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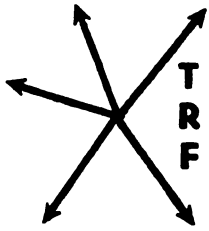

TRANSPORTATION RESEARCH FORUM

Some Implications of Motor Vehicle Size and Weight Regulations

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THE FEDERAL ROLE

Any discussion by a highway department or by a public official of the implications of motor vehicle size and weight regulations should start with some statement about the relationships between the States and the Federal Government with respect to Federal financial aid for highway construction. Therefore, this paper begins by discussing some of the facts and laws within which any proposed actions, operations, policies, and legislation should be reviewed.

It is well known, though often not fully realized, that within the United States the local, State, and Federal-aid highway systems are all non-Federal highways under the complete control of a stipulated local town, city, county, State, or other non-Federal jurisdiction. The exceptions, of course, are highways on federally owned land such as National Parks, certain National forests, military reservations, and other special locations. In view of this legal fact, it follows that the size and weight of motor vehicles using public highways is controlled by State laws and State enforcement rather than by Federal laws and jurisdiction. However, Federal law is involved. Federal law exercises an indirect control of the maximum vehicle width, the axle weight limit, and the gross vehicle using the Interstate and Defense Highway System. The Federal-Aid Highway Act of 1956 provides that any State which accepts Federal-aid highway money for the construction of the Interstate system agrees not to permit Interstate system to be used by vehicles having a width in excess of 96 inches, a single axle weight greater than 18,000 pounds, a tandem axle weight greater than 32,000 pounds, and a gross vehicle weight greater than 73,280 pounds, except where the existing State law of July 1, 1956, permitted dimensions or weights greater than these four specified limits.

It is to be noted that this provision of Federal law represents a contract between the State and Federal government rather than a Federal law regulating the size and weight of vehicles on the Interstate system. Further, these four provisions apply only to the Interstate system. Therefore, except on this 41,000-mile system (as completed), the use of the National total of 3,500,000 miles of streets, roads, and highways is wholly controlled by State and local laws. One of the purposes of these Federal restrictions was to freeze the existing limits pending certain findings, including those from the AASHO road test project in Illinois.

STATE LEGAL LIMITS

A brief review of the State legal limits of vehicle dimensions and weights

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is offered as additional background on the overall subject of trends and implications of governmental regulations. It is significant to keep in mind the wide differences in State laws and the many exceptions and special provisions therein.

Changes in State Laws 1956 to 1966

A review of 1956 to 1966 changes in State laws governing the size and weight of motor vehicles will serve as further background for the discussion to follow. As highway use by motor vehicles has increased year to year since about 1920 and as highway construction and design have produced highways of higher vehicular and structural capacities, States have increased the legal limits of dimensions and weights. The discussion of these factors at this time, therefore, is a continuation of the discussion that began about 50 years ago.

Because of the provisions in the Federal law regarding the Interstate system there have been four, (possibly two more) instances of legislative changes since 1956 to increase vehicle axle weight limits. No changes have been made in vehicle width laws applicable to the Interstate system.

Gross vehicle weight limits, on the other hand, have been increased to 73,280 pounds — or near to this limit — by 15 to 20 States since 1956.

In 1965 the State of Maine raised its tandem axle limit from 32,000 to 36,000 pounds with the provision that the change applies only to non-Interstate highway systems. South Carolina has the same dual limits on tandem axles adopted in 1963.

Ohio in 1965 raised its tandem axle weight from 31,500 to 32,000 pounds.

Vermont adopted a single-axle weight limit of 22,400 pounds in 1964. Before this year, it had no specific limit on the single axle, but use of the Interstate system continues to be governed by the State law in effect prior to the 1964 change in law.

Two or three other States have modified their laws with respect to weights on special axle arrangement but did not change their basic single or tandem axle limit.

In 1962, about 15 States had basic gross vehicle weight limits materially less than 73,000 pounds. As of October 1966 only 5 States had basic limits of less than 73,000 pounds and none of less than 70,000 pounds. Approximately 15 States in 1963 raised their gross weight limits to 73,280 pounds or to approximately this figure.

