

# Effects of Hauling Timber, Lignite Coal, and Coke Fuel on Louisiana Highways and Bridges

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## Problem

Louisiana Senate Concurrent Resolution (SCR) 123, which was passed during the 2004 regular session, urged the Louisiana Department of Transportation and Development (LADOTD) to study the laws governing the operation of vehicles that haul Louisiana products in excess of the current legal standard limitation of 80,000 pounds gross vehicle weight (GVW).

The resolution specifically named timber, lignite coal, and coke fuel to be included in the study. Timber is harvested in all but two Louisiana parishes, and forestry products accounted for almost 22 percent of the state's total agricultural produc-

tion in 2003. Lignite coal is mined at two locations in northwest Louisiana. A by-product of petroleum processing, coke fuel is transported to end users by rail cars, ocean-going vessels, barges, and trucks. This project will address only the trucks that transport coke fuel.

SCR 123 also requested that the study consider the economic and fiscal impacts to the state and the industry if these loads are permitted to exceed the present legal limitations; examine the adequacy of current special permit fees; and review surrounding states' laws governing the operation of heavily loaded vehicles on highways, roadways, and bridges.



Log truck traveling on a rural highway



LTRC



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Sponsored jointly by the  
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## Objective

The principal objectives of this study are to 1) assess the impact of vehicles hauling forestry, lignite coal, and coke fuel products on the maintenance and rehabilitation of Louisiana state highways and bridges under current state laws, and 2) provide the legislature with proposals that would modify current laws by providing new weight restrictions to address road and bridge damage understanding the economic importance of these Louisiana industries.

## Description

While some timber trucks begin traveling on parish roads adjacent to the land where the timber is harvested, this study will focus on the highways and bridges that LADOTD is responsible for constructing, rehabilitating, and maintaining. The routes used to transport timber, lignite coal, and coke fuel will be identified with the help of industry representatives. Since the evaluation of all routes is not feasible, a random sample of roads and bridges will be selected using sound statistical methodologies.

Even though the study will not include off-system roads, a sample of off-system bridges from the bridge inventory will be used to assess the effect of overweight vehicles on their performance. The performance and design requirements of highway bridges are affected by the maxi-

imum allowable GVW, and bridge performance is sensitive to the magnitude and spacing of truck axle loads. Heavy truckloads can impact a bridge's safety, serviceability, and durability. While compromises can be made with respect to serviceability and durability in the interest of transportation efficiency, the fundamental safety of the existing bridge system must always be maintained.

Researchers will develop models to predict pavement distress based on anticipated loads, and finite element models will evaluate the effect of heavy loads on bridges. A complete assessment of the effect of various GVW and axle configuration scenarios on future maintenance and rehabilitation costs will be provided. Researchers will use this analysis, along with a survey of surrounding states' overweight vehicle laws, to develop recommended changes to the current weight laws and permit structures. Finally, they will prepare presentation materials for LADOTD administrators to use in communicating these proposed changes to various legislative committees.

## Implementation Potential

LADOTD will present the findings and recommendations from this study to the state legislature so that they may make more informed decisions regarding the appropriate assessment of roadway user fees.