

*Annual Report of the Chief Engineer
State Highway Department
1935*



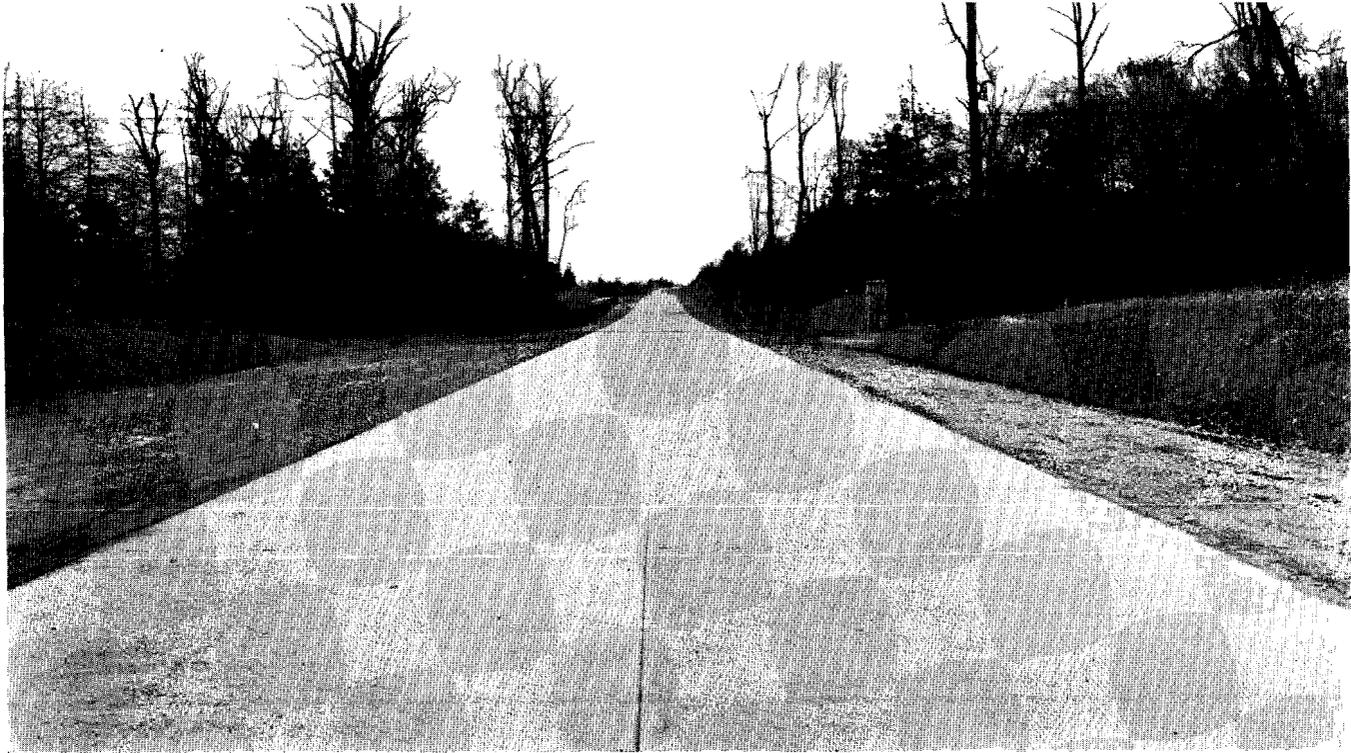
Dover, Delaware
January 7, 1936

To the Chairman and
Members of the State
Highway Department,
Dover, Delaware.

Sirs:

In conformity with the provisions of the State Highway Act of 1917, I am submitting herein a report of the activities of the State Highway Department for the calendar year of 1935, with a list of roads which the Department has been petitioned to improve and certain recommendations for the year 1936.

The year 1935 has been an unusual one in the history of the Department in several respects. For the third consecutive year, destructive rain storms of greater severity than any since the organization of the Department have swept the State, and for three successive winters we have had snows and zero weather with attendant frost heaving and unstable subgrades such as have been unknown since the winter of 1917-18. These storms and extreme weather conditions have not only caused serious damages to our highway system but have greatly increased our maintenance costs. Should these conditions continue, they will necessitate revisions in the methods of construction of certain of the lower types of roadway which are not adapted to the severe climatic conditions which in the past have been unusual in Delaware.



New Castle County—Sodded Slopes "Northeast Boulevard"

The transferring by Legislative act of all county roads to the custody of the State Highway Department on July 1st, 1935, was the most notable event of the year, and follows a trend observable throughout the United States of consolidating highway policy and management in one State agency, in order to develop a coordinated and unified transportation system for the entire State. The states of North Carolina, Virginia and West Virginia have adopted a similar policy, as have Maryland and Pennsylvania in part.

A somewhat detailed account of this work, for the first six months it has been in operation, will be given elsewhere in this report.

It might not be amiss at this time to point out that there has been developed in the State of Delaware since 1917, as a result of a comprehensive and continuous policy of the Department, a highway system which furnishes transportation facilities and operating conditions to the citizens of Delaware which may without exaggeration be said to be unsurpassed in any state. This has been accomplished without unduly burdening our taxpayers. I am convinced that the management of all the rural highways of the State provided for under the present statute will result in added service and convenience to the motoring public, and especially to those now living on dirt roads.

The earlier months of the year gave promise of a large program of work financed largely by the funds appropriated by the Federal Emergency Relief Appropriation Act of 1935.

Surveys and plans were made and a program prepared with the expectation that funds would be available on July 1st. While the Act was approved by the President on April 8th, 1935, rules and regulations were not forthcoming until late in July and these were so restrictive as to be unworkable and impractical in the development of a modern highway program. The regulations as to labor were especially limiting. Not only was it required that ninety (90) per cent of all labor must be taken from those on relief rolls

as of May 1st, 1935, but a further requirement stipulated that for every \$1,400 of the allotment, a man should be employed for one year, at the site of the work. Highway engineers throughout the country immediately realized that this would restrict operations to the most primitive types of road building, such as clearing and grubbing, and hand grading, and that the proposed programs could not be carried out under these regulations.

A plan proposed by Mr. H. G. Shirley, State Highway Commissioner of Virginia, whereby a state could receive credit for all labor secured through the U. S. Employment Service on all highway work, financed either with State or Federal funds, and known as the Alternate Plan, was submitted on September 12th. This plan was adopted by this Department. However, only half of the Congressional apportionment was allotted which required a further revision of the originally prepared programs.

Delaware's allotment amounted to \$900,310 and our program was finally approved on November 15th, 1935.

The first letting under this program was held on December 4th, 1935, amounting to twenty-four and eight-tenths (24.8) per cent of the entire program.

Under the Works Program Grade Crossing Elimination allotment Delaware was apportioned \$418,239. Similar difficulties with limiting regulations delayed this program which were finally amended to a workable form. But two major projects seem probable in Delaware; College Avenue, Newark; and South Market Street Causeway, Wilmington.

These delays and uncertainties have resulted in the smallest construction program in the history of the Department, and the reduction of the number of men employed on highway contract work from a weekly average of 1,410 in 1934 to 302 in 1935.

Barring further unforeseen contingencies, the year 1936 should be a very active one with large increases in employment and construction as soon as weather permits.

The total funds available during the year for construction purposes, including Federal Emergency Appropriation, Regular Federal Aid and State Funds, amounts to approximately \$2,500,000.

A resume of the work of each division of the Department follows:

PLANS, SURVEYS AND ESTIMATES

Although construction was practically at a standstill during the latter half of the year, more plans and surveys were completed than usual. The requirements of the various Federal administrative agencies have become more and more complicated, necessitating a much larger amount of office detail than formerly.

New large-scale maps were prepared for each county, showing all existing roads, which are designated by numbers.

A tabulation showing the detailed work of the division follows:

Surveys

302	Miles	Base Line
296	"	Topography
114	"	Cross Sections (Preliminary and Final)
152	"	Borrow Pits (Preliminary and Final)

Draughting Room

216	Miles	Base Line and Topography Plotted
207	"	Profile Plotted
195	"	Index Maps Plotted and Traced
178	"	Plan and Profile Traced
26	"	Cross Sections Plotted (Original and Final)
18	"	Grade Laid
41	"	End Areas Planimetered and Computed
152		Borrow Pits Plotted and Computed



Soil Analysis Laboratory (Division of Tests)

There were nine (9) lettings during 1935, comprising sixty-one (61) contracts, for which nine hundred and thirty-five (935) proposals were prepared for bidding. A total of two hundred and forty-two (242) bids were received with a total estimated cost of \$506,079.96. Each bid was checked, item for item, and tabulated.

A tabulation of contracts awarded during 1935 is as follows:

DIVISION OF TESTS

With the changing program of the Department emphasized by the taking over of the county roads in July of this year, corresponding changes in the Division of Tests became desirable and the testing and inspection of certain materials which previously have not been used in any appreciable quantities. Additions have accordingly been made to the existing Laboratory equipment and one man has been added to the personnel so that the new types of work can be carried on with complete laboratory supervision and cooperation with the construction forces.

During the year fifteen hundred individual samples were tested in the laboratory. These samples were representative of the following materials:

Portland Cement	Water	Seal Asphalt
Sand	Roadway Cores	Priming Asphalt
Stone Screenings	6" x 12" Cylinders	Timber
Crushed Stone	Concrete Pipe	Piles
Crushed Slag	Concrete Blocks	Creosote Oil
Gravel	Expansion Joints	Earth Road Samples
Hydrated Lime	Reinforcing Steel	Soil Samples

This report does not cover in detail the inspection and testing of standard materials which has been carried on in the same manner as in previous years and covered by previous reports. No changes have been made in these methods of testing except insofar as necessary to conform with certain minor changes in specifications.

To take care of the contemplated construction of stabilized earth roads and to make the most efficient use of the available local materials for this purpose, a soil analysis



BEFORE
Sussex County—Widening Market Street, Georgetown



AFTER
Sussex County—Widening Market Street, Georgetown

Laboratory was added to the Testing Department during 1935. While this laboratory has not yet attained maximum efficiency of operation, considerable progress has been made and the indications are that the cost of this work will prove a valuable investment. In November the chief operator in this laboratory was sent to Washington, D. C., for a two weeks' training period in the Soil Laboratory of the Bureau of Public Roads.

Sampling and testing of soil samples was begun on March 3rd, 1935, with partial equipment and one operator. Soon thereafter additional equipment was purchased and complete analyses made on all samples. On July 26th, 1935, a second operator was added to the personnel of this laboratory, being transferred from other laboratory work.