Several States have raised the limit on vehicle height to 13.5 feet or slightly greater. Only three States had a limit of less than 13.5 feet at the end of 1966.

The most recent trend (1964 to 1967) in legislation has been to make legal the 60- or 65-foot truck with full trailer and the tractor-semitrailer with full trailer (known as double bottoms in the transport trade and also as 3-unit combinations).

Legislation in 1967

As of the end of March 1967, legislation in the several States had progressed far enough to indicate the trend in motor vehicle size and weight legislation for 1967. Provision for combinations of 65-foot length was the most active item in the legislative process.

The 65-foot double was authorized in Arkansas and Maryland. The same provision was included in bills in Connecticut, Iowa (passed both houses), Maine, Nevada, and Ohio (passed senate). Idaho approved a law permitting up to four units (triples) of 98-foot length on designated highways. Wyoming has authorized for test purposes a combination of more than three units and lengths exceeding 65 feet.

Wyoming has provided a 68-foot length for auto transport combinations. Minnesota, Ohio, and Wyoming have proposals to increase the length of single units or tractor semitrailers.

Connecticut is considering a bill to raise the legal vehicle height to 13.5 feet; North Dakota approved 15.5 feet on a permit basis; and one house in Oregon has passed a bill to allow a height of 14.0 feet under permit or resolution.

California has a bill pending to raise the maximum legal width to 104 inches.

West Virginia has provided a more flexible table of weights based on axle spacings. Vehicle weight limit bills are pending in Kansas, Nebraska, and Hawaii (with axle spacings). Michigan, which has no gross weight limit, is considering a proposal to set the limit at 105,000 pounds.

Of significance are the laws just enacted in Montana and Wyoming to authorize their State highway departments to provide for increased size and weight limits whenever the Federal limits are raised.

Difference in State Limits

It is well known that, State to State, there is considerable variation in the legal maximum limits of vehicle dimensions and vehicle weights. There are not only differences State to State but also regional differences. Generally speaking, the Middle Atlantic and New England States have a basic single-axle weight limit of 22,400 pounds and a basic tandem axle limit of 36,000 pounds. The South Atlantic States have 18,000 to 22,400-pound basic single-axle limits and 32,000 to 40,000-pound basic tandem limits. The Middle Western and Western States predominately have the 18,000 and 32,000 pound basic axle weight limits.

For a number of years the Western States have permitted the truck and full trailer and the tractor-semitrailer and full trailer combinations with approximately 76,000 to 80,000 pounds gross vehicle weight limit. The Western States also have permitted the 65-foot length for combinations, whereas until about 1964 the 65-foot limit was not generally permitted in States east of the Rocky Mountains. The trend as indicated by legislation in 1965, 1966, and 1967 is extending the 65-foot three-unit combination as

far east as Indiana, so that at present about 25 States permit the 65-foot tractor-semitrailer with full trailer. The State of Maryland authorized the 65-foot double effective June 1, 1967. Delaware permits a 60-foot double.

The States are in near agreement in their laws with respect to vehicle width. Only the States of Connecticut, Hawaii, Maine, New Mexico (designated highways), and Rhode Island, permit a basic width greater than 96 inches, though about 30 States permit greater width for buses, mostly only in urban areas.

Height of 13.5 feet or more is the limit in 48 States. The width limit of 96 inches and the hight limit of 13.5 feet come the closest to uniformity of any of the factors limited by law.

Exceptions and Tolerances

State motor vehicle size and weight limits should not be discussed without also mentioning the wide range of exceptions to the basic limits. These exceptions apply generally to buses and to the hauling of local products of industry, agriculture, forests, and the mines. As an illustration, the State of Idaho has a basic width limit of 96 inches, but buses 102 inches wide may be operated on highways having a surface width of at least 20 feet, and a farm tractor with a width of 108 inches may be operated on public highways. The single-axle weight limit in Idaho for vehicles hauling products of agriculture, forests, and mines in 18,900 pounds, 900 more than the basic limit. In New Hampshire, a load of loose hay may exceed 96 inches, so long as the vehicle itself does not.

