on the trucking industry with a record number of companies failing in the first three quarters of 2008. According to one leading trucking analyst, "the first three quarters of 2008 have already established a new record for the amount of capacity pulled from production within a single year. Never have more trucks been pulled off the road in a shorter period of time than in the first three quarters of this year." A total of 2,690 companies located throughout the U.S. with 5 or more trucks went out of business between January and September. Imposition of any level of regulatory compliance costs at this time could have a significant negative impact on Virginia's trucking industry. These are fee increases that the industry can ill afford at this time.
- In addition, current economic conditions preclude trucking companies from passing fee increases on to their customers. Industries such as home construction, road building, retail, etc. are struggling to keep their doors open. They can ill afford increases in their transportation costs and would likely be very resistant in any increases in transportation rates to offset increases in the permit fees.
- Now is not the time to be imposing significant fee increases on industries, i.e. trucking and their customers, that are struggling just to stay in business.

**VIRGINIA OIL & GAS  
ASSOCIATION**  
PO Box 2285  
Abingdon, VA 24212



November 20, 2008

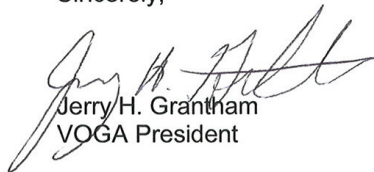
Amy A. O'Leary, Ph.D.  
Associate Director  
Virginia Transportation Research Council  
530 Edgemont Road  
Charlottesville, VA 22903-0817

Dear Ms. O'Leary,

The Virginia Oil and Gas Association requests that trucks working in the gas and oil industry in Virginia be exempt from the overweight permit fee as proposed by HB 1551. The Virginia gas and oil industry already pays 3% severance tax on all gas produced in the Commonwealth. From the time period July 1, 2007 to June 1, 2008 a total of \$20,500,000 was collected from severance taxes on gas production and all this money went back to the counties from which the gas and oil was produced.

A significant portion of this gas severance tax already goes to the Road Improvement Tax to maintain and upgrade roads in southwestern Virginia where gas industry vehicles operate. We believe to tax these vehicles further would be unfair and have a negative impact upon the gas industry in Virginia and the economic benefit that it brings to that region.

Sincerely,

  
Jerry H. Grantham  
VOGA President