At the start of this work samples were taken from both good and bad locations on existing earth roads in an effort to obtain data on local conditions and materials from which definite comparisons of desirable and undesirable materials could be made. From the results obtained, it has been possible to formulate specification requirements which materials must meet in order to prove satisfactory for earth road construction in this State. It has become evident that these requirements differ slightly from those used in other sections of the country. Further tests and research work are being carried on to establish the effect of various local materials on the service behavior of old and new earth roads. While this will require the addition of a small amount of equipment it is evident that the results will prove beneficial and of definite value to the Department.

To date complete analyses have been made of 332 samples, as follows: Road Samples, 97; Borrow Pit Samples, 235; Individual Borrow Pits sampled, 73. Fifty-two (52) Field trips to obtain samples have been made by the laboratory personnel. Other samples have been selected and forwarded to the laboratory by the Resident Engineers and their construction and maintenance forces.

Timber and pile inspection previously handled by commercial laboratories for the Department has been undertaken during the year by the Testing Department with members of its own personnel.

One operator has been specially trained in this inspection and is now thoroughly competent to inspect standing timber and piles through all the processes of cutting, peeling, planing and creosoting preparatory to delivery on State work. Each piece of timber and each pile when found acceptable under the specifications is branded with a distinctive mark of acceptance. Insofar as it has been possible, local timber from the State has been used and in no case has it been necessary to use timber from any source other than on the Delmarva Peninsula. Since taking over direct control of this inspection, the Testing Department has accepted for use 194,450 board feet of creosoted timber and 11,060 linear feet of creosoted timber piles. These quantities do not include timber and piles inspected and rejected for non-conformance with the specifications either for material or creosoting. The amount of timber and piles used during 1935 increased to several times that which had been used in previous years and will probably be even larger in 1936. To take care of this increased inspection another operator is being trained for this type of work, having been transferred from another branch of testing in which the quantity of materials inspected and tested has shown a decrease.

Heretofore the Testing Department has not been completely equipped for testing asphaltic materials. Due to the increased use of asphalt for surfacing treatment on secondary roads, however, additional equipment was purchased so that all standard tests could be made. On a state-wide re-surfacing project during the late summer and fall of this year one hundred and one (101) cars of priming and seal asphalt were used. All of this material was tested at the Dover laboratory by means of samples which were taken by a Department representative at the refinery from which the material was furnished. Samples were taken from stor-

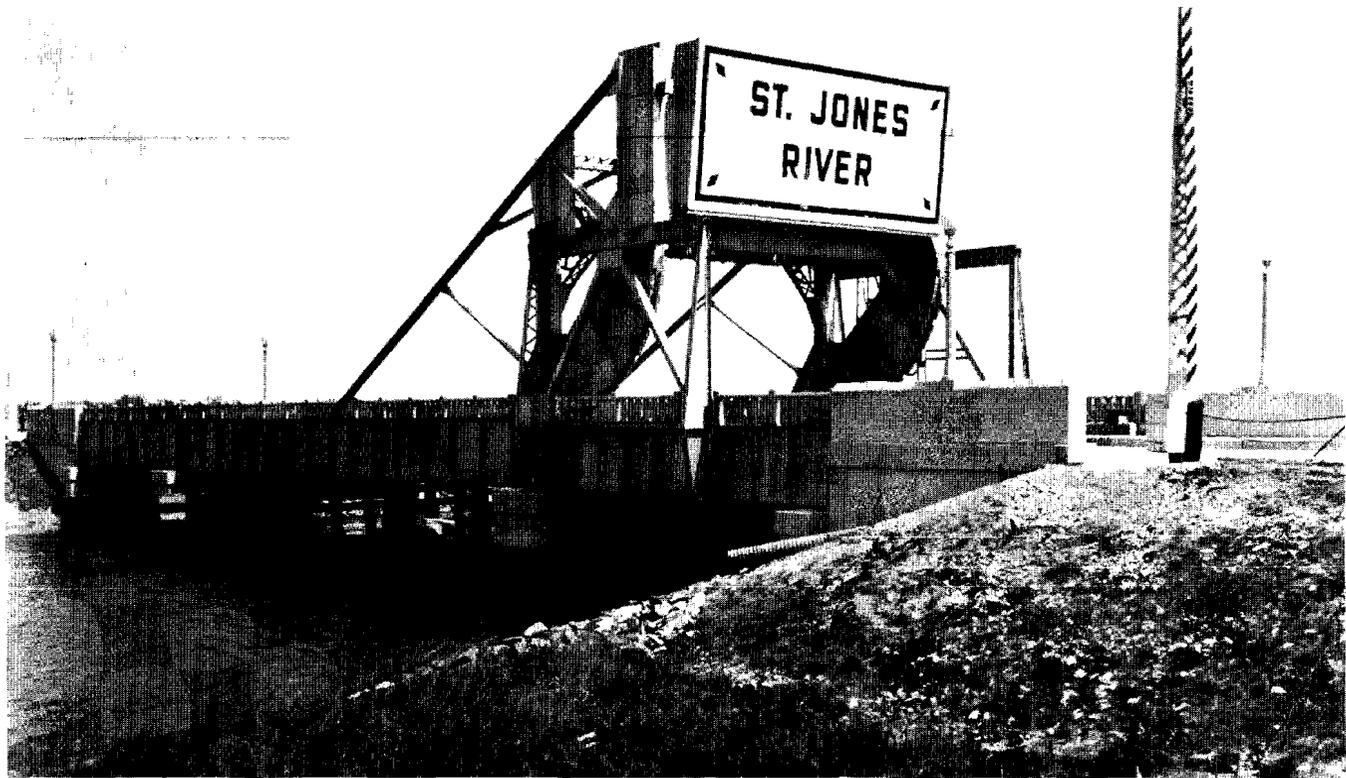
age tanks which when found satisfactory under the specifications, were released for shipment and loaded under our direct supervision into tank cars which were sealed. In this manner any rejection of asphalt after arrival on the job was avoided and delay in construction was not necessary to wait for tests. A considerable saving to the Department was effected by doing this work with our own forces rather than having a commercial laboratory represent us at the refinery.

During the year our Standard Specifications were entirely revised and rewritten. No major changes were made in materials or methods of construction, but new specifications were drawn to cover some of the newer types of construction which were not previously included. The form was changed somewhat to conform with the standard form adopted by all states under the standard requirements of the Bureau of Public Roads of the United States Department of Agriculture. The revised specifications were delivered to the printer the latter part of December so as to be available for all new work in 1936.

During the year valuable information on advanced methods of construction and use of materials has been obtained from the Materials Division of the Bureau of Public Roads, the Materials Committee of the American Association of State Highway Officials, the American Concrete Institute, the Highway Advisory Board of the National Research Council, and the American Association for Testing Materials, with all of which close contact has been maintained through our representative on the various committees, attendance at conventions and the various publications of the associations named.

BRIDGE DIVISION

A review of this year's work in the Bridge Division shows only one large structure under contract. This is the Overhead Bridge at New Castle on U. S. Route 40, replacing the former inadequate timber structure. Bids were received on October 8th, 1935, for this project, which is being



Kent County—Barkers Landing Bridge

constructed under the supervision of the Pennsylvania Railroad as provided by the laws of the State of Delaware for all structures over railroads. There were fourteen (14) bidders on this job, with J. A. Bader and Company, of Wilmington, submitting the lowest bid of \$29,571. All design work was done by the Bridge Division and it was then reviewed by the Bridge Engineer of the Eastern Division of the Pennsylvania Railroad. There are three spans on this structure of 38 feet each. The new bridge will have a roadway width of 44 feet with two 5-foot sidewalks. It will be completed early in the new year.

In addition to preparing plans and drainage surveys for bridges and culverts on contracts let during the year, plans have been prepared for all structures on the Federal Program now under way. Plans have also been made for additions to the State Police Stations at Penny Hill and State Road, and for the remodeling of the Sesqui Building at Dover for a police station and offices of the Division Engineer in Kent County, as well as for a garage building at State Road.

The division has also inspected all bridges in the county systems taken over by the State, and prepared plans for the repair and replacement of a large number of those which were in poor condition. Some of these repairs were made by forces of the Department and others under contract.

Following the record-breaking storm of September 4th-6th standard plans for creosoted timber bridges were immediately issued and to date thirty-six (36) of these structures have been erected.

A large number of bridges which might have been replaced over a period of years were so weakened and undermined that their early replacement has been made necessary. In all, more than one hundred (100) were damaged. In general, these will be replaced with creosoted timber bridges, as their low cost, long life and the rapidity with which they can be constructed from standard plans make



Kent County—Typical Washouts of Dirt and Concrete Roads
September Storm, 1935

them particularly adapted for this type of service. As has been described under the testing of materials, practically all of this timber can be secured and given the creosoting treatment within the State, to the benefit of local industries.

The largest bridge requiring replacement is the two-span concrete bridge over Marshyhope Creek at Vernon which was completely wrecked during the storm and which is being replaced with creosoted timber.

Plans are nearing completion for the elimination of the Pennsylvania Railroad grade crossing at College Avenue, Newark, and the Silver Lake Bridge at Dover, both of which will be placed under contract in the early spring.

MAINTENANCE

At the beginning of the year the State Highway system totaled 1,239 miles, of which 869 miles were of high type and 370 miles were of secondary construction.

The work of maintaining this system has been carried on systematically throughout the year and the usual high standards maintained in spite of unprecedented weather conditions, and at a somewhat lower cost than for the preceding year. Especial attention has been given to the improvement of the roadside, the erection of direction signs and the correction of danger spots.

The Concord Pike from Blue Ball to Talleyville was surface-treated and the shoulders improved and surfaced, increasing the available roadway to twenty-six (26) feet. Other smaller improvements were made and some experimental resurfacing of scaled concrete surfaces was done. I would recommend the resurfacing of the southbound dual highway between Tybout's Corner and Corbit in 1936.

More snow fell in 1935 than in any previous year. Additions to our snow fence, and to our snow-fighting equipment which has been regularly built up during the past five years has enabled the forces of the Department to handle the problem in a reasonably satisfactory manner.



Kent County—Typical County Road after State Maintenance

During the storm of December 22nd to December 31st, not only were all the State Highways kept clear, but ninety (90) per cent of all the former county roads were opened. This was made possible only by the frozen condition of the dirt roads and the untiring enthusiasm of our engineers and their forces, working night and day over most of this period. As a result of their efforts, January 1st was moving day in Kent and Sussex Counties, as usual. Under average conditions it is practically impossible for trucks to do effective snow removal work on dirt roads and this fortunate condition may not occur again soon.

All new trucks purchased for maintenance purposes during the year are equipped with snow plows and other new and improved equipment has been secured for some of our older units.

The total cost of maintenance in the State system for the twelve months ending December 31st, 1935, was \$455,135.12, or an average cost of \$367.26 per mile, which includes \$64,682.45 for plant and equipment.

There was spent on the county system during the six months ending December 31, 1935, \$250,670.63; \$70,779.96 of which was expended for new equipment.