Oregon has a basic axle weight limit of 18,000 pounds single and 32,000 pounds tandem axle but allows limits of 19,000 pounds single axle, and 34,000-pounds tandem axle when hauling logs, poles, or piling.

Several States permit a height limit greater than the basic limit for the hauling of automobiles by tractor-semitrailer.

Several States have laws permitting the highway department or other agency to designate highways for use of vehicles of greater dimension or weight than the basic limits. For instance, in Indiana axle weights of 22,400/36,000 pounds without enforcement tolerance are legal on designated highways, whereas the basic limit in Indiana is 18,000/32,000 pounds. In Illinois the 65-foot double is legal only on designated routes.

A detailed examination of the laws State by State will uncover hundreds of special exceptions to the basic limitations on vehicle width, vehicle height, vehicle length, axle weight, and gross vehicle weight to favor the haulage of certain types of products or to provide for particular vehicle usage. Tire size, tire pressure, axle spacing, and seasonal limits are mentioned in the laws as special provisions.

It is also desirable to examine the State laws still more closely to determine whether the law provides for an "enforcement tolerance" with particular reference to axle weight limits. The laws of many States provide that a percentage of the basic axle weight limit or a fixed number of pounds in excess of the stipulated axle weight limit is permissible as an "enforce-

ment tolerance." Where this enforcement tolerance is provided by law, the effect is simply to raise the legal limit to the base limit plus the enforcement tolerance. As an illustration, the State of Florida permits for enforcement purposes a tolerance of 10 percent. Therefore, their axle weight limits are actually increased from 20,000 pounds single and 40,000 pounds tandem to 22,000 and 44,000 pounds, respectively. It is conceivable that some trucking companies take advantage of this tolerance and load up to the legal limits including the tolerance. Considering the continental States as a whole, the highest single-axle weight limit is 23,520 pounds (22,400 plus 5 percent), and the highest tandem axle weight limit is 44,000 (40,000 plus 10 percent) pounds when the enforcement tolerance is included. Hawaii has a single axle limit of 24,000 pounds.

Thus, the enforcement tolerance and the special exemptions from the basic law for the haulage of certain types of products must be examined closely before the absolute legal limits of dimensions and weights can be determined with certainty. In the annual weighing of trucks by the State highway departments for planning purposes, some of the trucks which are reported as being overweight are probably legal, considering that the commodity hauled may have a special exemption and considering the enforcement tolerance.

From the foregoing statements, it is readily seen that any discussion of the legal limits of dimensions and weight of vehicles on a State by State basis is apt to be misleading unless the exceptions and tolerances are also considered.

Special Permits

Another item often overlooked as constituting an element of highway use by trucks and one which has increased over the years is the provision for operating overdimension and overweight vehicles over the highways under special permit. The special permit practice has become widespread and the volume of such permits so large that the States are issuing permits good for 30 days, 90 days, 6 months, or a year to individual trucking operations or to manufacturers of commodities to be hauled over the highways. In fact the haulage of such oversize items as mobile homes is based entirely upon the special permit clause.

Individual States are issuing up to 234,500 (Texas, 1966) permits a year. The National total in 1966 was about 2,200,000 permits. The special permit system is getting out of hand and becoming tremendously burdensome. More restrictive provisions are needed. The American Association of State Highway Officials has the subject under special investigation through a research project administered by the Highway Research Board of the National Academy of Sciences in its National Cooperative Highway Research Program.

TRENDS IN TRANSPORT PRACTICE

The trends in highway transport practice affecting public policy on vehicle size and weight limits and highway use result from two main sources: First, those changes in practice by industry which result from their own

innovations and technology and, second, from changes in laws, regulations, and taxation. Some of the recent changes in highway use and transport practice will be mentioned.

