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## SECTION 8

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### *Economic Impacts*



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## Economic Impacts

### Introduction

This section describes the economic impacts of allowing the nondivisible exemption to the structures and pavements. This study also considered the economic impacts both with and without the nondivisible exemption to employment and payroll taxes, property values and taxes, and construction costs.

### Highway Cost Allocation Study

The federal Highway Cost Allocation Study (HCAS) of 1997 analyzed the highway related costs that can be attributed to different classes of highway vehicles (passenger cars, single unit trucks, and combination trucks) as a basis for evaluating the equity and efficiency of the existing federal highway user taxes. The principal basis for equity evaluations is to compare the responsibility of different vehicle classes for highway program costs to the taxes paid by these different vehicle classes. Costs include construction of new pavements, pavement reconstruction, rehabilitation, and resurfacing, construction of new bridge structures, system enhancements and other special project costs. These costs are compared with fuel taxes, vehicle excise taxes, tire taxes, and heavy vehicle taxes paid.

Equity occurs when the total highway user taxes paid by a vehicle class equals the total cost responsibility for that vehicle class, or when the ratio of user fees paid to total cost responsibility is equal to 1.0. Table 8-1, Calculated equity ratios for selected vehicles classes, shows the calculated equity ratios for selected vehicle classes.

According to the federal HCAS, taxes paid by automobile users equal the costs incurred by automobiles. Buses pay only ten percent of the costs they incur. Combination trucks greater than 75,000 pounds have equity ratios of less than one.

It should be noted that there are significant differences between the economic impacts evaluated by this study and that of the federal highway cost allocation study. This study is specific to the precast concrete panel industry. The economic impacts evaluated by this study considered not only the highway user taxes paid by the transporters of precast concrete panels and the infrastructure damages and corresponding costs associated with those damages, but considered the property taxes paid by the precast concrete panel manufacturers, the payroll and income taxes paid by employees of these plants and transporters, and other economic impacts affected by allowing the nondivisible exemption or not allowing the nondivisible exemption.

Table 8-1  
Calculated equity ratios for selected vehicles classes<sup>1</sup>

Vehicle Class	User Fees Paid, %	Cost Incurred, %	Equity Ratio
Automobiles	42.6	43.8	1.0
Buses	0.1	0.7	0.1
Combination trucks			
< 50,000 pounds	1.1	0.7	1.6
50,001-70,000 pounds	1.9	1.7	1.1
70,001- 75,000 pounds	1.4	1.4	1.0
75,001-80,000 pounds	20.3	22.5	0.9
80,001-100,000 pounds	1.0	1.8	0.6
> 100,001 pounds	0.7	1.4	0.5
All combinations	26.4	29.4	0.9
All trucks	35.9	40.1	0.9
All Vehicles	100.0	100.0	1.00

<sup>1</sup> 1997 federal Highway Cost Allocation Study (HCAS)

This study also considers that specific routes the manufacturers and transporters use to haul the precast concrete panels from plant to construction site. Precast concrete panels are manufactured at plants near interstate highways. The delivery points generally are also close to the same type of highways. The bulk of the transportation routes traveled are on major, four lane divided, access controlled highways. These highways are designed and constructed to better withstand the damage caused by heavy vehicle traffic.

## Property Taxes

This study investigated value of the property taxes paid by the manufacturers of precast concrete panels. Without the nondivisible exemption, due to the transportation cost of precast concrete panels, it is possible that precast concrete panels would not be a viable construction commodity. This scenario could cause the closing of a precast concrete panel manufacturing plant with the resultant loss of property value and tax revenue. Table 8-2 list the property taxes paid in a year by various precast concrete plants.

Table 8-2  
Property Taxes Paid by Precast Concrete Plant<sup>1</sup>

Adams County Plant #1	\$19,820.26
Adams County Plant #2	\$27,489.44
Adams County Plant #3	\$38,856.16

<sup>1</sup>Taxes paid in 1999

These precast concrete plants paid an average of \$28,721.95 per year in property taxes. If the nondivisible exemption were lost, it is possible that one of these plants would be forced to close due loss of cost competitiveness for precast concrete panels, and would result in the loss of commensurate property tax revenue to local governments.