COUNTY HIGHWAYS

In accordance with an Act of the General Assembly approved by the Governor on March 29th, 1935, the State Highway Department was directed to take over and maintain after July 1st, 1935, all the public roads and bridges of the State then under the control of the County Levy Courts.

Immediately, plans were formulated to carry out the purposes of the Act. Automobile surveys were made of all the roads to be taken over and notes made of the length, width, type of soil and surfacing, number of occupied houses, estimated amount of traffic, and the general condition of the road, with recommendations as to immediate improvements and repairs required. Similar surveys were made of culverts and bridges.

Maps were then prepared for each county, showing all roads, each road being given a number for identification and cost-keeping records.

It was found that the county systems consisted of 2,548.4 miles, classified as follows:

Cement Concrete	7	Miles
Bituminous Concrete	307	"
Bituminous Macadam	56	"
Brick	0.4	"
Traffic Bound	7	"
Unimproved Dirt	2,171	"
	2,548.4	"

A study of these maps and records was then made and the State divided into thirty (30) maintenance districts. A maintenance foreman was placed in charge of each district under the supervision and direction of the Division Engineer of the county. Each foreman was furnished with two (2) helpers and a truck, and such small tools as were required, and is held responsible for the maintenance in his district.

The general plan adopted for improving the dirt roads called for the grading of all roads within six weeks to place them in a reasonably smooth condition, to be followed by patrol maintenance at frequent intervals thereafter. This was accomplished by the use of one-man graders and pull graders, followed by truck scrapers, some of which were operated at night, thus securing twenty-hour service which overcame a temporary shortage in equipment.

The equipment purchased consisted of 2½-ton dump trucks, in part equipped with underbody, hydraulic operated scrapers, one-man dual-drive graders and crawler tractors and pull graders.

In addition to the grading and scraping operations, immediate attention was given the worst drainage conditions and the clearing and widening of the right of way



Sussex County—Police Station, Bakers Corner, Bridgeville
After September Flood, 1935



Sussex County—Gravelly Fork near Middleford
After September Storms

where it had been neglected, followed by the surfacing with sand, gravel or pre-tested stabilized earth of those sections which, by observation or report, were known to cause trouble under unfavorable weather conditions.

Bridge crews were dispatched to replank, paint and repair weak and neglected bridges.

The first objectives were generally reached when the great storm of September 4th-6th destroyed much of the work of the previous two months and caused damages to the highways of Kent and Sussex Counties in excess of \$150,000.

Many bridges which successfully withstood the big storm of 1933 were destroyed and embankments were washed out in hundreds of places. Fully one hundred (100) bridges, mostly in the county system, were seriously damaged. Many of them would have served for from five to ten years had they not been undermined and weakened by the storm. Some have been temporarily repaired but will require replacement as rapidly as possible.

The plan contemplates the progressive improvement of the remaining unsurfaced roads of the State until the entire road mileage will be passable at all times of the year. Obviously this cannot be accomplished immediately, and it is equally plain that the improvements must be made at low cost. The use of local materials now made available by recent developments in soil stabilization is an absolute necessity for the success of this plan.

In spite of the fact that a large portion of the work of our forces has been devoted to repairing storm damages, over eighty (80) miles of county roads have been surfaced with gravel or other materials, four thousand five hundred and sixty (4,560) feet of concrete pipe have been placed, thirty-six (36) new bridges have been constructed, and all bituminous macadam roadways have been patched and surface-treated.

RIGHT OF WAY

During the year ending November 30th, 1935, the Right-of-Way Division secured the right of way on road projects having a total mileage of 80.93 miles. In addition to the mileage stated, this division has also settled numerous properties carried over from previous years. Other work of this division consisted of purchasing numerous borrow pits, several sites for State buildings, the writing of 551 descriptions, obtaining 617 options, securing the execution of 623 deeds and 353 releases and conducting the hearing of 18 condemnation commissions and 8 condemnation juries. Construction work necessitated the moving of 23 houses, 15 barns, 5 service stations, 8 garages and numerous small buildings.

The following is an itemized account of expenditures:

Salaries and expenses	\$ 6,603.21
Legal	7,368.72
Right-of-Way	81,275.50
Fencing	12,554.09
Crops and trees	3,303.03
House moving	24,536.19
Borrow pits	3,474.00
Condemnation awards	27,531.68
Miscellaneous	1,130.50
TOTAL	\$167,776.92

CONSTRUCTION

The Department advertised during the past year nine (9) road and bridge lettings, comprising sixty-one (61) contracts which were divided as follows:

- 12 Complete roadway contracts
- 2 Major grading contracts including structures
- 3 Concrete street widening contracts
- 1 Separated grade crossing contract
- 10 Creosoted timber bridge contracts
- 2 Bridge repair contracts



Kent County—Washout at Vernon. 50 foot Concrete Bridge (water at peak was 4 feet above roadway. September, 1935)



Kent County—Flood conditions at Vernon, August 7, 1935
Looking north along Marshy Hope Creek

- 1 State-wide surface treatment contract
- 1 Gravel surfacing contract
- 2 Sodding contracts
- 1 Dual parkway landscape contract
- 3 Addition to Police Stations contracts
- 1 Storage shed contract

Also several miscellaneous contracts for gaso-
line, oil and grease, snow fence, seed, et cetera.

There were two hundred and forty-two (242) bidders who submitted proposals on the above contracts, an average of better than four (4) per contract and the total low contract bid for the projects amounted to \$506,079.96.

The mileage and types of roadway and sidewalk contracts advertised this year was divided as follows:

0.60	miles	20 ft. Concrete
0.50	"	16 ft. Concrete
2.453	"	Concrete widening 6-12 ft.
3,030	lin. ft.	Sidewalks
15.887	miles	16 ft. Traffic slag or stone
24.354	"	12 ft. Traffic slag or stone
5.835	"	Major grading contracts
35.165	"	Sodding contracts
5.777	"	Dual parkway landscape contracts
115	"	State-wide surface treatment

The mileage of roadway completed this year which was carried forward from the 1934 working season was as follows:

2.586	miles	22 ft. Concrete pavement
0.50	"	20 ft. Concrete pavement (dual road)
1.51	"	20 ft. Concrete pavement
1.75	"	18 ft. Concrete pavement
5.45	"	9-14 ft. Bituminous concrete on water bound macadam base
4.89	"	18 ft. Traffic stone
21.41	"	18 ft. Traffic slag

The mileage of roadways and sidewalks of contracts completed, advertised and awarded this year is as follows:

2.453	miles	Concrete widening
11.679	"	16 ft. Traffic slag or stone
730	lin. ft.	Sidewalks
35.165	miles	Sodding
5.777	"	Landscape work

The mileage advertised and awarded this year which is to be carried into the 1936 season is as follows:

0.60	miles	20 ft. Concrete pavement
0.50	"	16 ft. Concrete pavement
4.208	"	16 ft. Traffic slag or stone
24.354	"	12 ft. Traffic slag or stone
5.835	"	Major grading
2,300	lin. ft.	Sidewalk

This year saw the completion of the remainder of the dual roadway to Dover and the Dover by-pass; this by-pass was opened to traffic on Memorial Day and has been used to advantage by those travelling to the seashore resorts.

Upon completion of the surfacing of approximately four (4) miles of dual roadway from Glasgow to the Maryland Line, to be constructed this year, the two most heavily travelled roads in the State—Wilmington to Dover and State Road to Maryland Line—will be of dual highway type; a roadway designed to facilitate movement of traffic with a maximum of safety.

Another link in the North East Boulevard from Edge Moore to Holly Oak was built and opened to traffic this year. This roadway has opened a territory which has paid dividends before its completion and two great industrial plants, employing much labor, have been established, primarily due to this road. Also, several residential developments are being opened along its route.

Concrete widenings to the curbs on existing roads through the main traffic arteries in the towns of Georgetown, St. Georges and the King's Highway, in Dover, have been pleasing both to the town residents and travelling public.

The new mileage of the State Highway system, as of January 1st, 1936, and including the county highways, amounts to 3,849.9 miles, of which 1,676 miles, or 43.5 per cent, is of an improved type. These are divided as follows:

676.8	miles	Concrete	14-40 ft.
137.3	"	Concrete	9 ft.
323.8	"	Bituminous concrete	
6.5	"	Brick	
101.8	"	Bituminous macadam	
27.0	"	Sand asphalt	
341.8	"	Traffic slag or stone	
64.2	"	Sand-clay road	
2,170.7	"	Unimproved dirt roads	

In addition to the preceding:

113.7	miles	have been widened and resurfaced
47.5	"	have been made dual
56.0	"	traffic slag surface-treated
29.4	"	sidewalks have been built

Following is a tabulation giving the location, length and type of the roadway, bridge and sidewalk contracts which were advertised and awarded in the three counties this year.

WIDENING HIGHWAYS

Nearly 160 miles of pavements originally constructed 14 to 16 feet in width have been widened during past years. Despite this substantial program, there is still a considerable mileage where traffic is of sufficient volume to warrant attention.



Kent County—Sidewalk and Widening. North Little Creek at Water Works, Dover

Among those needing immediate construction are the State Highway between Blackbird and Middletown; Mt. Pleasant via Summit Bridge to Tybout's Corner; New Castle to Cranston Heights via Newport; in New Castle County. In Sussex County, the routes from Lewes to Laurel via Georgetown; and from Five Points to Milford are the most important.

I would recommend that as far as funds will permit that these roads be constructed in 1936.

ROADSIDE IMPROVEMENT

The work of improving the appearance of our highways gains added support and interest from year to year.

Two contracts for sodding slopes totalling \$14,300 were completed during the year, and a tree-planting contract was carried out between Wilmington and State Road at a cost of \$4,790. Funds for these projects were furnished by the Federal government.

Other smaller improvements were made and the planting of trees and shrubbery was carried out throughout the State in selected locations.