Gross-Weight Trends

Over the years a steady shift to hauling higher gross weights has taken place in the trucking industry. This trend has been accomplished by heavier loadings of individual trucks through improved axle weight distribution and trip dispatching and by using trucks of greater capacity as illustrated by the shift to the 3S-2 tractor-semitrailer (3-axle tractor and 2-axle semitrailer) from the 2S-1 and 2S-2 combinations. This shift to the hauling of greater payloads per trip and to vehicles of higher gross weight capabilities is an indication that the trucking industry finds it economical to increase the payload weight per trip. This finding is common to all forms of transportation because the cost per ton-mile of payload decreases as the payload weight per trip increases. Proof of this fact is illustrated specifically by Hoy Stevens in his study of line-haul trucking costs.[1] The frequent practice (as disclosed from the annual State truck weighings) of overloading above the legal axle weight limit or above the legal gross weight limit indicates that the trucking companies find increasing overall economy as the gross vehicle weight increases.

Shift to the 5-Axle Semi

Based upon the annual weighing of trucks by State highway departments, the trend in trucking on highways is toward heavier gross weight, heavier axle weight, and heavier classes of vehicles. For instance, in the State of Illinois the number of 3-axle (2S-1) tractor-semitrailers as a percentage of all tractor-semitrailers has decreased from about 64 percent in 1949 to 13 percent in 1965. At the same time, the 5-axle (3S-2) tractor-semitrailer increased from about 1 percent in 1949 to 56 percent in 1965. The 4-axle (2S-2) semitrailer increased from 36 percent in 1949 to 61 percent in 1956 and then decreased to 29 percent in 1965. Thus, it is readily seen that the trend is toward the heavier 3S-2 tractor-semitrailer, with decreasing use of the 3- and 4-axle tractor-semitrailers.

Noteworthy changes in State laws occurred about 1963 when gross weight limits in about 15 States were raised to approximately 73,000 pounds, permitting economical use of the 3S-2.

Since 1960 in Illinois[2] there has been a slight increase in the average gross weight of the 2S-1 from 25,800 pounds to 27,000 pounds for combined loaded and empty vehicles. The 2S-2 tractor-semitrailer in Illinois had an average gross vehicle weight in 1965 of 37,500 pounds, down from 38,900 pounds in 1960. The 3S-2 since 1960 has been steady in empty weight at 27,300 pounds, but has increased in average gross weight from 49,800 pounds in 1960 to 50,400 pounds in 1965. The average weight of the 3S-2 loaded vehicle increased 1960 to 1965 from 55,650 to 58,000 pounds.

1 Hoy Stevens. Line-Haul Trucking Costs in Relation to Vehicle Gross Weights. Highway Research Board, National Academy of Sciences, Bulletin 301, 1961.

2 1965 Truck Weight Survey, State of Illinois, Department of Public Works and Buildings, Division of Highways, Bureau of Planning.

Increase In Spread Tandems

Another development of significance to highway use is the increased use of the "spread tandem." By spreading the rear tandem axles from about 4 feet to 6 or 8 feet apart, depending upon the State law, they become two singles axles, and thus add 4,000 to 8,000 pounds additional legal axle weight. In Illinois the number of spread tandems increased about 2½ times from 1962 to 1965, or from 0.58 to 1.35 percent of all 4- and 5-axle semitrailer combinations weighed in Illinois.

Growth in Use of Double Bottoms (Double Tandems)

The toll highways in Kansas, Indiana, Ohio, New York, and Massachusetts permit combinations of two 40-foot trailers in a total length of 98 to 104 feet and a total gross weight of up to 127,400 pounds. This operation is successful both from the standpoint of the transport cost and from the standpoint of highway safety. The toll authorities provide marshalling yards adjacent to the toll gates where the two-trailer combinations are assembled and broken down for use on adjacent highways.

Perhaps the successful use of the 100-foot doublebottoms (double tandems) on the toll highways spurred increased adoption during the past three years of the 65-foot western type double in States east of the Rocky Mountains. As stated in a prior section, about 25 States have made legal the 65-foot combination — a tractor and two 26- or 27-foot trailers.[3] This change is the most significant legislative action, since the move upward to 73,000 pounds gross vehicle weight limit about 1963.

