

*Annual Report of the Chief Engineer
State Highway Department
1934*

Dover, Delaware
January 1, 1935

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

Sirs:

In conformity with the Statute, I have the honor to submit herein a report of the activities of the State Highway Department for the calendar year of 1934, with a list of roads which the Department has been petitioned to improve and certain recommendations for the year 1935.

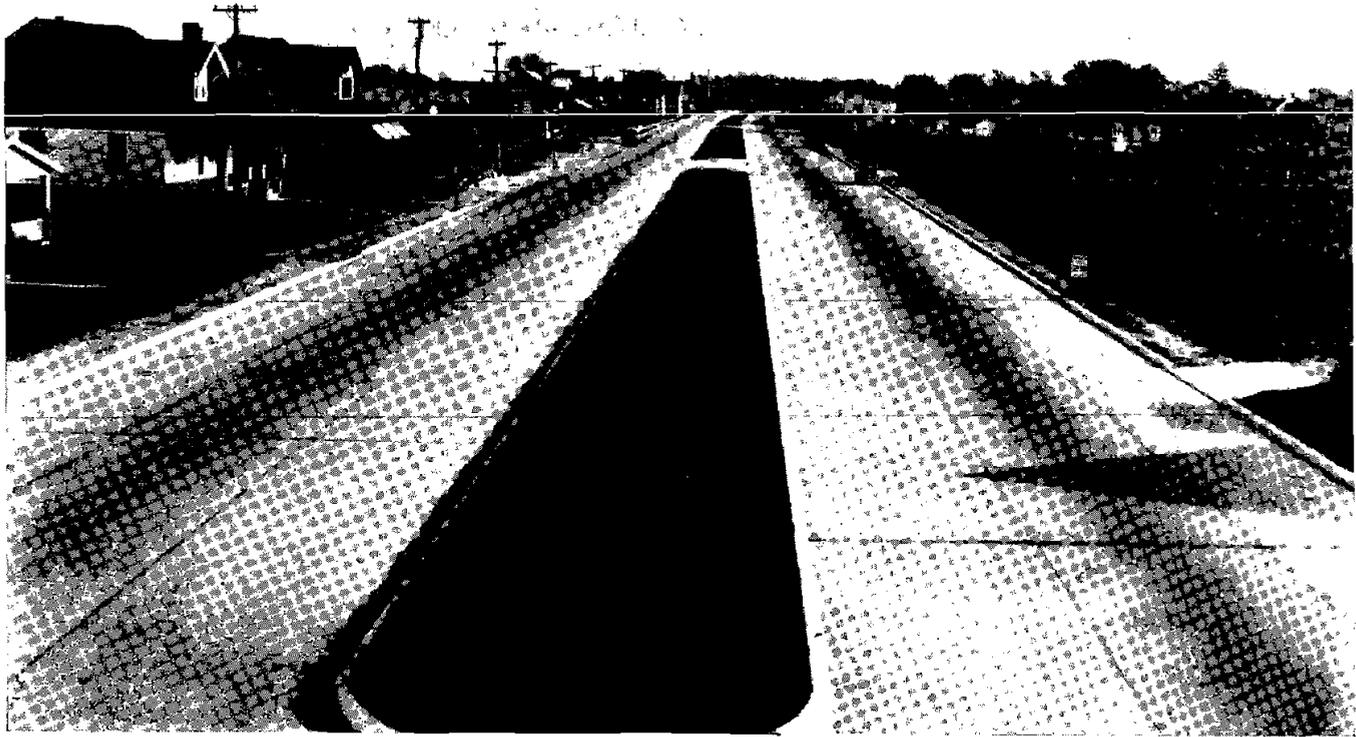
The large amount of Federal funds made available for highway work has kept every division of the Department busy throughout the entire year, and aided by the efficiency of the contractors' organizations, an unusual amount of construction work has been accomplished with a correspondingly large employment of labor.

A brief resume will be given of the work of each division.

DIVISION OF PLANS, SURVEYS AND ESTIMATES

Surveys have been made in the field and detail plans and estimates prepared in the office for all contracts before advertising for bids. After their completion final computations are made before final estimates can be prepared.

Federal appropriations necessitate considerable detail work which is also handled by this division. A tabulation of the activities follows:



Kent County, U. S. Route 13. Coleman duPont Boulevard Dual Highway through Smyrna.