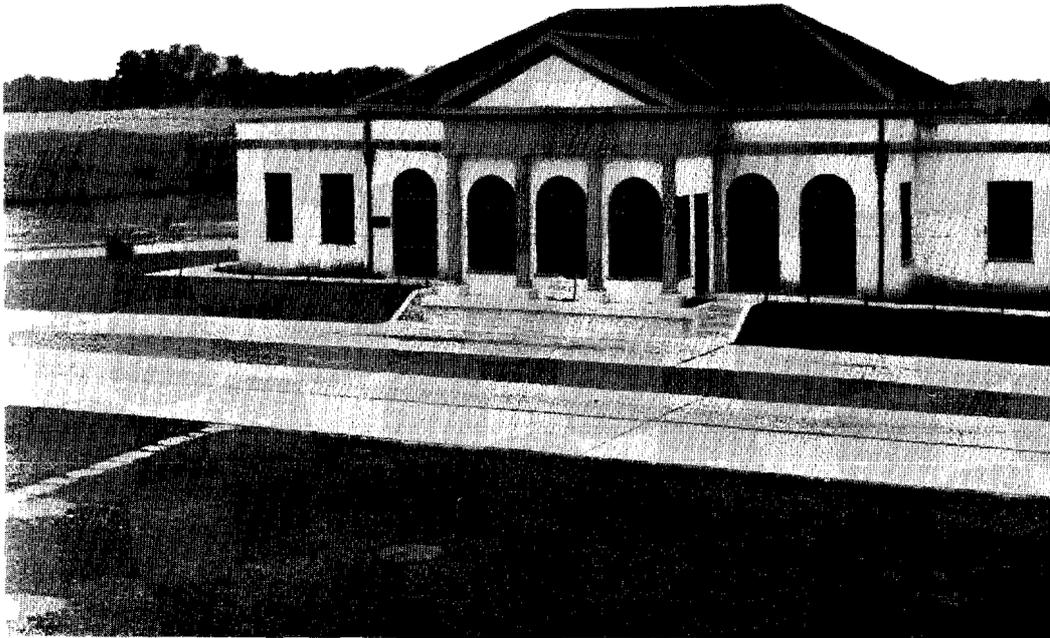
All trees and shrubs have been sprayed, trimmed and fertilized to insure a healthy and satisfactory growth.

A considerable number of trees and shrubs have been donated by organizations and individuals; these are too numerous to mention individually but I would like to here express appreciation for these contributions.

Other Federal money will be available during 1936 and used for roadside improvement work.

DUAL HIGHWAYS

The system of dual highways constructed in Delaware since 1929 has attracted wide notice and interest throughout the country and established Delaware as a pioneer in this type of construction.



Kent County—Police Station. Weighing Station and Division Engineer's office, north of Dover. (The building at the Sesqui Centennial Exposition, moved down and remodeled)

In the Annual Report of the Department of 1927, Governor C. Douglass Buck, then Chief Engineer, first recommended the construction of this system; the advantages which he pointed out at that time of safety, speed, comfort and convenience, and the attraction it would prove to motorists from other states, have been long since accepted by unanimous consent as having been more than fulfilled. Its contribution to the decreasing death toll on our highways cannot be overlooked.

The paving of the proposed dual highway between Glasgow and the Maryland Line, U. S. 40, near Elkton, now graded, completes the original program laid down by the Department. Whether other roads will develop sufficient traffic to warrant similar improvement and whether funds will be available should desirable projects be found is a speculative problem which appears idle to attempt to solve here.

OCEAN HIGHWAY

The Ocean Highway between Rehoboth and Bethany Beach survived the storm of November 17th, 1935, and was closed but a few hours during the height of the storm when the dike adjoining the Indian River Inlet was carried away as was anticipated. The sand fences and dikes furnished complete protection at all other locations.

The construction of sand fences has been carried on during the year between Bethany Beach and Fenwick's Island, and I would recommend the grading and preliminary surfacing of this road be included in the program for 1936.

STATE POLICE

The records of the Department indicate that 1935 has been an outstanding year in the history of the State Police, not only in the amount of work done but in the results obtained.

There has been a substantial increase in the recorded activities, the number of arrests made, trucks weighed,



BEFORE

Sussex County Traffic Bound Slag from Prince George Church to Roxana



AFTER

Sussex County—Traffic Bound Slag from Prince George Church to Roxana

miles patrolled, et cetera, and at the same time an encouraging decrease in accidents, fatalities and injuries on the highways of the State. To the Superintendent and to those officers of the force whose loyalty and faithful service have contributed to this creditable showing, I wish to here extend my congratulations and thanks.

Officers of the Department during the year covered 944,982 miles on patrol duty, made 5,470 arrests, issued 28,471 reprimands, weighed 45,825 trucks, inspected 19,164 cars and trucks for defective lights and brakes, spent 6,671 hours on investigations, 10,809 hours on special duty, recovered 63 stolen cars and addressed 5,000 school children on highway safety.

The increasing activities of the force have made the original station houses inadequate. Early in the year, the Department remodeled the Sesqui Inn near Dover and it now furnishes ample room and admirable facilities for police work as well as offices for the Division Engineer of Kent County. A set of modern 30-ton highway scales was installed which adds much to the equipment at this station. Sufficient land at the rear of the station is available for the construction of a pistol range which is needed.

At Penny Hill and State Road Stations, additions consisting of an office for the sergeant in charge, a fingerprinting dark room, and locker and storage rooms have recently been completed which add greatly to the convenience and efficient operation of these stations.

The stations at Georgetown and Bridgeville are temporary structures and inadequate for present conditions. I would therefore recommend that new station buildings of permanent construction and suitable design be erected during the coming year.

While the motorcycle is without a competitor for patrol and traffic control work in daylight and fair weather, it is subject to serious limitations on investigations and during darkness and stormy weather. To remedy this deficiency there has recently been added an automobile to each

station, thus doubling the number of cars available. It is believed that this will help appreciably in the work of each station.

One of the important developments during the year was the establishing of the Bureau of Identification at Station No. 1. Through this newly organized branch we have been able to turn back to other states fugitives wanted for numerous crimes. Recently an arrest was made at Claymont for larceny. Finger-prints were lifted and photographs taken, copies were sent to the Federal Bureau of Investigation at Washington, and in a short time word was received that this man was wanted in Durham, North Carolina, for murder. Upon being confronted, the prisoner admitted his guilt, waived extradition and was returned to Durham for trial.

There have also been instances where pedestrians were killed with nothing on their person that would identify them, and through this medium identification was made possible and the bodies turned over to relatives or friends, saving them from being buried in Potters Field.

Meetings of civic and social groups were attended by members of the State Police, giving demonstrations and showing the value of finger-printing. At all meetings all those who requested were finger-printed and a personal identification card given them, with their thumb print on a card to be carried on their person.

The Bureau was set up in July, 1935, and the following number of prints are now on record:

Criminal Print Records	322
Personal Identification	265
Criminal Flyers	300

As mentioned in last year's report, the Department now has teletype connections with eight states, which has been of considerable value in the apprehension of criminals. Four hundred and twenty-seven (427) messages were sent out during the year.

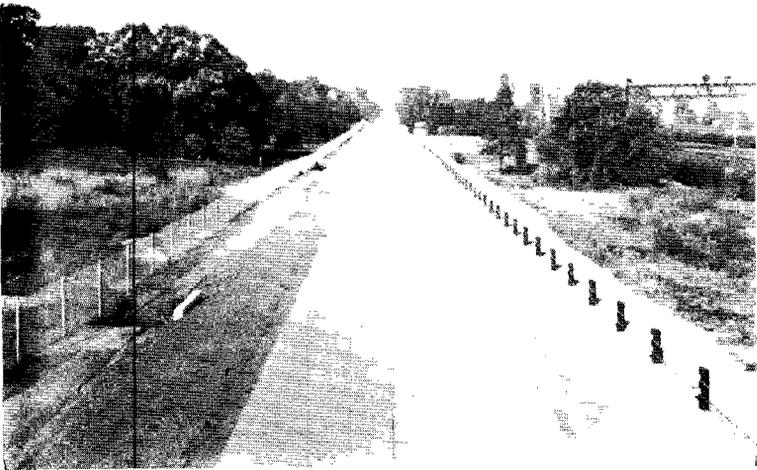
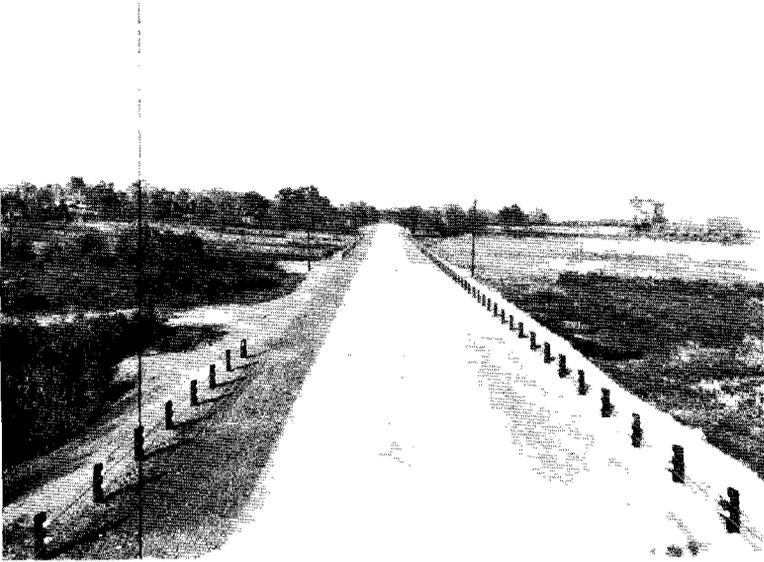
Should the States of Maryland and Virginia join this group, this service would become of much greater importance.

A member of the staff attended the National Police School, conducted by the Federal Bureau of Investigation at Washington, during the fall. I believe that this training will prove of much value to the Department.

A complete tabulation of arrests and accidents, with their causes, is appended.

ARRESTS FOR THE YEAR 1935

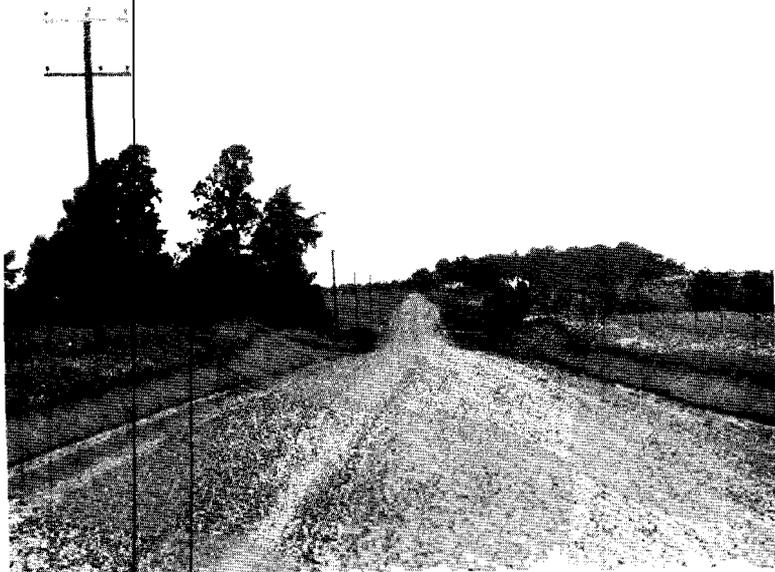
Accessory	3
Accomplice	1
Adultery	1
Aiding and abetting	4
Allowing body to protrude over side	2
Allowing illegal use of tags	2
Allowing livestock to run at large	1
Allowing minor to operate	7
Allowing unlicensed person to operate	78
Allowing unregistered car to be operated ..	8
Altering operator's license	1
Arson	1
Assault	14
Assault and battery	228
Assault felonious	8
Assault to murder ..	13
Attempted arson ..	1
Bastardy	2
Breach of peace ...	5
Breaking and entering	70
Carrying concealed a deadly weapon	18
Contempt of court	3
Defective brakes	119
Desecrating the Sabbath	1
Destroying State Property ..	1
Discharging fire arm ..	1
Disorderly conduct	139
Displaying another's license	7
Displaying fictitious license	2
Disregarded stop sign	241
Disturbing religious service	2
Drug addict	2
Drunk and disorderly	189
Embezzlement	2
Exceeding legal length	2
Exceeding legal height	3