The 65-foot double will not come fully into its own, however, until the gross vehicle weight limit is raised well above 73,280 pounds. Because the 3-S2 tractor-semitrailer will load to 73,000 pounds under an 18,000/32,000 pound single/tandem axle limit, the 2-S1-2 double is of no advantage weightwise. Its capacity of 80,000 pounds at an axle weight of 18/32 kips is not attainable under a 73,280 pound gross weight limit. Its advantage in the Midwest and East is found in urban distribution (breakdown into two separate cargo vehicles) and in greater cubage and flexibility of loading and unloading. It has greater advantage in the Western States which permitted gross vehicle weights of 76,000 to 80,000 pounds prior to July 1, 1956.

In the East and Northeast where the 22/36-kip axle weight limits prevail, the 65-foot double is at a disadvantage weightwise as also is the 3S-2 semi. In the East, the 3S-2 has a practical gross weight capacity of 81,000 pounds and the 3S-1-2 has a capacity of 112,000 pounds, assuming proper axle spacing for protection of bridges. These capacities are about 8,000 and 39,000 pounds in excess of a legal gross weight of 73,280 pounds. Even the 2S-1-2 has a practical capacity in the East of 97,600 pounds.

Containerization and Piggyback

There is increased use of containerization combined with intermodal carriage by highway, rail, and water. It is reasonable and logical, therefore, that consideration of any changes in legal limits of dimensions and weights of

[3] For a report on the status and future of doubles, see FLEET OWNER, March 1967 pp. 165-191.

trucks include their relationship to carriage by other modes of transportation in order to develop the maximum of service and economy in total transportation.

IMPLICATIONS OF THE FACTORS INVOLVED

The dynamic character of highway trucking, the construction of the Interstate highway system, the recent improvements in the capabilities of motor trucks, and the varying legal dimension and weight limits State to State each point to the need of a critical, penetrating overall examination of the status and future of highway trucking. The foregoing discussion of the complex of factors involved indicates the need for some changes.

Because the States control the highways and their use, any change in the basic laws must be made at the State level. However, with respect to the Interstate system, the three factors of vehicle width, axle weight limits, and gross weight limits are presently frozen at existing limits by Federal law; therefore, the Federal government is involved.

The new cabinet-level Department of Transportation came into being April 1, 1967. It is too early now to know what its position may be with respect to the legal limits of motor vehicle dimensions and weights. But some general statements can be made, particularly with reference to House Document No. 354 of August 1964.

Following the competion in 1963 of the report on the desirable dimensions and weight of motor vehicles, which in 1964 became House Document No. 354, the Bureau of Public Roads continued its study of the subject. The objectives were to refine and improve some of the findings and to explore some unanswered questions. This study was recently reported in draft form, and when it is in final shape, there will be additional material available for guidance to the policymakers and the lawmakers.

AASHO Policy and House Document No. 354 Recommendations

The position of the Federal government with respect to the Federal-aid highway program and its relationship to the desirable dimensions and weights of motor vehicles was last set forth in 1964 in House Document No. 354, 88th Congress, Second Session.

Table 1 shows the limits of vehicle dimensions and weights, which represents the policy of the American Association of State Highway Officials (AASHO) and those recommended for the Interstate system by the Secretary of Commerce in House Document No. 354. With the exception of the 32,000-pound limit for tandem axles in the AASHO policy compared to the 34,000-pound tandem-axle weight limit recommended in House Document No. 354, the recommendations are identical. It is significant that a gross vehicle weight limit is not recommended specifically, but reference is made to a bridge table in which the limiting gross vehicle weight is a function of the spacing of the axles and of the axle weight. This recommendation is logical because a gross vehicle weight limit not tied to axle weight and axle spacing does not necessarily protect bridges and similiar structures from overstress.

