Senate Fiscal Agency
P.O. Box 30036
Lansing, Michigan 48909-7536

BILL ANALYSIS

Telephone: (517) 373-5383
Fax: (517) 373-1986

Senate Bill 501 (Substitute S-1 as passed by the Senate)
Sponsor: Senator Darrin Camilleri
Committee: Transportation and Infrastructure

Date Completed: 11-21-23

CONTENT

The bill would amend the Michigan Vehicle Code to do the following:

-- Allow an electric vehicle or combination of electric vehicles weighing up to 82,000 pounds to exceed current axle loading and weight load maximums by up to 2,000 pounds.
-- Increase, from 80,000 to 82,000 pounds, the maximum gross weight of a natural gas-powered vehicle or combination of natural gas-powered vehicles that could exceed current axle loading and weight load maximums by up to 2,000 pounds.

Among other things, the Code prescribes the *normal loading maximum*, the maximum axle loads for vehicles exceeding 80,000 pounds in gross weight, as follows:

-- If the axle spacing on a vehicle is nine feet or more between axles, the maximum axle load must not exceed 18,000 pounds for vehicles equipped with high pressure pneumatic or balloon tires.
-- If the axle spacing is less than nine feet between two axles but more than three and a half feet, the maximum axle load must not exceed 13,000 pounds for high pressure pneumatic or balloon tires.
-- If the axles are spaced less than three and a half feet apart, the maximum axle load must not exceed 9,000 pounds per axle.

("Maximum axle load" means the gross weight over the axle which includes vehicles and load. "Gross weight" means the weight of a vehicle without load plus the weight of any load thereon.)

Vehicles that have a gross vehicle weight of *up to* 80,000 pounds are subject to the following load maximums:

-- 20,000 pounds on any one axle, including all enforcement tolerances.
-- A tandem axle weight of 34,000 pounds, including all enforcement tolerances.[1]
-- An overall gross weight on a group of two or more consecutive axles equaling: $W=500[(LN)/(N-1)+12N+36]$.[2]

(For more information, see **BACKGROUND**).

Under the bill, a vehicle or combination of vehicles that weighed up to 82,000 pounds and that was powered in whole or in part by electric batteries could exceed the above axle loading

1 A tandem axle is two axles, one placed in front of the other in close proximity.
2 In this equation, W = the overall gross weight on a group of two or more consecutive axles to the nearest 500 pounds, L = distance in feet between the extreme of a group of two or more consecutive axles, and N = number of axles in the group under consideration.

maximums and the weight load maximums by a gross weight of not more than 2,000 pounds for all axles of the truck, truck tractor, or power unit.

Additionally, a natural gas-powered vehicle or combination of natural gas-powered vehicles that have a gross weight of up to 80,000 pounds may exceed the above axle loading and weight load maximums by an amount equal to the difference between the weight of the vehicle attributable to the natural gas tank and fueling system carried by that vehicle and the weight of a comparable diesel tank and fueling system. The bill would increase the gross weight of a vehicle eligible for this extension from 80,000 pounds to 82,000 pounds. Additionally, it would specify that the natural gas-powered vehicle or combination of natural gas-powered vehicles could not exceed these maximums by a total of not more than 2,000 pounds *for all axles of the truck, truck tractor, or power units.*

MCL 257.722

BRIEF RATIONALE

Electric vehicles are often heavier than their diesel counterparts because of the weight of their batteries. For example, in 2022, truck manufacturer Freightliner released the eCascadia electric semi-truck, which weighs 4,000 pounds more than an average diesel semi-truck; by 2030, an electric semi-truck could outweigh its diesel counterparts by 5,000 pounds or more.[3] This additional weight ultimately would decrease the amount of cargo that an electric vehicle could transport, and testimony before the Senate Committee on Transportation and Infrastructure indicates that many truck carriers are unwilling to sacrifice this cargo space. If carriers do not accommodate heavier batteries, the transition to electric semi-trucks would be delayed, and so it has been suggested that the weight load maximums for electric semi-trucks be increased.