New Castle County—"Northeast Boulevard"

Exceeding legal width	4
Exceeding registered weight	276
Failed to assign title	1
Failed to display red light	11
Failed to report accident	2
Failed to signal	9
Forgery	5
Fugitive from justice	24
Held as witness	27
Highway robbery	11
Hitch hiking	14
Horse drawn vehicle no light	5
Illegal use of dealer's tags	3
Improper cleats on tractor	2
Improper lights	46
Improper parking	2
Improper tags	19
Incorrigible	1
Insane	4
Interfering with officer	4
Interfering with operator	10
Juvenile delinquent	2
Keeping disorderly house	4
Keeping gambling house	2
Larceny	218
Larceny as bailee	1
Leaving accident	24
Lending license plates	3
Lending operator's license	11
Making false statement	3
Making threats	23
Manslaughter	5
Murder	9
No chauffeur's license	63
No clearance lights	16
No horn	10
No learner's permit	3
No mirror	85
No muffler	9
Non-support	11
No operator's license	549
No photograph on chauffeur's license	4
No windshield wiper	1
Obtaining money under false pretenses	3
Operating after revocation	7
Operating during suspension	1
Operating unregistered automobile	336
Operating while intoxicated	210
Overloaded rear axle	174
Overloaded semi-trailer	129

Overloaded trailer	3
Overloaded truck	96
Parking on concrete	13
Parking without lights	7
Passing counterfeit money	6
Passing (red) traffic light	28
Passing trolley car on left	5
Passing worthless check	7
Pedestrian without light	6
Perjury	4
Pointing fire arm	3
Policy writing	8
Possession gambling device	1
Possession stolen goods	3
Practicing medicine without license	1
Rape	1
Receiving stolen goods	8
Reckless driving	1,521
Resisting arrest	2
Robbery	2
Selling car without title	1
Selling goods without license	2
Siren on motor vehicle	2
Taking car without owner's consent	22
Tampering with automobile	2
Throwing rubbish on highway	3
Transporting unmarked apples	1
Trespassing	39
Using female child for immoral purpose	5
Using fictitious address	1
Vagrancy	11
Violating Dyer Act	2
Violating Fuel Act	3
Violating Game Law	1
Violating Learner's permit	33
Violating Liquor Law	27
Violating Milk Law	6
Violating Relief Act	1
Wife Beating	5
Total number arrests	5,470
Total number reprimands	28,471
Total number trucks weighed	45,825
Total number miles patrolled	944,982
Total number cars inspected for lights and brakes	19,164
Total number hours spent on investigation	6,671
Total number hours spent on Special Duty	10,809
Total number hours on duty	161,840
Total number stolen cars recovered	63
Total number school children addressed on safety	5,000



Kent County—"Traffic Bound Slag" Smyrna to White House



Kent County—"Traffic Bound Slag" Fleming's Corner to Maryland Line
near Brownsville

ACCIDENTS FOR THE YEAR 1935

Total number accidents	843
Total number killed	60
Total number injured	764
Estimated Property Damage	\$139,254.00

Type of Accident

In Collision with:	Total	Fatal	Non-fatal
Pedestrian	86	24	62
Automobile	495	18	477
Animals or Horse Drawn Vehicles	22	1	21
Railroad Train	10	4	6
Street Car	1	--	1
Motorcycle	4	--	4
Fixed Object	133	7	126
Bicycle	7	--	7
Non-collision Accident	82	6	76
Miscellaneous	3	--	3
Totals.....	843	60	783

Cause:

Reckless driving	213
Operator had been drinking	60
Inattention	55
Disregarded stop sign	50
Loss of control	50
Drove or crowded off roadway	43
On wrong side of road	41
Skidding	40
Operator asleep	37
Jay walking	31
Failed to signal	29
Tire (blow out)	28
Obstructed view	16
Automobile no lights	15
Following too closely	15
Defective steering gear	14
Child playing in roadway	14
Animal on highway	14
Defective brakes	11
Pedestrian coming from behind parked vehicle	10
Glaring headlights	7
Pedestrian had been drinking	7
Operator confused	7
Pedestrian confused	6
Horse drawn vehicle no lights	6
Passing without proper clearance	4
Fell or jumped from motor vehicle	4
Inexperienced operator	4
Interfering with operator	3
Operator had physical defect	2
Bicycle no light	2
Cutting in	1
Not stated	4

Driver's Sex:	Total	Fatal	Non-fatal
Male	1247	64	1183
Female	104	4	100
Not Stated	12	4	8
Totals	1363	72	1291

Driver's Age:	Total	Fatal	Non-fatal
Under 20 years	122	13	109
20 to 29 years	506	26	480
30 to 49 years	545	19	526
50 to 64 years	124	4	120
65 years and over	43	4	39
Not stated	23	6	17
Totals	1363	72	1291

Driving Experience:	Total	Fatal	Non-fatal
Less than 3 months	17	3	14
3 to 6 months	8	--	8
6 to 12 months	13	1	12
1 year or more	1264	49	1215
Not stated	61	19	42
Totals	1363	72	1291

Light Conditions:	Total	Fatal	Non-fatal
Daylight	399	13	386
Dusk	30	--	30
Artificial light—good	59	4	55
Artificial light—poor	53	4	49
Darkness	301	32	269
Not stated	1	1	--
Totals	843	54	789

Day of Occurrence:	Total	Fatal	Non-fatal
Sunday	167	16	151
Monday	110	7	103
Tuesday	109	14	95
Wednesday	94	3	91
Thursday	59	5	54
Friday	130	5	125
Saturday	134	4	130
Totals	843	54	789

Weather Conditions:	Total	Fatal	Non-fatal
Clear	547	33	514
Cloudy	91	12	79
Fog or mist	54	2	52
Rain	123	6	117
Snow	24	--	24
Not stated	4	1	3
Totals	843	54	789



Typical County roads, June 21st, 1935. Taken over by State Highway Department, July 1st, 1935



Typical County roads June 21st, 1935. Taken over by State Highway Department, July 1st, 1935

Hour of Occurrence:	Total	Fatal	Non-fatal
12 to 1 A. M.	50	4	46
1 to 2 A. M.	33	3	30
2 to 3 A. M.	25	3	22
3 to 4 A. M.	24	3	21
4 to 5 A. M.	17	1	16
5 to 6 A. M.	14	1	13
6 to 7 A. M.	25	1	24
7 to 8 A. M.	20	--	20
8 to 9 A. M.	31	2	29
9 to 10 A. M.	23	1	22
10 to 11 A. M.	25	--	25
11 to 12 A. M.	36	1	35
12 to 1 P. M.	18	--	18
1 to 2 P. M.	28	--	28
2 to 3 P. M.	35	1	34
3 to 4 P. M.	53	4	49
4 to 5 P. M.	48	1	47
5 to 6 P. M.	58	1	57
6 to 7 P. M.	54	6	48
7 to 8 P. M.	46	4	42
8 to 9 P. M.	51	3	48
9 to 10 P. M.	40	6	34
10 to 11 P. M.	37	5	32
11 to 12 P. M.	47	3	44
Not stated	5	--	5
Totals	843	54	789

Road Location:

Between intersections	20	1	19
Rural intersections	144	5	139
Straight Road	485	39	446
Driveway	35	--	35
Curve	94	6	88
Street intersection	49	1	48
Railroad crossing	10	2	8
Street car crossing	1	--	1
Bridge	2	--	2
Not stated	3	--	3
Totals	843	54	789

Road Surface:

Dry surface	589	45	544
Wet surface	185	7	178
Muddy surface	1	--	1
Snowy surface	40	--	40
Icy surface	26	--	26
Not stated	2	2	--
Totals	843	54	789

Action of Pedestrian**Contributing to Accident:**

No. of Pedestrians Involved

	Total	Fatal	Non-fatal
Getting on or off street car	1	1	--
Getting on or off other vehicle	2	1	1
Crossing intersection	4	1	3
In street not at intersection	15	3	12
Children playing in roadway	19	2	17
Coming from behind parked car	9	1	8
At work on car on roadway	4	2	2
Walking on or along highway	33	12	21
Miscellaneous	2	--	2
Not stated	1	1	--
Totals	90	24	66

Type of Vehicles Involved in Accident:

Passenger car	1034	57	977
Light delivery car	26	1	25
Taxi	1	--	1
Bus	7	--	7
Motorcycle	6	--	6
Truck	286	11	275
Wagon	10	1	9
All others	8	--	8
Not stated	3	3	--
Totals	1381	73	1308

SAFETY

In spite of more traffic, as evidenced by increasing sales of gasoline in the State, and an increased number of fatalities throughout the nation, Delaware maintained its place among a small group of states which have had decreasing fatalities during the past three years.

There were sixty (60) persons killed on the public streets and highways of Delaware outside the City of Wilmington during 1935, compared with sixty-nine (69) in 1934, seventy (70) in 1933 and seventy-two (72) in 1932. There was a reduction in accidents from nine hundred and twenty-two (922) to eight hundred and forty-three (843) during the same period.

This decrease of thirteen (13) per cent in 1935 must be very gratifying to every friend of safety and reflects the combined results of safety in construction, traffic control,

law enforcement, public education and the splendid efforts of safety councils, cooperating organizations, and the press, with, perhaps, some "lucky breaks."

If this record is to be maintained or bettered in the future, it will require the united efforts of all participants and the earnest and sober cooperation of the individual motorist.

It is an interesting and perhaps significant fact that the locations of improvement were very marked, viz.: between Dover and Smyrna where the new dual highway was opened, and an area north and northwest of Wilmington, there being no fatalities on the Lancaster, Kennett and Concord Pikes or their connecting roads and but two on the Philadelphia Pike, while in the area immediately to the south and east of the City of Wilmington the record was deplorable.

A study is being made of these areas to determine, if possible, the causes of this inconsistency.

That seventy-four (74) per cent of the fatal accidents occurred during the hours of darkness, while but forty-seven (47) per cent of the non-fatal accidents occurred during those hours also forms a subject worthy of careful study if we are to understand and solve this problem.