TABLE 1

Comparison of Recommendations for Maximum Size and Weight of Motor Vehicles

Dimension and Weight Factor	American Association of State Highway Officials[1]		Department of Commerce recommendations (Interstate system only)[2]
	1946 Policy	1963 Policy	Proposed for 1967
Width, inches	96	102	102
Height, feet	12½	13½	13½
Length:			
Single-unit truck, feet	35	40	40
Single-unit bus, feet	35	40	40
Semitrailer or trailer, feet	—	40	40
Truck-tractor semitrailer, ft.	50	55	55
Other truck combinations, ft	60	65	65
Weight:			
Single axle, pounds	18,000	20,000	20,000
Tandem axle, pounds	32,000	32,000	34,000
Gross vehicle	bridge table	bridge table	bridge table

1 "Policy Concerning Maximum Dimensions, Weights and Speeds of Motor Vehicles to be Operated over the Highways of the United States." Adopted by AASHO April 1, 1946. "Policy on Maximum Dimensions and Weights of Motor Vehicles to be Operated Over the Highways of the United States." Adopted by AASHO October 21, 1963.

2 "Maximum Desirable Dimensions and Weights of Vehicles Operated on the Federal-Aid Systems," 88th Cong., 2d Sess., House Document No. 354, Washington, D.C., 1964, pp. 2-6.

Although the AASHO adopted its policy on maximum dimensions and weights of motor vehicles in 1963, it does not mean that every State highway dpeartment member of the Association agrees with every item in this statement of policy. Furthermore, before the limits of dimensions and weights set forth in the AASHO policy could become the legal limits, the various State legislatures would have to enact the required State laws.

Because of the stipulations in the Federal law with respect to the Interstate highway system, it is not likely that many State legislatures will increase the legal limits on vehicle width, axle weight, and gross weight until there is a change in the Federal law to a higher limit on the corresponding item. Although the Federal law pertains solely to the Interstate system, it is not likely that there could be much haulage by the heavier combinations utilizing higher limits of dimensions and weights without the use of some segments of the Interstate system, or that such combinations could use the Interstate system without being able to travel on some part of other systems.

Differential Limits by Highway Systems

Maximum limits of motor vehicle dimensions and weights which are not

identical for all highways has been proposed, and, in fact, exists in practice in many States. For instance, the recommendations in House Documents No. 354 apply only to the Interstate system. Several States vary their vehicle width limit by rural and urban locations, and by roadway width. The use of vehicles of certain maximum length or axleweight is limited in some States to "designated highways." Whether such dual limits are practical on the Interstate system remains to be determined, because system interchange of vehicles having different dimension and weight limits offers practical difficulties and extra costs. Enforcement would also offer many additional complications. Further, the dual limits would tend to restrain the flexibility of highway transportation.

From the standpoint of physical operation of multiple units in a combination, provision could be made for use of longer combinations on the Interstate system than permitted on the other systems. The separate vehicles could be added or dropped at designated areas at interchanges or permitted to travel some short distance on other systems to a suitable area for changeover. Adding payload or taking off payload at interchanges to comply with any dual system of axle weight limits is hardly a feasible or economical operation. Dual limits on vehicle width or height are impractical, because the fixed structural design width or height of the vehicle cannot be altered, other than by a major rebuilding operation.

Federal Position

From the Federal viewpoint there is interest in advancement toward uniform legal limits of dimensions and weights of vehicles State to State or regionally, particularly to facilitate interstate commerce. Mr. Lowell K. Bridwell, Federal Highway Administrator, stated his interest in uniform size and weight standards at the meeting of the Associated General Contractors of America, March 6, 1967, at San Diego, California.

The non-uniformity of the State laws regulating the dimensions and weights of motor vehicles result in different economy in different States. As an example, the cross country truck operators cannot pass through Iowa with a 65-foot double, but the 65-foot combination is legal in Missouri. As a result of the Iowa 60-foot law many east-west or west-east trips add 160 to 200 miles extra to route through Missouri when Chicago is the origin or destination. Similar difficulties on other dimensions and on weight limits can be cited.

There are three significant factors involved in any liberalization of legal limits of vehicle dimensions and weights. The first is what maximum limits are desirable in the long run from the standpoint of public interest with respect to highway safety and total transport costs. This factor would involve any increase in highway construction costs to accommodate the number of vehicles which would use the highways at the higher limits of dimensions and weights.