BACKGROUND

The Code establishes axle loading maximums as follows:

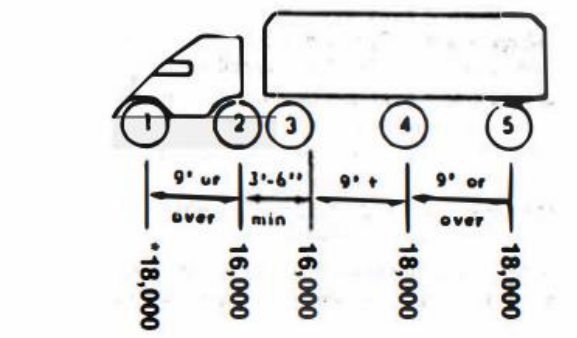
MAXIMUM ALLOWABLE GROSS AXLE LOADINGS

Spacing Between Axles	Normal Loadings When Seasonal Load Limitations Are Not In Force		Seasonal Load Limitations (Speed Limit 35 MPH)	
	Vehicles Exceeding 80,000 lbs. Gross Weight	† Vehicles 80,000 lbs. OR Under Gross Weight	Rigid	Flexible
			25% reduction	35% reduction
9 feet or over	18,000 lbs.	20,000 lbs.	13,500 lbs.	11,700 lbs.
More than or equal to 3 ½ feet but less than 9 feet	13,000 lbs.		9,750 lbs.	8,450 lbs.
When part of a tandem axle assembly	*16,000 lbs.	34,000 lbs. on tandem	**12,000 lbs.	***10,400 lbs.
When less than 3 ½ feet	9,000 lbs.		6,750 lbs.	5,850 lbs.
Maximum load on any wheel shall not exceed: (lbs. per inch of tire width)	700 lbs.	700 lbs.	525 lbs.	450 lbs.

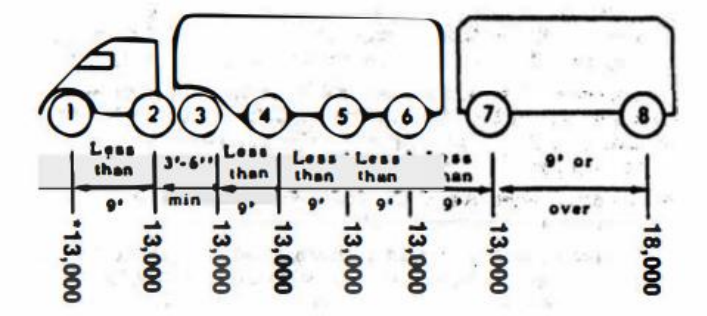
† Gross vehicle weight may not exceed 80,000 lbs. and the Bridge Gross Weight Formula as follows: An overall gross weight on a group of 2 or more consecutive axles equaling: $W = 500 [(LN /(N – 1))+ 12N + 36]$

The following are examples of axle loading maximums for a vehicle over 80,000 pounds:

[3] Giacobone, Bianca, "Electrifying trucking will mean sacrificing critical weight for heavy batteries, eating into already-slim margins", *Business Insider*, February 2, 2023.



Axles 2 and 3 are part of a tandem axle assembly. As such, their maximum allowable gross axle loadings are 16,000 pounds. Because axles 1, 4, and 5, are at least 9 feet away from another axle, their maximum loadings are 18,000 pounds.



Because axles 1 through 7 are less than nine feet but more than three and a half feet away from each other, their maximum allowable gross axle loadings are 13,000 pounds. Axle 8 is at least nine feet from axle 7. As such, its maximum allowable gross axle loading is 18,000 pounds.

(The chart and images are from the Michigan Department of Transportation's *Maximum Legal Truck Loadings and Dimensions*).

Legislative Analyst: Abby Schneider

FISCAL IMPACT

The bill would not have an immediate fiscal impact on the State or local units of government. In the long run, allowing these heavier vehicles on the road would wear down roads and bridges faster and require higher funding at the State and local level to maintain road and bridge quality.

Fiscal Analyst: Bobby Canell

SAS\S2324\s501sb