## Motor Fuel Taxes

Currently, nondivisible loads of precast concrete panels travel approximately 5500 miles one way per year. If the nondivisible exemption were lost, the mileage traveled would be expected to double to approximately 11,000 miles one way per year. As a result of the exemption to nondivisible loads, precast concrete panel transporters consume 1900 gallons less fuel per year. Colorado diesel fuel tax is 20.5 cents per gallon. U.S. federal diesel fuel tax is 24.4 cents per gallon. Table 8-3 shows the loss of tax revenue per year to governments because of the nondivisible exemption.

Table 8-3

### Motor Fuel Taxes lost due to nondivisible exemption

Federal Government	\$389.50
State Government	\$463.60

## Employment and Payroll Taxes

The manufacturers and transporters of precast concrete panels and their employees pay employment and payroll taxes. If the nondivisible exemption for precast concrete panels were lost, it is assumed that one of the precast concrete plants would be forced to close due loss of cost competitiveness for precast concrete panels, and would result in the loss of manufacturing and transportation jobs and corresponding tax revenue to federal and state government. Table 8-4 lists the estimated impact to these governmental agencies through the loss of income and payroll taxes.



Table 8-4  
Income and Payroll Taxes

Federal Income Tax	\$137,500
F.I.C.A.	\$200,000
State of Colorado Income Tax	\$50,000
State Unemployment	\$4,800
Federal Unemployment	\$1,400

### Structures and Pavement Impacts

The Highway Cost Allocation Study (HCAS) and Truck Size and Weight (TSW) studies both assumed there is a cost associated with bridge structure replacement as a result of increased legal weight limits. The nondivisible exemption is specific to precast concrete panels. As shown elsewhere in this report, the total vehicle miles traveled, the types of highways and bridge structure traveled, and axle weight limitations make the economic impacts to structures negligible.

Based on mechanistic pavement analysis, trips carrying one nondivisible load cause five to twenty percent more pavement damage than two trips carrying divisible loads. However, since over 90 percent of the trips are on four lane divided, access controlled highways designed for heavy truck traffic, and the current total traffic volume of nondivisible precast concrete loads, the economic impacts to pavement are significantly less than the other factors examined.

### Other Impacts

This study also considered the economic impacts due to the environmental and safety affects from allowing the nondivisible exemption for precast concrete panels. The economic impacts from these factors have been determined to be negligible in comparison with the economic impacts due to the other factors evaluated within this report. The economic impact from increased traffic congestion if the exemption did not exist and these loads were transported within legal weight limitations is estimated at

\$25,000 per year. If the nondivisible exemption was not allowed and these loads were transported as legal weight loads, traffic congestion would increase proportionately equal to the number of passenger car equivalents the divisible truck load was equivalent to. This increase in traffic congestion would require the construction of additional traffic lanes to accommodate this addition in passenger car equivalents at a cost that estimated at approximately \$25,000 per year.

## Conclusions

Table 8-5, Economic Impacts summarizes the economic impacts of the factors affected by the nondivisible load exemption.

Table 8-5  
Economic Impacts

	Federal	State	Local
Property tax	N/A	N/A	28,721.95
Payroll and employment tax	\$338,900	\$54,800	N/A
Motor Fuel tax	\$389.50	\$463.60	N/A
Structure costs			
Pavement costs			
Traffic congestion	\$20,000	\$5,000	N/A

The microeconomic impact with respect to allowing precast concrete panels be transported as nondivisible loads is approximately \$420,000 per year in tax revenue to local, state, and federal governments. An additional \$25,000 per year is saved in less traffic congestion and corresponding reduction in need for construction of additional traffic lanes. It should be noted that property taxes would be collected from these properties regardless of whether or not precast concrete panels are manufactured at these locations. If jobs were lost as result of the nondivisible exemption being lifted, the revenues from these taxes would not be collected. However, if the nondivisible exemption were changed, it may shift these jobs to another area or field, and the total tax revenues would not be lost. Indirect affects of the nondivisible exemption include the

cost competitiveness of building materials and construction costs associated with structures that utilize precast concrete panels. This would drive up total construction costs for buildings that may utilize precast concrete panels, as this construction option may no longer be available.

From the macroeconomic point of view, pavement damage from the overweight loads does occur and periodic overlays of existing pavement will be required. There is a real cost associated with this repair and rehabilitation. In addition, there is a real cost associated with safety impacts and traffic accidents from overweight nondivisible loads (should they occur).