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ENGINEERING FOR TRAFFIC SAFETY



An Address By
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New Jersey State Highway Department
Before The
State Coordinating Council On Traffic And Safety
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New Jersey State Library

MR. CHAIRMAN, Ladies and Gentlemen. The facet of the subject of interest that we are gathered here today to discuss – traffic safety – and which it will be my privilege to cover, is “Engineering for Traffic Safety.”

That we may be alerted to the wide scope of this subject, it might be informative to record some statistics to convey to you the extent to which New Jersey has become a vortex of traffic.

New Jersey's geographic location is a potent factor in the development of our unequalled traffic load. Our position at the hub of the Atlantic seaboard, midway between Boston and Washington, is the logical corridor through which all highway traffic between New England and the South and New York City and Philadelphia must travel.

New Jersey is also at the center of the greatest concentration of population in the Western Hemisphere. The State's area of about 7,500 square miles ranks it the fifth smallest state in the Union, exceeding in size only Connecticut, Delaware, Hawaii and Rhode Island. Incidentally, the eight metropolitan area counties of our State are populated by four million people and are fourth in the nation as a purchasing area. Only New York, Chicago and Los Angeles precede us.

Within New Jersey reside 6,000,000 persons, forming the most densely populated state in the Union. Our nearly six million persons drive two and one-half million motor vehicles and account for 80 per cent of all traffic within our borders.

Let us look at the results of these many factors and see how they compare with other states and the nation as a whole. As a start, compare registrations per mile of primary State highway. In Pennsylvania there are 200; in New York 400; in New Jersey 1,300. Traffic-wise this results in an average of 11,000 vehicles a day per mile on our State Highway System.

If this figure does not seem impressive, perhaps the following comparisons will serve to illustrate the point. New Jersey's State highway traffic is three and three-quarter times that of New York, three times Pennsylvania's and five times the national average of state highways.

At some locations such as the George Washington Bridge Plaza, Newark Junction, the Camden Airport Circle and the Garden State Parkway's interchange with Route 22, average daily traffic volumes of more than 100,000 vehicles a day are encountered. And, as if to put the frosting on the cake, New Jersey has more than 200,000,000 interstate crossings a year. This may provide you with a general idea of the complexity of the problem that confronts our Department in its efforts to provide for safe and expeditious travel within our borders.

The State Highway System is about 1,850 miles in length yet comprises but six per cent of New Jersey road and street mileage. This system carries eight billion miles a year or one-third of all motor vehicle travel within the State. By 1975 it is estimated it will carry 45 per cent of all travel and yet, as stated, it represents only six per cent of our total travel area.

On State highways where huge volumes of traffic travel at higher speeds, an average of 5.8 persons were killed in 1953 for every 100,000,000 miles of travel. Last year the average had dropped to 3.7 - a reduction of nearly one-third. This reduction did not just happen. It was the result of many

factors, more intelligent and safe-and-sane driving and the efforts of many people – State and municipal officials and our fine State Police, under the direction of Colonel Rutter and his Chief, Attorney General Furman. Also, in a large measure, it was the result of a concentrated program of safety construction.

Over all, pushing all of us, has been the Chief Executive, Governor Meyner, without whose support and inspiration our record would not be what it is today.

During the past seven years the State Highway Department has made some dramatic strides in reducing accidents and fatalities through its program of "Safety Through Engineering."

Since 1954 the State Highway Department has constructed:

- A. More than 84 miles of center barriers to eliminate head-on collisions.
- B. 235 jughandle turns to permit safe turning movements.
- C. 230 grade separations to eliminate cross traffic.
- D. 35 creeper lanes to provide separate lanes for slow moving vehicles traveling up hills.
- E. 450 traffic signals to control vehicular movement at intersections.

F. Also we have painted reflecting white lines on the outer edges of all State highways. In fact, we were the first state to complete the job. All told the Department paints a total of 40,000,000 feet of reflecting white lines a year.

While it is impossible to say how many lives have been saved by reflecting, road edge striping or creeper lanes, it is possible to present accurate statistics on barrier curbs.

On Route 4 in Englewood, where 50,000 cars a day use the highway, there were six fatalities in a 33-month period immediately preceding erection of barriers. All were due to cars crossing over the narrow island. In the six years since the barrier was erected one fatality has occurred. This occurred at a wire rope barrier section — a design that has been discontinued since 1954.