Surveys

Base Line	119.5 Miles
Topography	117.9 "
Cross Sections, preliminary and final	47.6 "
Borrow Pits cross-sectioned, preliminary and final	179 "

Draughting Room

Plan and Profile traced	119.8 Miles
Line and Topography	119.1 "
Cross Sections plotted (Original and final)	52.4 "
End Areas planimetered and computed	54.1 "
Profile plotted and grade laid	120.3 "
Index Map plotted and traced	108.3 "
Borrow Pits plotted and computed	179 "

During 1934 approximately 1000 proposals have been prepared, checked and sent to bidders. Three hundred and four bids were received and each bid was checked and tabulated according to their respective standing. The total of the low bids received amounted to \$2,384,798.58, of which \$2,343,109.36 represents construction. A tabulation of the contracts for which bids were received during 1934 is attached.

All items upon 209 construction estimates upon 67 different contracts, of which 62 were for construction, have been computed, checked and prepared for payment. Due to the fact that Federal appropriations were direct grants it has been necessary to prepare and submit to the government monthly vouchers on 54 Federal Aid Projects.

All construction data has been compiled and special specifications prepared by this division whenever the need arose.

A tabulation of the contracts for which bids were received during 1934 is attached.

TABULATION OF CONTRACTS AWARDED 1934

Cont. No.	LOCATION	Estimated Cost	Date of Award	CONTRACTOR	Length in Miles	Type of Roadway
286	Dover to Bishops Cor.	\$198,875.00	1-22-34	George & Lynch, Dover, Del.	4.224	20' Dual Concrete
340	Industrial Hwy., Wilm.-Edgemoor	161,544.00	1-25-34	George & Lynch, Dover, Del.	1.799	22' Concrete
286A	Fencing, Dover to Bishops Cor.	2,244.40	3- 8-34	Newport Fencing Co., Newport, Del.		
287A	Fencing, Bishops Cor. to Smyrna	2,548.25	3- 8-34	Newport Fencing Co., Newport, Del.		
294	Pepper to Jones X Road	20,712.50	3-12-34	Wilson Contr. Co., State Road, Del.	5.75	16' Traffic Bound
356	Md. Line to Pepper Box	20,884.00	3-12-34	Old Line Constr. Co., Chestertown, Md.	5.2	16' Traffic Bound
369	Cedar Neck School—Cedar Sch.	8,810.00	3-12-34	M. J. McDermott, Georgetown, Del.	2.4	16' Traffic Bound
370	Cokesbury Church to Old Furnace	8,968.00	3-12-34	Old Line Constr. Co., Chestertown, Md.	2.7	16' Traffic Bound
372	Springfield X Rd. to Fairmount	14,921.00	3-12-34	M. J. McDermott, Georgetown, Del.	3.75	16' Traffic Bound
374	Laurel to Five Points	7,952.80	3-12-34	Wm. P. Short, Bethany Beach, Del.	4300 Ft.	5' Sidewalk
285	Thru Smyrna	161,269.50	4- 5-34	W. W. Truitt, Lincoln City, Del.	1.7	46' to 65' Concrete
347	West & Washington Sts., Wilm.	47,605.00	4- 5-34	A. Petrillo & Co., Wilmington, Del.	0.813	30' Bit. Conc. on Conc. Base
308	Port Mahon Road	15,636.43	4-14-34	Leonard S. Bowers, Bridgeton, N. J.	2.0	Grading
213	Thru Blades	7,601.50	6-16-34	Taylor & Johnson, Seaford, Del.	0.732	Sidewalk & Widening
244A	Sandy Forks to Bryan's Store	20,890.00	6-25-34	Wilson Contr. Co., State Road, Del.	7.30	16' Traffic Bound
382	State Surface Treatment	19,212.50	6-14-34	Bituminous Service Co., West Chester, Pa.		
382A	Stone for Surface Treatment	13,782.65	6-14-34	John T. Dyer Quarry Co., Norristown, Pa.		
384	Balustrades, Court St. Bridge	1,332.00	6-16-34	Gooden & Clark, Dover, Del.		
338	Lowes X Rd. to Newfound	27,686.00	6-21-34	M. J. McDermott, Georgetown, Del.	6.243	16' Traffic Bound
352	Rehoboth Rd. to Broadkill Beach	16,282.50	6-21-34	Highway Engr. & Constr. Co., Selbyville, Del.	4.039	16' Traffic Bound
371	Atlanta Toward Smithville	16,889.50	6-21-34	Old Line Constr. Co., Chestertown, Md.	4.184	16' Traffic Bound