REHOBOTH AND BETHANY BEACH GROINS

As noted in last year's report, the Department, as directed by the General Assembly, was proceeding with the construction of a system of groins to protect the ocean fronts of Bethany Beach and Rehoboth.

These were completed in the spring and in general appeared to be serving their purpose. Both beaches were, in the opinion of careful observers, in unusually good condition throughout the fall. The northeast gale of November 16th and 17th was withstood successfully, but a succession of northeast winds since that time has seriously eroded the beach south of the southernmost jetty at Bethany Beach.

It would appear that other groins, both north and south of the present ones, are necessary to a satisfactory protection of Bethany Beach.

Two of the old timber jetties north of the Henlopen Hotel at Rehoboth are also in bad condition. These need replacing and possibly the construction of another groin between.

Approximately sixty (60) feet of the south groin at Bethany Beach was carried away by a storm early in the spring.

The old jetties at Rehoboth were inspected and repaired with new bolts and timber where necessary.

RECOMMENDED ROADS

I recommend that the roads chosen for improvement during the coming year be selected from the following list, which includes those for which petitions have been received by the Department:

New Castle County

Port Penn-Thomas Corner	3.50	miles
Odessa-Armstrong Corner-Bohemia	7.00	"
Townsend-St. Ann's-The Levels	4.50	"
Blackbird-Conway's Corner	3.50	"
St. Andrew's School-Fieldsboro	2.00	"
Boyd's Corner-Shallcross Pond-Shallcross Corner	4.50	"
Pine Tree-McCoy's Corner	2.80	"
Creek Road, Newark-Pennsylvania Line	4.50	"
New London-Newark	2.50	"
Rockland-Thompson Bridge	3.00	"
Brandywine Sanatorium-Lincoln Highway	2.00	"
Milltown-Lincoln Highway	1.80	"
Summit Bridge-Newark	10.50	"
Carr Road-Naaman's Road	2.50	"
Dual Road, Price's Corner to Fourth St. Extended....	2.50	"
Sidewalk: Marshallton west of Red Clay Creek.....	.50	"
Augustine Cut-off thru Alapocas Woods Park to New Bridge Road		
Pine Tree to Naylor's Corner to Taylor's Bridge- Odessa Road	3.00	"
Jamison's Corner north to St. Georges-Summit Bridge Road; thence west to Lorewood Grove-Mt. Pleas- ant Road; thence south to Mt. Pleasant-Boyd's Corner Road	4.00	"
S. Chapel Street, Newark, to Coochs-Christiana Road.	3.00	"
Port Penn-Bay View	2.50	"
Shallcross Pond-Armstrong's	2.50	"

New Castle County (Continued)

St. Georges-Summit Bridge	4.00	"
Porters-Summit Bridge Road	2.00	"
Hog Swamp Road-Newport	3.50	"
Naaman's Road, Point Breeze School to Perry's Tavern	1.50	"
30th St. Paving-Church St. to N. E. Blvd.		
Bld.-Canby Park, Wilmington		
Commonwealth Ave., Overlook, Claymont		
Millcreek to Limestone Road in Millcreek Hundred...		

Kent County

Blackiston to Delaney	3.33	miles
Postles Corner Road	3.00	"
Wyoming to Ridgley's Corner	1.90	"
Oak Point School Road	4.80	"
Guy Town to Woodside	3.30	"
Plymouth to Barratt's Chapel	6.00	"
Rice's Corner to Milford (via McCaulley's Pond)....	7.09	"
Sugar Stick Road	3.80	"
Vernon to Brownsville	2.20	"
Harrington to Hughs X Roads	7.50	"
Andrewsville to Vernon	2.61	"
Andrewsville to Sussex Line	2.00	"
Marydel, Tilghman's Corner Road to Westville-Henderson Road	2.30	"
Vernon-Masten's Corner-Harrington Road via White's Chapel	6.00	"
Barker's Landing northwest to duPont Road at Bernard Farm	2.00	"
Cedar Grove School to Loper's Corner	2.50	"
Bryant's Corner to Wyoming-Hazletville Road		
Barker's Landing to Magnolia-Canterbury State Highway	3.00	"
Lebanon to State Road, otherwise known as Bay Road.		
Willow Grove to Hazletville		
Drawbridge over Murderkill River-Bowers Beach....		
Brickhole to Sycamore		
Brownsville to Maple Grove School		

Sussex County

Seaford Hundred: Seaford-Woodland	6.00	miles
Seaford Hundred: Wesley Church Toward Hearn's Pond	1.50	"
Gumbo Hundred: Lowe's X Road-Pepperbox School.	5.00	"
Baltimore Hundred: Fenwick's Island-Bethany Beach.	7.00	"
Baltimore Hundred: Bishopville-Roxana	5.00	"
Millsboro-Hollyville	4.260	"
Lovetts Nursery-Cedar Neck School	8.281	"
Fairmount-Five Points	5.75	"
Indian River Hundred: Goslee's Mill via Conley's Chapel to Millsboro-Rehoboth Highway	4.00	"
Fisher's School to Big Pine to Woodenhawk School...		
Concord to Old Furnace-Middleford Road	2.50	"
Owens-Sunnyside School	4.30	"
Whitesville-Maryland Line .....	.40	"
Vines Creek-Sandy Landing	1.60	"
Frankford-Dagsboro Shaftox Road	2.50	"



Kent County—Snow removal near Little Creek

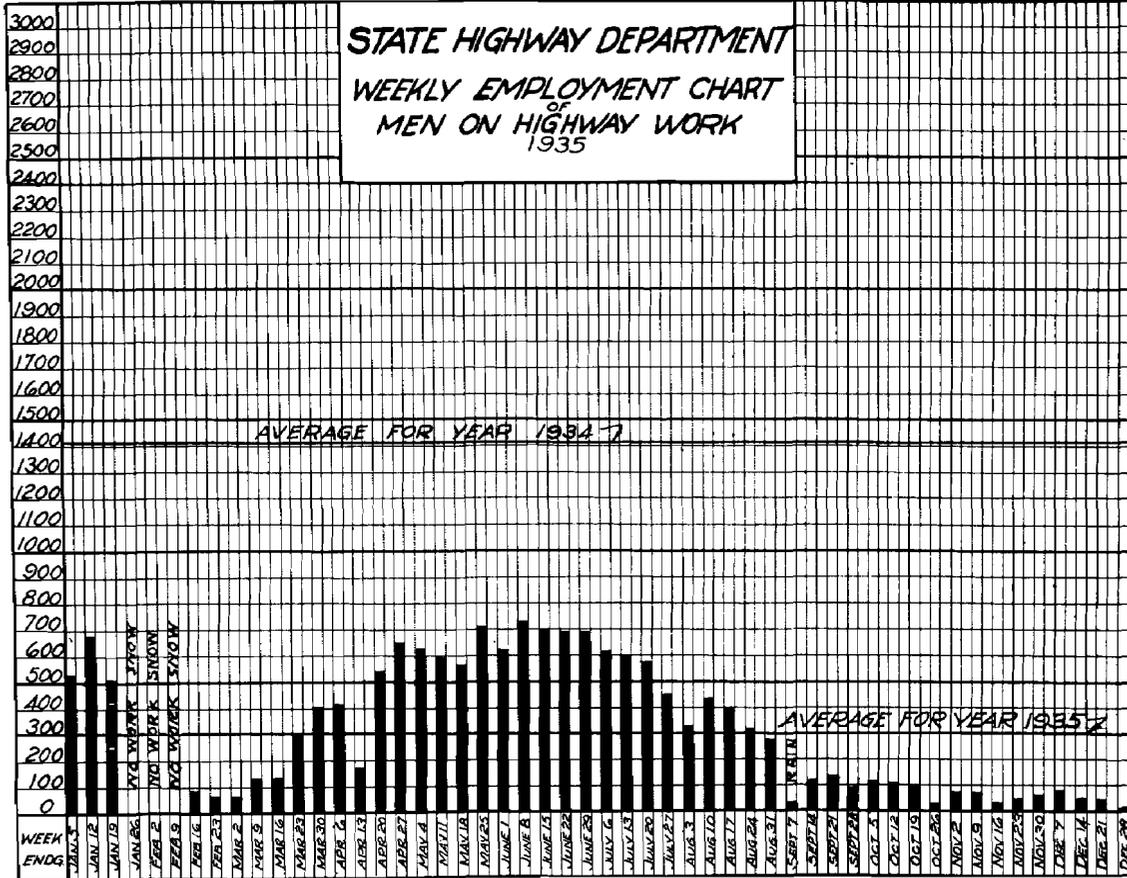
Sussex County (Continued)

Independence School-Bethesda School	4.00	"
Cokesbury to Robbins	5.25	"
Bayard-Ocean View Road-Irons Lane Landing	5.75	"
Hearns X Roads-Maryland Line	3.50	"
Long Neck Road	3.50	"
West of Lowe's X Roads along division road between Gumboro Hundred and Broad Creek Hundred to Workman's Store		
Road intersecting Ellendale-Shawnee Road from west of Union Church		
Five Points to Delaware Avenue Bridge, Laurel.....		
King's Highway-Milford		
Sidewalk: Seaford toward Bridgeville	1.10	"
M. E. Church at Roxana to Selbyville-Roxana State Highway at junction of Frankford Road.....	.70	"
Shortly-Mission	4.30	"
Md. Line Road west of Delmar	5.00	"
Pusey's Cross Roads to Concord (Sussex County).....		
Tucker's Hill following old road via Ellis Millpond...		
State Street to Pilot Town Road, Lewes.....		
Improvement of street along north side of school at Greenwood, and street connecting this one with Main St. near R. R. Station 2300 ft.		
Road along Delaware-Maryland line east of Delmar..		
Millsboro-Centenary School	5.00	"
Milton-Overbrook	4.00	"
Ellendale-Shawnee	6.00	"
Bakers Corner-St. Johnstown Church	4.25	"
Packing House Nr. Columbia-Md. Line	1.50	"
Lovetts Nursery-Cedar Creek Mill-Jefferson X Roads- Ellensworth X Roads	8.50	"
Adams X Roads-Md. Line	2.00	"
Morgans School to Baptist Church	2.75	"
Horseys-Ralphs Store-Delmar-Sharpstown Rd.	4.75	"
Gumboro-Intersection 423	1.25	"
Dagsborp-Milk Station	1.50	"
Martin Greens thru Whitesneck-Millville	4.00	"
Millsborp-Hollyville	4.50	"
Morris Mill to Harmons School	6.75	"
Ellingsworth Filling Station-Rogers School	3.00	"
Ellendale to Cobaughs	2.75	"
Factory Farm to Ingrams Pond	2.75	"
Lewes Beach to Cape Henlopen	3.00	"
Phillips Hill to Peppers	7.50	"
Millsborp-Bryans Store Rd. to Mission	2.50	"
Susan Beach Cor. to Mt. Pleasant Church	3.80	"
Walnut St.-Milford	1.50	"
Ocean View-Bayard Road to connect with the Selby- ville-Williamsville State Highway		
Mount Pleasant Church-Blackwater		
New Bridge over Mispillion River at Walnut St., Milford		
Road leading into Oak Orchard		
East Second St. and West Front St., Milford.....		
North St. from West 3d to Colored School, Milford....		
Church St. from West 4th to Colored School, Milford..		

