SOY TRANSPORTATION COALITION

HEAVIER SEMIS: *A GOOD IDEA?*

PROJECT DESCRIPTION

A study, funded by the soybean checkoff, analyzes the impact of increasing semi weight limits on federal roads and bridges from an 80,000 lbs., five axle configuration to a 97,000 lbs., six axle configuration on: 1.) Motorist safety; 2.) Infrastructure wear and tear; and 3.) Potential cost savings and efficiency gains for agriculture and the U.S. economy.

Increasing Truck Weight Limits without Increasing Truck Size

80,000 lbs., 5-Axle, 53 ft. truck

97,000 lbs., 6-Axle, 53 ft. truck

**Note: Six axle trucks for soybean and grain transport will often result in an increase in trailer length from 42 feet to 50 feet – still 3 feet shorter than the 53 feet maximum length allowable under federal law.*

FUTURE DEMAND FOR FREIGHT MOVEMENT BY SEMIS

KEY FINDING: Demand for trucking is projected to increase, but supply of trucking services is not keeping pace.

According to the U.S. Department of Transportation, the volume of freight demand by all modes of transportation – truck, rail, maritime, and air – is expected to increase from 18.5 billion tons in 2010 to more than 27.5 billion tons in 2040 – a 48 percent increase. Demand for trucking is expected to increase from 12.5 billion tons in 2010 to 18.5 billion in 2040 – an increase of 6 billion tons or 67 percent of the total growth in freight demand.

While demand for trucking continues to increase, trucking capacity has been challenged by:

1. Since 1980, the miles of public roadways have increased by only 4.5 percent.
2. Widespread and persistent shortage of truck drivers.
3. Recent declines in rail service have required trucks to accommodate more freight. While trucking and freight rail are less interchangeable modes of transportation, rail service challenges over the past couple years have resulted in a shift of freight from rail to truck.

If supply of trucking is not keeping pace with demand for trucking, we need to find safe and responsible ways to increase trucking capacity.

MOTORIST SAFETY

KEY FINDING: Adding a sixth axle will result in additional braking capacity so that the stopping distances of a six axle, 97,000 lbs. semi will be the same as a five axle, 80,000 lbs. semi.

KEY FINDING: Allowing six axle, 97,000 lbs. trucks will result in fewer motorist casualties and injuries compared to the status quo.

Demand for trucking is expected to increase from 12.5 billion tons in 2010 to 18.5 billion in 2040 – an increase of 6 billion tons. This increase in demand can be accommodated by allowing six axle, 97,000 lbs. semis or by maintaining weight limits on federal roads and bridges at 80,000 lbs.

Motorist Safety Comparison: 6 axle, 97,000 lbs. vs. 5 axle, 80,000 lbs. (2022)

Motorist safety is more a function of the number of semis on the road and less a function of the weight of individual semis.

Total Semi Miles Traveled: 29.98 billion miles
Fatalities per 100 million vehicle miles traveled: 1.66
Number of fatalities due to accident with semis: 498

Total Semi Miles Traveled: 24.09 billion miles
(5.9 billion mile reduction)
Fatalities per 100 million vehicle miles traveled: 1.66
Number of fatalities due to accident with semis: 400

It is projected that allowing six axle, 97,000 lbs. trucks will result in 98 fewer fatalities by 2022.

The above table is comparing only the 20 percent of semi traffic that is constrained by weight. Since 80 percent of semis reach their space limitations – "cube out" – before reaching road weight limits, beneficiaries of an expanded six axle, 97,000 lbs. configuration are limited to industries transporting products and commodities that are heavier.

INFRASTRUCTURE WEAR & TEAR

KEY FINDING: The impact on roads of a six axle, 97,000 lbs. semi is less than a five axle, 80,000 lbs. semi.

80,000 lbs. ÷ 18 wheels (5 axle) = 4,444 lbs. per tire

97,000 lbs. ÷ 22 wheels (6 axle) = 4,409 lbs.

A six axle, 97,000 lbs. semi will reduce the load weight per tire by 35 lbs.

KEY FINDING: Most research has found that stress to bridges depends more on the truck's total load than the number of axles.

Proposals allowing six axle, 97,000 lbs. trucks should include a user fee to generate additional revenue for bridge maintenance.

COST SAVINGS, EFFICIENCY GAINS, & ENVIRONMENTAL IMPACT

KEY FINDING: For transporting soybeans and soy products, allowing six axle, 97,000 lbs. semis will result in 1.2 million fewer truck trips, 5.5 million fewer gallons of fuel consumed, 56 thousand fewer tons of carbon dioxide emissions, and between $11 million - $28 million in reduced fuel costs.

Reduced Number of Trips for Soybeans & Soybean Products using Six Axle, 97,000 lbs. Trucks (in thousands)

	TRUCK TRIPS (80,000 LBS.)	TRUCK TRIPS (97,000 LBS.)	REDUCED TRIPS
Total	7,222	6,000	1,222
Soybeans	5,537	4,600	937
Soybean Meal	1,247	1,036	211
Soybean Oil	439	365	74

Reduced Fuel Consumption & Carbon Dioxide Emissions for Soybeans and Soybean Products using Six Axle, 97,000 lbs.

	GALLONS (80,000 LBS.)	GALLONS (97,000 LBS.)	REDUCED FUEL (GALLONS)	REDUCED EMISSIONS (TONS)
Total	67,008,862	61,476,020	5,532,842	55,904
Soybeans	48,714,435	44,692,142	4,022,293	40,642
Soybean Meal	16,642,643	15,268,479	1,374,163	13,885
Soybean Oil	1,651,784	1,515,399	136,386	1,378

KEY FINDING: Allowing six axle, 97,000 lbs. semis will enable farmers to transport at minimum an additional 183 bushels of soybeans per load. By 2022, this will annually save soybean farmers 602,000 truck trips, 1.7 million gallons of fuel, and between $4 million - $8 million in reduced fuel costs.

SEMI WEIGHT LIMITS IN OTHER COUNTRIES VS. UNITED STATES

COUNTRY	WEIGHT	% ABOVE U.S.
United States	80,000 lbs.	0%
Russia	83,776 lbs.	5%
Canada	87,083 lbs.	9%
European Union	88,185 lbs.	10%
China	94,799 lbs.	18%
Mexico	106,924 lbs.	34%
Brazil	125,663 lbs.	57%
Scandinavia	132,277	65%

KEY FINDING: Farmers in Brazil – the second leading soybean producer after the U.S. – are able to haul 57 percent more soybeans per semi load than U.S. farmers.

The full study, "Heavier Semis: A Good Idea?" can be accessed at www.soytransportation.org or www.unitedsoybean.org.

Established in 2007, the Soy Transportation Coalition is comprised of thirteen state soybean boards, the American Soybean Association, and the United Soybean Board. The goal of the organization is to position the soybean industry to benefit from a transportation system that delivers cost effective, reliable, and competitive service.

Funded by the soybean checkoff