



**Joint Commission on Transportation
Accountability**

Overweight Vehicle Subcommittee Update

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DMV Permits Issued FY08

Type	Total # Issued	# of Overweight Permits*	Overweight Permit Revenue*
Blanket	6,273	4,619	\$678,008
Single Trip	75,458	26,641	\$1,013,181
Tank Wagons	53	53	\$44,785
Hydroexcavators	12	12	\$1,580**
Exempt	10,576	10,576	\$0
Coal/Gravel	857	722	n/a
Total	93,229	42,623	\$1,737,554

* Includes all permit durations (3M, 6M, 1Y, 2Y)

**VTRC estimate

Engineering Principles

- **Impact of overweight and overload vehicles is different for pavements and bridges**
- **Pavements**
 - Load on each axle is important
 - **Equivalent Single Axle Loads (ESALs) allow for comparison of pavement damage between different vehicles (AASHTO)**
 - **Pavement is designed for lifetime ESALs, each vehicle consumes some portion**
- **Bridges**
 - **Total load, load on each axle, and axle spacing are important**
 - **Significant damage does not occur until load exceeds design standards, but fatigue damage occurs with each pass**

Pavement Cost Analysis Methodology (Axle Weights)

- Methodology can estimate the added maintenance cost from a single overweight trip or for blanket permits (based on assumed mileage)
- Uses average axle weights of all vehicles to determine cost per ESAL-mile traveled
 - Virginia weigh-in-motion (WIM) data
- Accounts for miles trucks travel at less than full capacity in blanket permit fees; assumes trucks are full in single trip permit fees
- Methodology could be used to establish fees for any vehicle (not just overweight vehicles)

Bridge Cost Analysis Methodology (Total Weight, Axle Weights & Spacing)

- **Damage functions for bridges are much more complicated than for pavements**
 - Each bridge would have to be analyzed individually for each overweight vehicle because of differences in design
- **Flat fee approach could be reasonable option**
 - Flat fee per axle is common on tolled structures nationwide
 - City of Suffolk website states that it now charges \$300 per blanket permit and \$75 for single trip for oversize and overweight vehicles

Findings

- **Permit fees for overweight vehicles can be estimated that relate axle weight and configuration to pavement damage using ESAL concept (AASHTO)**
- **Based on 2006-2007 Virginia WIM and VDOT data, the fee was estimated at 3.56 cents per ESAL-mile for pavements**
 - Rate should be reviewed over time to account for changes in the characteristics of travel, haul weights and vehicle configuration
 - Could be updated periodically
- **For bridges, a flat fee could be assessed based on recovering a certain proportion of weight-related maintenance costs**

Applying the Method: Example Fees

Truck	Legal load (000 lbs)	Requested Overweight Load (000 lbs)	Assumed Distance (mi)	Existing Permit Fee (annual)	Potential Permit Fee (<i>pavement only</i>)
4-axle concrete truck	58	70	10,000	\$0	\$157 (B*)
6-axle tractor trailer	80	100	50,000	\$85	\$1800 (B*)
7-axle tractor trailer	80	132	335	\$45.50	\$50 (ST*)
9-axle tractor trailer	80	168	335	\$51	\$63 (ST*)

* B - blanket permit, ST- single trip permit

Overweight Permit Fee Administration

- **Pavement damage fees**
 - **Truck configuration and axle weights are reported in permit applications now**
 - ESALs can be readily calculated from this
 - **Estimated mileage would need to be reported to DMV**
- **Bridge damage fees**
 - **VDOT Structure and Bridge collects relevant data regarding overweight vehicles to assess the potential damage to bridges**
 - **Flat fees could be used for blanket permits & single trips**

Issues Related to Overweight Permit Fee Structure

- **Should fees be based on pavement impacts, bridge impacts, or both?**
- **Fee is consistent with damage imposed but some fees are infeasibly large**
 - **Could establish brackets, flatten schedule**
- **Whether to keep current exemptions in place**
 - **Impact on ports if containerized cargo loses fee exemption**
- **Changes in trucking operations should be expected**
 - **Revenue projections difficult**
 - **Potential for less-damaging truck configurations**

Concluding Remarks

- **A rational method is available for developing an ESAL-related fee schedule for pavements**
- **A reasonable approach for bridges would be a flat fee**
- **ESAL-related fees using the VTRC methodology as a foundation would provide incentives for axle configurations that are less damaging to pavements**