



0-6736: Rider 36 OS/OW Vehicle Fees Study

Background

Increased oversized and overweight (OS/OW) truck traffic associated with our state's growing economy has amplified long-standing concerns about the impact of that traffic on Texas highways. In many instances OS/OW trucks are operating over highways, roads, and bridges not designed for either the weight or volume of that traffic. In fiscal year (FY) 2011, the state issued almost 600,000 permits for loads that exceeded state and federal size and weight limitations and generated \$111 million in revenue.

As a consequence, the Texas Legislature in Rider 36 of the 2012–2013 General Appropriations Act directed the Texas Department of Transportation (TxDOT) to conduct a study on road damage caused by OS/OW trucks (including those currently exempt), and to provide recommendations for permit fee and fee structure adjustments to the Legislative Budget Board and the governor.

What the Researchers Did

The project developed methodologies to quantify pavement and bridge consumption rates per mile. The team used DARWin-ME, endorsed by the American Association of State Highway and Transportation Officials (AASHTO), to develop the pavement consumption model. The model calculates the pavement life, in years, for legal traffic loadings and the reduction in life resulting from the addition of OS/OW traffic loads. The analysis then determines the additional cost to construct a pavement that can carry both the legal and the OS/OW loads for the original design life, which is typically 20 years. This method provides information needed to calculate the

OS/OW consumption rate/vehicle miles traveled (VMT), which only considers the marginal or increased cost due to the additional load above legal limits.

The bridge analysis concept is based on a widely accepted bridge structural analysis method and utilizes bridge information contained in the TxDOT Bridge Inspection and Appraisal Program for each structure. The bridge analysis evaluates the relationship between bridge life consumption for bridge rating loads and for OS/OW loads to determine the consumption due to the OS/OW loads. Since bridges are location specific, the bridge rate/VMT was determined as the total cost of bridge consumption for a given route divided by the loaded VMT.

The consumption models are modular in nature and can be used to calculate the consumption costs for a wide range of OS/OW vehicle configurations. The models can also be updated

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to incorporate unique or unusual vehicle configurations.

The consumption rates were calculated for multiple axle loads and configuration independent of the commodity being transported. The estimated unit costs equated to 3.7 cents/equivalent single axle load (ESAL)/mile for flexible pavements and 2.9 cents/ESAL/mile for rigid pavements. For bridges the consumption per mile for routed loads ranged between 0.23 cents per mile for a gross vehicle weight of 80–120 kips, 0.38 cents per mile for 120–160 kips, 0.49 cents per mile for 160–200 kips, and 0.90 cents per mile for 200–254 kips. Per-mile fees for bridges were also calculated for non-routed loads.

In addition to the consumption rates for bridges and pavements due to the effect of axle loads, the team also identified \$60 million in additional annual costs not currently addressed in permit fee calculations, such as law enforcement costs and damage to roadside appurtenances. Based on these costs and consumption rates, the researchers developed a new fee schedule that considers costs associated with oversize vehicles that exceed legal width, height, or length for 34 rate categories. These new fees were also calculated based on VMT. The research team also developed a model that could be used by operators to calculate their permit fees using the new fee schedule, type of vehicle, axle configurations, counties operating within, and VMT.

What They Found

Based on the new permit fee structure, the research team compared FY 2011 permit sales and associated revenue to the new permit fee rates that were developed. The new permit fee rates would generate an estimated \$521,390,308 in annual permit revenue. This represents an increase of 368 percent over actual FY 2011 permit fee revenue. In addition, using the new permit fee structure on currently exempted vehicles, the team estimated that revenue would be \$149,662,775.

What This Means

Using their infrastructure consumption and cost analyses, the team developed a model fee structure that would allow TxDOT and other state agencies involved with administering OS/OW permits and enforcing permit regulations to recover all or part of the costs associated with OS/OW loads. The model reflects the *marginal* costs of the extra load or dimension when compared with trucks adhering to state and federal legal limits, which were unaffected by permit fee increases included in the model. The report provides policy makers with a methodology based on science and economics when evaluating potential policy changes to determine how best to make the system more equitable while continuing to benefit our state's agricultural, industrial, and business sectors that depend on using OS/OW trucks.

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