376	County Farm to Stockley	8,530.60	6-21-34	Old Line Constr. Co., Chestertown, Md.	2.921	16' Traffic Bound
219B	Chestnut St. Fill	6,100.00	7-20-34	A. Petrillo & Co., Wilmington, Del.	0.479	Grading
378	Church & Spruce Sts., Wilm.	108,305.00	7-20-34	George & Lynch, Dover, Del.	1.144	30' to 40' Bit. Conc. on Conc. Base
379	Clarkville to Bethany Beach	65,154.60	7-19-34	Walter Roach & Sons, Georgetown, Del.	4.641	4' Conc. Widening
386	Union Park Gardens to Elsmere	22,191.00	7-12-34	E. Di Sabatino & Sons, Wilmington, Del.	2.259	4' Conc. Sidewalk
157	Hastings Cor. to Moores Cor.	44,436.00	9- 6-34	W. W. Truitt, Lincoln City, Del.	4.891	18' Traffic Bound
367	Edgemoor Underpass	34,335.20	8-30-34	J. A. Bader & Co., Wilmington, Del.		Bridge
CN34	Birds Cor. Road	9,013.50	9- 1-34	Oliveri Paving & Constr. Co., Wilm., Del.	3900 Ft.	
CN35	Faulk Rd.—Grubbs Rd. to Naamans Rd.	23,841.00	9- 1-34	D. E. O'Connell & Sons, Wilmington, Del.	0.64	12' Bit. Conc.
CN36	Faulk Rd.—Naaman's Rd.—Penn Line	21,934.00	9- 1-34	D. E. O'Connell & Sons, Wilmington, Del.	0.58	22' Bit. Conc.
CN37	Thoroughfare Neck Rd.	17,997.00	9- 1-34	Short & Walls, Middletown, Del.	2.10	9' Bit. Conc.
CN38	Oak Hill Road	25,231.00	9- 1-34	Oliveri Paving & Constr. Co., Wilm., Del.	2.85	9' Bit. Conc.
CN39	Chestnut Hill Rd.	18,460.00	9- 1-34	Wilson Contr. Co., State Road, Del.	0.95	9' Bit. Conc.
CN40	West End Ave. Holloway Terrace	12,247.50	9- 1-34	Oliveri Paving & Constr. Co., Wilm., Del.	3700 Ft.	16' Bit. Conc.
CN41	Green St. & Lawson Ave., Claymont	18,478.00	9- 1-34	D. E. O'Connell & Sons, Wilmington, Del.	1918 Ft.	Concrete

DIVISION OF TESTS

During 1934 the Division of Tests maintained a close supervision of the quality of all materials used in Delaware State Highway construction. The division was operated in practically the same manner as in previous years. All materials were supplied from sources of which the general quality and characteristics were known. Routine check tests were made on representative samples of all materials furnished. The number of routine check tests was somewhat increased over previous years.

An increasing effort was made to determine the quality and acceptability for our work of all materials before shipment was made. In this manner, rejection of material after arrival on the job and consequent delay to the State and expense to the material producer and the contractor were reduced to a minimum. A greater number of inspection trips to material plants was necessary to achieve this result than had been made in previous years. It is felt that the increased expense of these extra trips has been justified.

The use of the method known as "bin testing" all Portland cement was continued and through certain changes made at the various cement mills this branch of the work has been made more efficient. The bin testing method consists of having our representatives sample all cement which is intended for subsequent use on Delaware State Highway work. After the manufacture of the cement is completed and as it is placed in the plant silos for storage awaiting shipment representative samples are taken. Complete tests are made on all of these samples, including the seven- and twenty-eight-day tension tests. Material contained in the silos is not released for shipment until the results of all tests are available and found to be satisfactory under the Delaware specifications. Inspection is then maintained covering the loading of all cement to assure us that it is drawn from previously accepted storage and that the loading is done in a satisfactory manner. The cars are then sealed with our own seal in addition to the railroad seal, and upon arrival at the job can be used immediately without any further sampling or testing.