The second factor concerns the existing highway systems and the accelerated rate of reconstructing the systems, particularly the pavements, which would reach a state of structural deficiency under increased axle weights and gross weights sooner than would be the case under current di-

mension and weight limits. Until existing roadways are brought up to a structural design adequate for increased weights, the probability is there would also be additional annual roadway maintenance costs.

The third factor to consider is the proper timing of any increase in the legal dimensions and weights of vehicles. The Secretary of Commerce recognized the timing factor in his report to Congress in House Document No. 354, when he made his recommendations in 1964 that they would not be effective until June 30, 1967, at which time the Interstate system would have sufficient mileage opened to traffic to accommodate the vehicles at the higher limits.

On the existing highway systems other than the Interstate, the factors of bridge width, height, and structural capacity and pavement width and structural quality are the main factors to consider in the timing of authorizations for increased limits.

Effects on Highways and Highway Traffic

The limiting dimensions and weights of vehicles and their regulations must be viewed in two ways. The first factor is the structural requirements of the pavement and of structures to handle the vehicle weights, and the second factor is the space requirement for total traffic with the proper degree of safety and convenience to smaller vehicles. Sight distance, speed differences, and passing opportunities are important considerations.

Higher payloads in cubage or in weight may be transported by increasing the length and number of cargo units in a combination without additional highway construction costs from the standpoint of structural requirements. On the other hand, the longer combinations will affect highway traffic operations, behavior of the traffic stream, and could entail revision in geometrics. Longer combinations are apt to carry higher gross weights, which should be balanced with higher horsepower engines to avoid slower moving truck; especially on up grades.

Considering that any additional highway costs for traffic capacity or structural strength would be incurred specifically to accommodate the larger and heavier vehicles that would make use of such liberalized limits, it would be reasonable under established highway finance and tax policies to expect that the incremental highway cost associated with the changes in dimension and weight limits would be assessed to the vehicles gaining the benefits. As previously indicated, there is also to be considered any inconvenience and cost to passenger cars and other small vehicles that might be affected by increasing the limiting dimensions and weights of the larger vehicles.

If greater payload in cubic feet or in pounds can be hauled in a single trip by using wider or longer vehicles and heavier axle weights or gross weights, fewer vehicles will be required on the highways to haul a given tonnage of payload. The smaller vehicle, therefore, would gain some advantage from the relatively fewer trucks, but whether the advantages in having fewer trucks on the highway would fully compensate for the fact that the fewer trucks would be larger and heavier is yet to be determined.

There is also the policy question of whether increased legal limits of dimensions and weight of vehicles would attract additional highway use and accelerate the growth of highway truck transportation beyond the rate at which it would grow otherwise. The current growth of highway truck traffic is caused by the increase in population and the consequent general increase in tonnages of freight to be moved plus the shift from other modes by the shippers in accordance with their preferences.

Although changes in the laws to permit heavier payloads per vehicle or greater cubage per vehicle would permit a given number or tons of cubic feet of payload to be hauled in fewer trips than under the prior and lower limits, it cannot be expected that the number of trucks affected will actually be reduced. This reasoning follows from the fact that highway trucking continues to increase yearly. But what may be expected is that the increase in legal dimensions and weights will slow down the rate of increase in numbers of large trucks in the daily traffic stream. But if the greater economy of transport attracts more trucking, there could be a faster increase of the growth rate in the number of trucks on the highway.

In the interest of traffic and in holding to some desirable minimum the interference by trucks with the freedom of movement of passenger cars, vehicle performance standards were recommended in House Document No. 354. Adoption of an appropriate standard was suggested for the ratio of gross vehicle weight to net horsepower, for the braking system, and for the linkage between vehicles in a combination.

Because House Document No. 354 indicates that some increase in the legal limits of vehicle dimension and weights is desirable and that some economy would thereby be gained in freight transportation it may be expected that Congress will consider changes in the Federal-Aid Highway Act of 1956. Just when such legislation may come before Congress and what will be its specific provisions are questions to which there are no answers at present.