STATE HIGHWAY DEPARTMENT

WEEKLY EMPLOYMENT CHART

of
MEN ON HIGHWAY WORK
1935



FINANCIAL STATEMENT

A summarized statement of the Income and Expenditures of the Department for the period beginning January 1st, 1935, and ending December 31st, 1935, follows:

INCOME

Balance December 31st, 1934	\$ 478,537.78
Motor Vehicle Fees	970,818.30
Titling Fees	44,711.23
Motor Fuel Tax	1,486,725.35
Motor Fuel Dealers and Distributors License	2,627.00
State Police Fines	52,828.50
Federal Aid	482,308.97
Fixed Charges, Accrued Interest	11,766.67
Miscellaneous Income	16,523.86
Car Inspection Campaign	3,583.00
Total Income	\$3,550,430.66

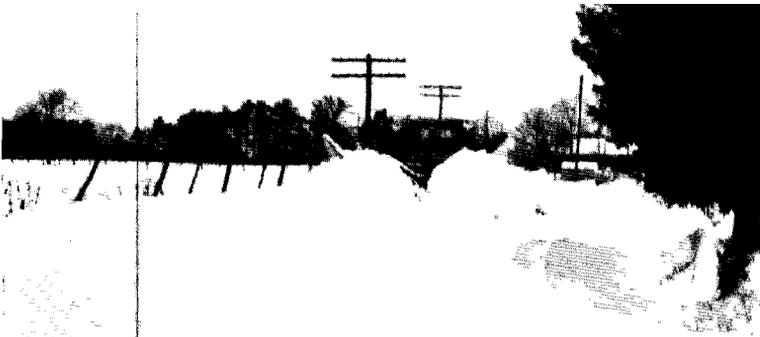
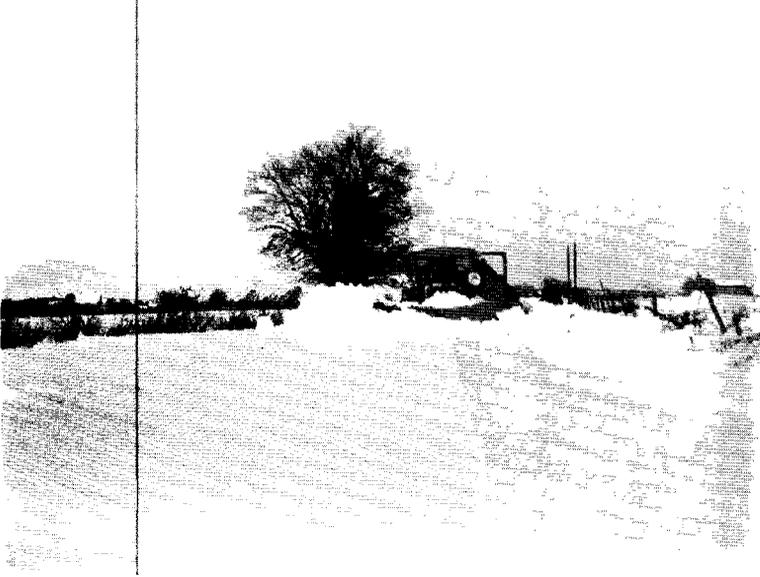
EXPENDITURES

Administration	\$ 41,864.57
Fixed Charges:	
Maturities—New Castle County Bonds	75,000.00
Maturities—Kent County Bonds	25,000.00
Maturities—Sussex County Bonds	75,000.00
Interest—State Highway Dept. Bonds	89,400.00
Interest—New Castle County Bonds	106,130.00
Interest—Kent County Bonds	75,300.00
Interest—Sussex County Bonds	113,500.00
Maintenance	570,543.34
Plant and Equipment	135,262.41
State Police	153,977.95
Construction	1,476,251.95
Car Inspection Campaign	9,781.14
Motor Fuel Tax Adjustment	7,532.95
Motor Vehicle Department	46,653.60
Motor Fuel Tax Department	6,076.18
Total Expenditures	\$3,007,274.09
Balance, December 31st, 1935	\$ 543,156.57

In conclusion, I wish to extend my thanks to His Excellency, the Governor, the Chairman and each Member of the Department for the many courtesies which they have extended to me, and to my assistants whose loyalty and enthusiasm have overcome many difficulties.

Respectfully submitted,

W. W. MACK
Chief Engineer



Tough going in Sussex County

NEW CASTLE COUNTY

Type and Location of Roads and Sidewalks Advertised and Awarded, 1935

Contract No.	Location	20 ft. Conc. Pav't.	Concrete Widening	Grading	Concrete Sidewalk	Sodding	Parkway Landscaping
455	Hay Road-Edge Moor	0.60*					
392	Main Street-St. Georges		0.272				
164	Wrangle Hill-Glasgow			3.892*			
394	Holly Oak-Claymont			1.943*			
454	Christiana School sidewalk				730 ft.		
463	Stanton sidewalk				2300 ft.*		
406	Smyrna-State Road					25.346	
408	Maryland Line-State Road					9.819	
44A & B	State Road-Roger's Corner						5.777
381	New Castle Overhead Bridge						
436	Phillips' Mill Dam Bridge						
439	Penny Hill Police Station Addition						
442	State Road Police Station Addition						
445	Storage shed-State Road						
		0.60	0.272	5.835	3030 ft.	35.165	5.777

New Castle portion, Contract No. 437A and 437B, State-wide surface treatment—17 miles

*Indicates contracts to be carried into 1936

KENT COUNTY

Type and Location of Roads and Sidewalks Advertised and Awarded, 1935

Contract No.	Location	16 ft. Concrete	Concrete Widening	16 ft. Traffic Slag	12 ft. Traffic Slag
361	State Colored College Road	0.50		1.443*	
392	King's Highway-Dover		0.576		
312	Magnolia-Canterbury-Star Hill			4.674	
355	Friendship Church Road			2.032	
324	Underwood's Corner-White House				3.714*
434	Thompsonville-Bennett Pier				2.260*
449	Timber Bridges Roads K116 and K55B.....				
450	Timber Bridges Roads K207 and K211.....				
451	Eight Creosoted Timber Bridges				
452	Timber Bridges Roads 182 and 179.....				
453	Timber Bridges Roads DK3 and 172.....				
424	Bridge repairs-Little Creek				
227C	Lights for Dover Bridge				
400	Sidewalks for Water Works Bridge-Dover				
308A	Creosoted timber bridges—Port Mahon Road				
348	Creosoted timber bridges—Tub Mill Road				
447	Creosoted timber bridges—Willow Grove-Md. Line				
448	Creosoted timber bridges-Harrington-Vernon				
399	Remodeling Sesqui Building				
		0.50	0.576	8.149	5.974

Kent County portion, Contract No. 437A and 437B, State-wide surface treatment—18 miles

*Indicates contracts to be carried into 1936

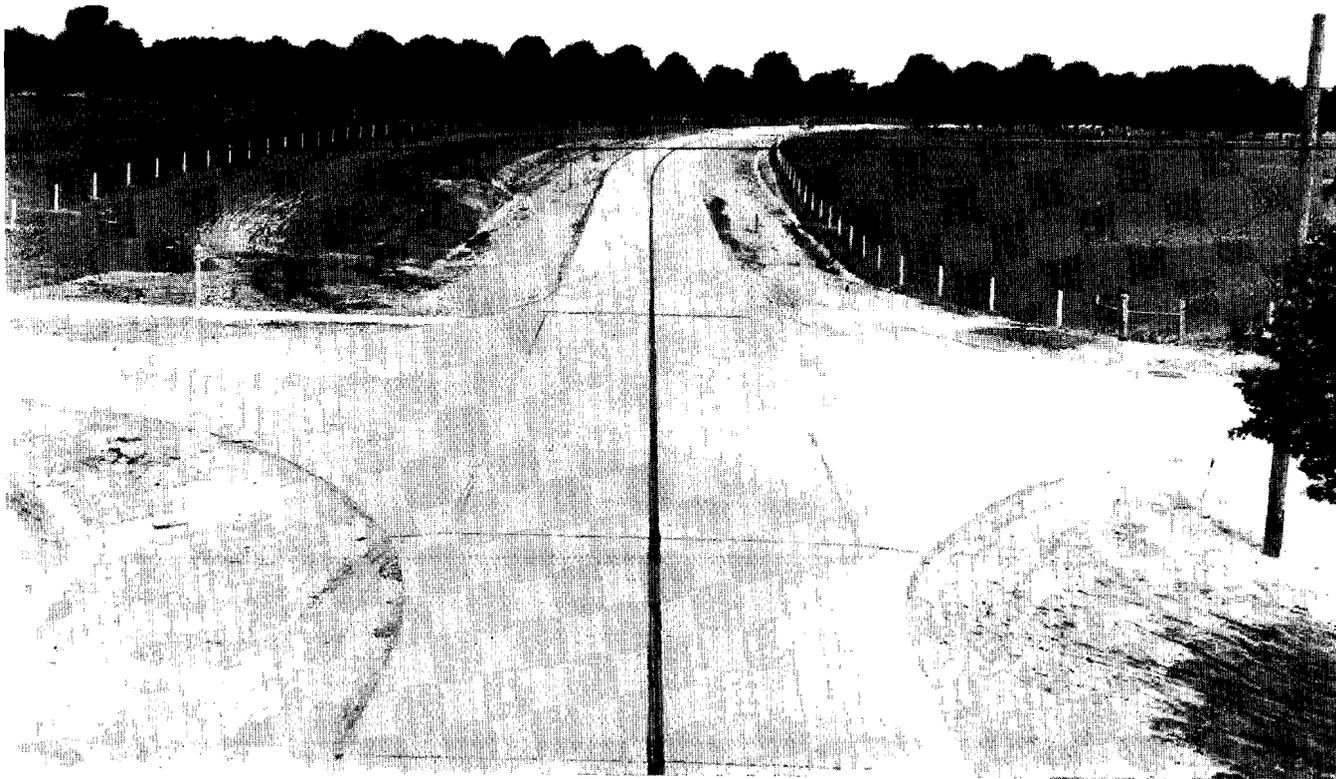
SUSSEX COUNTY

Type and Location of Roads and Sidewalks Advertised and Awarded, 1935

Contract No.	Location	Concrete Widening	16 ft. Traffic Slag	12 ft. Traffic Slag
393	Thru Georgetown	1.605		
377	Prince George Church-Roxana .....	....	4.973	
446	Lincoln-Milford-Rehoboth Road .....	....	2.765*	
395	Hearn's Cross Roads-Delmar .....	....		5.723*
407	Cedar Swamp Road .....	....		2.524*
422	Stockley-Millsboro-Bryan's Store .....	....		4.111*
429	Jones' Cross Roads-Georgetown .....	....		6.022*
430	National Guard Camp gravel surfacing .....	....		....
		1.605	7.738	18.380