The quality and grading of crushed stone furnished for use as coarse aggregate in cement concrete during 1934 has been satis-



Wilmington. Spruce St. at 4th St. looking north showing cast iron pavement experimental section. Street widened and repaved.

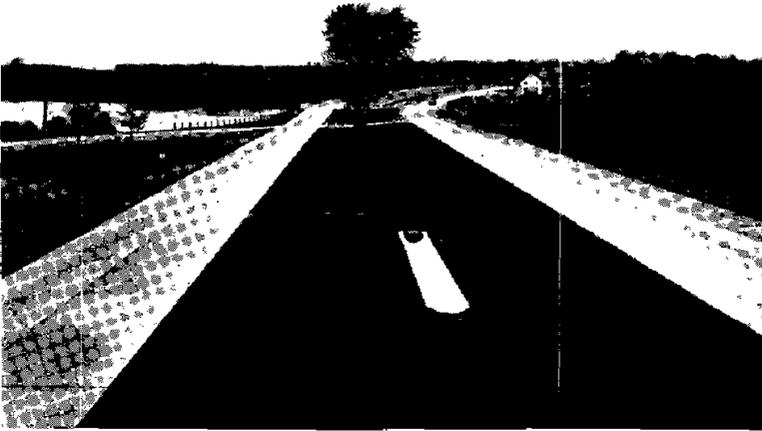


Wilmington. 11th and Church Sts. Looking south on Church St. Widened and repaved.

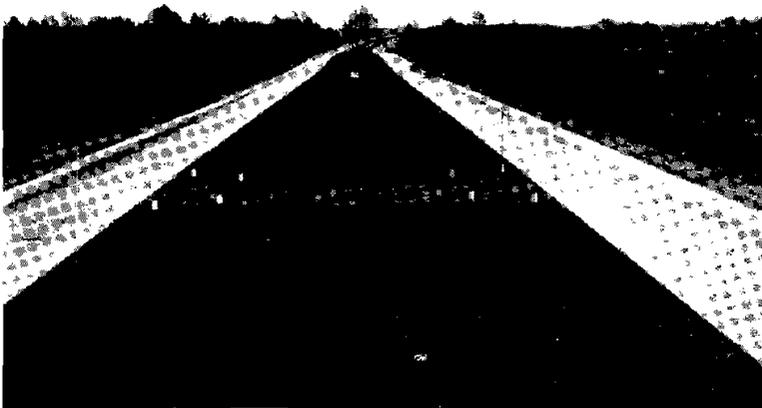
factory. There has been a constant effort on the part of the state highway departments in Delaware and the adjacent states to use similar requirements on grading so that a coarse aggregate acceptable in one state would be acceptable in the surrounding states. This has a tendency to reduce the cost in that the producer does not have to furnish so many different sizes and gradations and the screening of the fewer sizes can be more efficiently done. The requirement on coarse aggregate for concrete that two sizes be furnished and re-combined at the time the materials are proportioned has been continued and increasing beneficial results are noted. By this method, segregation of the sizes has been practically eliminated and by a screen test on the two sizes furnished, it has been possible to adjust the proportions so that a uniform coarse aggregate has resulted. Relatively weak areas in the concrete roadway from this cause have therefore been eliminated.

A ruling issued during the previous year requiring that all sand for use as fine aggregate in cement concrete be washed before use has worked out satisfactorily. While comparisons are not possible, due to the increased cost of materials, it is thought that this ruling has not materially increased the cost of sand and a definitely better result as to strength and uniformity of the concrete has resulted. An exception was made to this ruling on certain sands in beach or dune deposits. In these cases, it was found that the sand in the deposits had been so washed and cleaned by the natural wind and water action that its present condition was equal to or better in quality than that of an acceptable sand which had been washed as required for other deposits.