In Hillside, where up to 59,000 cars a day traverse Route U. S. 22, a total of 11 persons had died in the three-year period before the erection of the barriers in 1954. There have been no deaths due to head-on collisions in the past seven years.

More than four years have passed since the erection of a centerline barrier on Route 4 in Teaneck. In this area, where 51,000 cars a day pass, there have been no head-on collisions reported during that period. Recently, as an added safety measure, the height of the barrier has been increased from 20 to 32 inches.

It is not essential to elaborate on this "life-saving" installation except to mention the Pulaski Skyway. On this famous structure 19 persons lost their lives between 1950 and 1956 — six deaths occurred in 1955 alone. Through a combination of

skid resistant surfacing and a center barrier no fatalities have occurred since 1957.

Please understand that not all highway safety is the result of construction. We fully recognize the contribution of many other factors including High School driver education, pedestrian education, Motor Vehicle administration and inspection, the operations of the State Police, improved vehicles, elementary school patrols and several others. But today – in the brief time allotted to me – I confine my remarks to what we in the State Highway Department have done and are doing.

You may know of our Speed Zoning program which has played such an important role in reducing accidents. Frequently, this program has met local opposition because of the mistaken belief that speed signs regulate travel speed. This is only true when the posted speed is realistic and will, therefore, be observed by drivers and is adequately policed.

In order to arrive at the realistic speed the State Highway Department makes thousands of radar speed checks on the section under survey. From these checks we are able to determine the speed of all free-moving vehicles. The permissible speed is then posted at the five-mile figure at, or below which, 85 percent of all vehicles travel. That is the realistic speed – – be it 25, 35, 40 or 45 miles and hour. When such speed limits are posted (and policed) the average driver conforms with the speed limit and the accident rate drops as a result.

Jughandles, which permit all turns to be made from the right side of the roadway, have also played a large part in reducing accidents at the crossroads. As you know they eliminate left turns and “U” turns and permit safe crossing of the highway under traffic signal control. The latest evidence to this effect is a State Police report on a 13.5 mile section of

Route 130. According to findings the accidents have been cut 50 per cent and the severity of accidents reduced.

And, of course, each of the overpasses constructed in the past seven years has played an important role in reducing accidents and fatalities on State highways.

In addition the Department has engaged in two other extensive programs. The first was to stabilize and increase the width of shoulders bordering our highways. These wider shoulders permit safe off-the-road stops to be made. The second, closing thousands of unnecessary openings in center islands where the width of the island was insufficient to permit safe left and "U" turns. You may recall that in earlier years it was the policy of the Department to make an opening in the island at practically every property. This resulted in countless accidents caused by turning movements.

Effective, simple traffic signs also play an important role in reducing accidents. They must be visible at a reasonable distance, both day and night, and must allow what is termed "instant register" – the ability to read the message at a glance. As you may have noted some years ago, some of our signs had so many towns listed you couldn't get your bearings unless you stopped to read them. Result – you often were bumped in the rear. In order to provide New Jersey motorists with such signs, a series of tests were conducted at our Fernwood Equipment Depot over a period of two years. Many types of letters were tested, as were combinations of colors and various reflecting materials. Out of this came our present signs of reflecting silver letters on dark green backgrounds. Today all 70,000 signs on the State System are reflectorized and carry the shortest possible legends. In addition, all route markers inform the driver whether he is traveling North, South, East or West.

The advantage of clear, legible signing is obvious. By giving the motorist the information he seeks at a glance, these signs permit him to devote his attention to the job of driving – no small assignment in New Jersey. They prevent that moment of indecision or hesitation that so frequently contributes to accidents.

I have not the time to go into new construction, except briefly. Since 1954 we have raised the Department's construction output about 400 per cent above the pre-1954 post war level. Our new highways incorporate every known safety feature such as long curves, slight grades, 12-foot travel lanes, 13-foot passing lanes, wide shoulders, wide islands or barriers, overpasses and many other proven design features.

All new highways constructed by the Department will be freeways with limited or controlled access. This feature, as you may know, will increase the safety factor at least three times.

That in brief is a report of our stewardship and what we plan to do to provide New Jersey with the type of safe and expeditious travel upon which our economy may prosper. This is a job for all of us – the team of dedicated State employees and I might add there is no substitute for good, careful and considerate driving. If real courtesy were practiced on all occasions, our fatality rate would decline rapidly. In the final analysis it is the driver upon whom we must rely. We need his support, his basic intelligence and his interest in living. It is much nicer to say of a friend "Here he comes" instead of, "There he goes."





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