Sussex County portion, Contract 437A and B, State-wide surface treatment—63 miles

*Indicates contracts to be carried into 1936

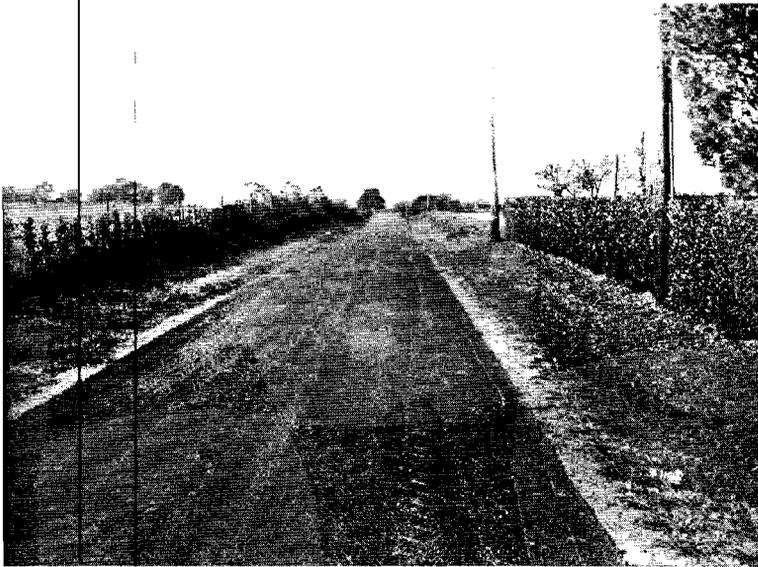


Kent County Eastern Boulevard. North Little Creek Road. (Extra width right of way for future dual highway)

**DELAWARE STATE HIGHWAY SYSTEM
YEAR CONSTRUCTED OR ACQUIRED**

19

	1915 to 1928	1929	1930	1931	1932	1933	1934	1935	Total
Concrete, 14' to 24'	579.9	14.0	20.5	21.5	10.4	8.3	8.5	13.7	676.8
Concrete, 9'	27.6	19.7	21.5	44.5	11.6	12.4	....	....	137.3
Bit. Conc. ....	....	....	....	....	....	....	16.4	307.4	323.8
Brick	6.1	....	....	....	....	....	....	0.4	6.5
Bit. Macadam	44.3	....	1.2	..	....	....	0.7	55.6	101.8
Sand Asphalt	27.0	....	....	..	....	....	....	....	27.0
Traffic Bound Slag-Stone-Gravel .....	....	19.5	22.9	20.8	37.6	122.6	71.5	46.9	341.8
Sand Clay	1.2	15.2	5.3	13.2	7.5	6.2	5.7	9.9	64.2
Unimproved Dirt .....	....	....	....	....	....	....	....	2170.7	2170.7
Yearly Total .....	....	63.4	71.4	100.0	67.1	149.5	102.8	2604.6	....
Total Miles in System	686.1	754.5	825.9	925.9	993.0	1142.5	1245.3	3849.9	3849.9
Widening and Resurfacing	34.5	0.2	18.9	18.0	11.1	56.9	16.5	113.7	....
Dual Highway .....	..	7.7	....	4.9	10.9	7.4	16.1	0.5	47.5
Traffic Bound Road Surface Treated .....	....	....	....	....	1.5	12.8	25.5	16.2	56.0
Sidewalks	8.41	0.02	0.53	7.07	11.09	3.76	4.29	0.90	36.07



New Castle County—Macadam Roads taken over from County and resurfaced

TABULATION OF CONTRACTS AWARDED 1935

Cont. No.	LOCATION	Estimated Cost	Date of Award	CONTRACTOR	Length in Miles	Type of Roadway
168B 348	Removal of Old Bridge, Barker's Timber Bridge, Tub Mill-Big Stone	\$ 974.00 2,917.00	3-1-35 3-1-35	Wm. M. Mahew, Newport, Del. H. D. Johnson, Milford, Del.		
399	Sesqui Building Alterations	3,195.00	3-1-35	J. A. Bader & Son, Wilmington, Del.		
400	Sidewalks, Water Works Br., Dover	1,165.00	3-1-35	Gooden & Clark, Dover, Del.		
402	Landscaping St. Rd. to Roger's Cor.	4,249.05	3-14-35	Wm. H. Doyle, Inc., Berwyn, Pa.		Landscaping
312	Magnolia Road to Star Hill	17,928.70	5-17-35	Old Line Const. Co., Chestertown, Md.	4.674	12' Slag
355	Friendship Church Road	3,989.72	5-17-35	W. W. Truitt, Lincoln City, Del.	2.032	12' Slag
377	Prince George Ch.-Roxana	23,280.85	5-17-35	Old Line Const. Co., Chestertown, Md.	4.973	12' Slag
392	Main Street, St. Georges	5,394.40	5-17-35	Julian T. Jones, Wilmington, Del.	0.272	Widening
393	Thru Georgetown, Widening	23,516.00	5-27-35	Old Line Const. Co., Chestertown, Md.	1.605	Widening
396	King's Highway, Dover	19,821.50	5-17-35	George & Lynch, Dover, Del.	0.576	Widening
406	Smyrna-State Road Sodding	6,555.00	6-29-35	George & Lynch, Dover, Del.	25.436	Sodding
408	Md. Line-State Road Sodding	6,802.00	6-29-35	George & Lynch, Dover, Del.	9.819	Sodding
430	National Guard Camp Surfacing	3,950.00	6-19-35	Wm. P. Short, Bethany Beach, Del.		Gravelling
308A	Timber Bridges Port Mahon	2,760.00	7-27-35	E. F. Hammond, Georgetown, Del.		
439	Repairs to Police Sta. No. 1	1,843.00	7-27-35	J. A. Bader & Co., Wilmington, Del.		Additions
442	Repairs to Police Sta. No. 2	2,135.67	7-27-35	Wilson Cont. Co., New Castle, Del.		Additions
445	Open Garage at State Road	1,532.87	10-25-35	Leslie J. Weeden, Newport, Del.		New Garage
447	Bridges, Md. Line-Willow Grove	5,175.00	10-24-35	J. A. Bader Co., Wilmington, Del.		Timber Bridges
448	Bridge at Vernon	5,129.00	10-24-35	J. A. Bader Co., Wilmington, Del.		Timber Bridge
449	Bridges 7-10 & 4-21	1,196.25	10-24-35	Spear, Jones & Co., Dover, Del.		Timber Bridges
450	Bridges 9-35 & 9-38	1,252.00	10-24-35	Spear, Jones & Co., Dover, Del.		Timber Bridges
451	Bridges 9-5 & 8-8	1,750.00	10-24-35	S. D. Collins, Port Penn, Del.		Timber Bridges
452	Bridges 10-26 & 10-31	1,407.00	10-24-35	Spear, Jones & Co., Dover, Del.		Timber Bridges
453	Bridges, Wards & Browns Br.	1,908.00	10-24-35	Spear, Jones & Co., Dover, Del.		Timber Bridges
454	Christiana Sch. Sidewalk	2,033.75	10-24-35	Julian T. Jones, Wilmington, Del.	730'	Sidewalk
455	Hay Road, Edge Moor	20,996.00	10-24-35	Vincent Schiavi, Wilmington, Del.	0.518	20' Conc. Pavt.
Q1	Snow Fence	1,662.75	12-17-35	H. L. Kent Co., Philadelphia, Pa.		
424	Little Creek Bridge Repairs	2,751.00	6-19-35	S. S. Jones, Ocean City, Md.		
227C	Lights on Dover Bridge	700.00	9-3-35	F. Grundy Iron Works, Philadelphia, Pa.		
436	Phillips Mill Bridge	2,370.00	8-22-35	Wilson Cont. Co., Wilmington, Del.		
437	Asphalt for Surf. Treatment	25,612.20	8-23-35	Stand. Oil Co. of N. J., Baltimore, Md.		State Surf. Treat.
437A	Chips for Surf. Treatment	37,560.67	8-27-35	Bethlehem Steel Co., Phila- delphia, Pa. 13,759 tons		State Surf. Treat.
			8-27-35	Chas. Warner Co., Wilming- ton, Del. 3,105 tons		State Surf. Treat.
437B	Application of Asphalt	3,547.80	8-23-35	Better Roads Corp., Baltimore, Md.		State Surf. Treat.
O1	Grass Seed	286.41	8-23-35	W. G. Scarlett, Baltimore, Md.		Parkway
P1	Fertilizer	530.00	9-3-35	W. G. Scarlett, Baltimore, Md.		Parkway
164	Wrangle Hill to Glasgow	23,465.00	12-17-35	A. Petrillo Co., Inc., Wilmington	3.892	Grading
324	Underwood Cor.-Whitehouse	12,294.20	12-17-35	W. W. Truitt, Lincoln City, Del.	3.714	12' Slag
361	Colored College Road	26,217.02	12-17-35	George & Lynch, Dover, Del.	1.943	12' Slag
394	Holly Oak-Claymont Grading	77,029.00	12-17-35	George & Lynch, Dover, Del.	1.785	Grading
395	Hearns X Rd. to Delmar	14,343.30	12-17-35	M. J. McDermott, Georgetown, Del.	5.723	12' Slag
407	Cedar Swamp Road	17,834.60	12-17-35	Old Line Const. Co., Chestertown, Md.	2.524	12' Slag
422	Stockley to Millsboro-Shortly Rd	12,288.00	12-17-35	M. J. McDermott, Georgetown, Del.	4.110	12' Slag
429	Jones' X Rd.-Georgetown	21,213.00	12-17-35	Old Line Const. Co., Chestertown, Md.	6.022	12' Slag
434	Thompsonville-Bennett Pier	9,087.00	12-17-35	Short & Walls, Middletown, Del.	2.260	12' Slag
446	Lincoln to Rehoboth Rd.	9,131.25	12-17-35	Highway Engr. & Const. Co., Selby- ville, Del.		
463	Stanton School Sidewalk	3,425.00	12-17-35	M. A. Speer, Milford, Del.	2.765 2300'	12' Slag Sidewalk



New Castle County "Northeast Boulevard" near Edgemoor