Practically all of the reinforced concrete pipe used in this year's road construction was manufactured at a plant which was located at Dover the previous year. This centralized the reinforced concrete pipe inspection at one point and a closer supervision was possible than if it had been manufactured at widely-separated points. At this plant more than 40,000 linear feet of pipe of various sizes was inspected and accepted for use. All constituent materials were sampled and tested and representative samples of the finished product were tested for strength and workmanship. All sections of accepted pipe were then stencilled with a Delaware State Highway mark by representatives of the labora-



Kent County. Dover-Smyrna duPont Boulevard U. S. Route 13
at Garrison Mill Pond



Kent County. Dover-Smyrna Coleman duPont Boulevard. U. S. Route 13.
Looking south on Garrison Cut Off.

tory. All stencilled pipe was then accepted for use upon arrival on the job. Due to this work being done at one point its cost was materially reduced over that of previous years.

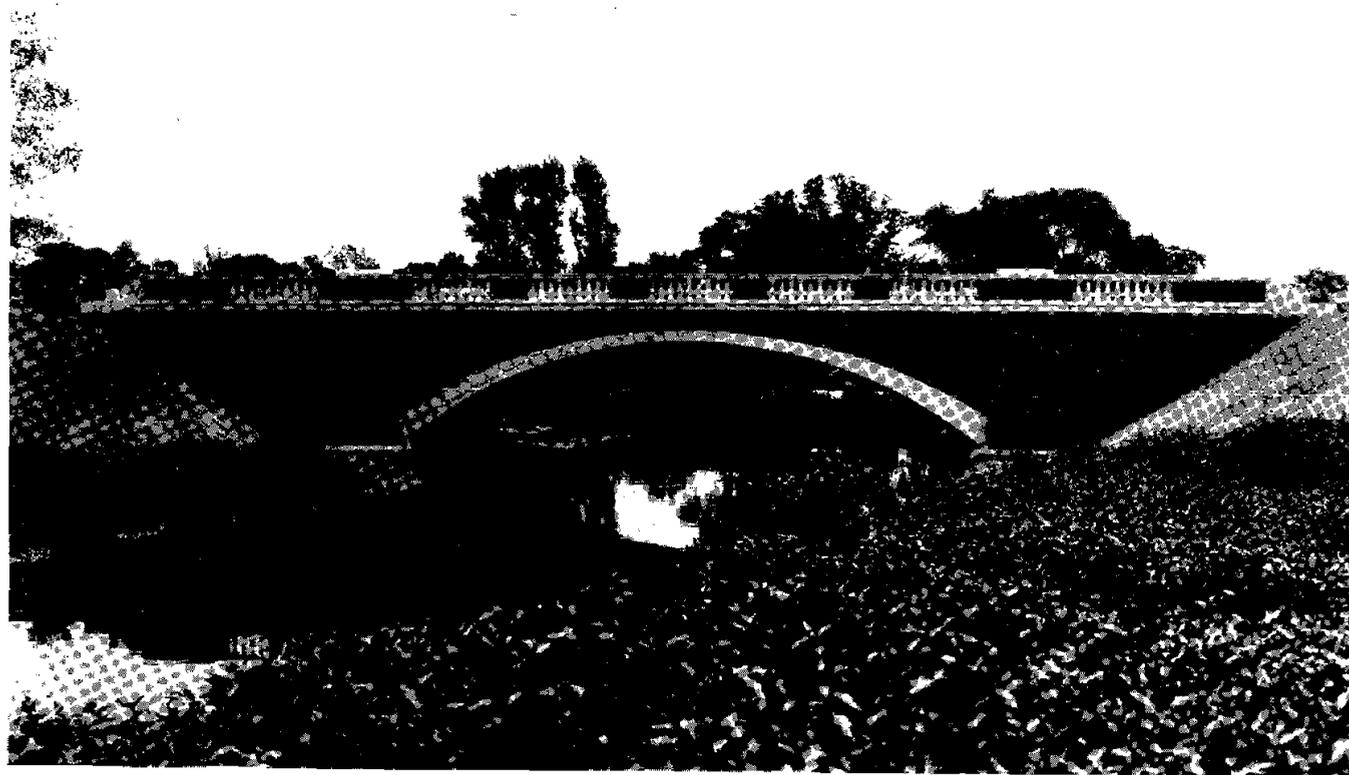
Before final estimates were paid, the core drill was used to secure samples of all finished concrete pavement. A sufficient number of drilled specimens were taken so that each specimen would not represent more than 1000 square yards of pavement. The specifications require that a reduction in the amount paid shall be made for any pavement which is deficient in thickness up to one-half an inch and that any pavement deficient in thickness greater than one-half an inch shall be removed. In no case was a deficiency requiring a reduction in payment found. All cores, after being accurately measured for depth to determine the thickness of the pavement, were capped and tested for ultimate compressive strength at a standard age. It was found that the average compressive strength at twenty-eight days for all jobs was essentially 5,000 pounds per square inch, which had previously been set as a minimum. Most jobs exceeded this minimum and the average for all jobs during 1934 was approximately 5,500 pounds.

In the construction of Contracts 388 and 389, groins at Rehoboth Beach and Bethany Beach, a considerable quantity of steel sheet piling is being used. This material was inspected by representatives of the laboratory at the steel mills at which it was manufactured and fabricated. Material found to conform with the requirements of our specifications was accepted at the steel mill and allowed for use without any further inspection or testing necessary.

Certain other materials not mentioned specifically in this report, such as reinforcing steel, hydrated lime, calcium chloride, water for use in concrete, longitudinal and transverse joints, et cetera, were allowed for use under rigid inspection and tests. The methods followed were the same as previous years and are not reported here in detail.

BRIDGE DIVISION

While no large bridges have been contracted for during the year, the Bridge Division has been occupied preparing detail plans



Kent County. Dover, Loockerman Street Extension, showing brick veneered concrete arch bridge across St. Jones River near Legislative Building.

and specifications for 39 bridges and 453 culverts which were placed under contract, at a total cost of \$326,613.00. Among the most important structures completed are the Barker's Landing Bridge, near Magnolia, and the Lockerman Street Bridge at Dover. The former is a rolling lift bascule bridge with overhead counterweight, and the latter a 52-foot concrete arch faced with colonial brick, with a white marble balustrade, harmonizing with the State Legislative Building, which will add greatly to the developments contemplated by the City of Dover in its immediate vicinity.

The Edgemoor Underpass was placed under construction in September and is now practically completed. A temporary bridge has carried the large amount of traffic which the new construction work along the Delaware River east of the Pennsylvania Railroad has developed.

Extensive maintenance of existing bridges including painting and replacement of timber flooring and traffic plates, as well as asphalt surfacing, has resulted in an improvement of all bridges during the year.

MAINTENANCE

The State Highway system at the close of the year consists of 1239 miles of highways or approximately one-third of the entire road mileage of the State. In the system are 869 miles of high type and 370 miles of secondary roads.

For the second year in succession the State has been visited by unusual storms which have caused serious damage to our roads and structures. On August 2nd, 1934, a storm of unusual intensity, but confined to a narrow area, precipitated from 12 to 15 inches of rainfall in the vicinity of Middletown. This downpour destroyed several dams, washed out numerous state and county highways, a railroad bridge and 4 bridges on the State Highway system. The Noxontown Pond Dam was only saved by the strenuous efforts of the combined state and county maintenance forces. The unusual character of the storm is indicated by the fact that some of these bridges had been in service upwards of 100 years.

Immediate steps were taken to erect temporary bridges to accommodate traffic, and within a week these were completed, at



New Castle County. St. Anne's Bridge across Deep Branch near Middletown.
After storm of August 2, 1934.



New Castle County. St. Andrews Bridge near Middletown after
storm of August 2nd, 1934.

a cost of \$5900; the estimated cost of the permanent replacements is \$35,000.

Again, on September 8, a severe storm centering near Frankford caused considerable damage, including the washing out of two concrete bridges, both of which have been replaced with timber structures by the Department's maintenance forces.

The severity of the weather of January, February and March, 1934, which included sub-zero weather and heavy snows, added much to the cost of our annual maintenance. In spite of the unusual amount of snow and the heavy winds which piled it into drifts, many of which were in excess of four feet in depth, few of our roads were blocked for more than an hour or two at a time; but the twenty-four-hour service demanded for the job taxed our men and equipment to the limit. Snow removal equipment in Delaware may be placed in the same class as fire-fighting apparatus, seldom needed but very essential in emergencies. Conditions such as were met with during February and March of this year give ample justification for the expenditures necessary to provide equipment sufficient to meet these emergencies. I believe our present equipment is adequate for any probable demands which may be made upon it.

I wish at this point to express my appreciation and commendation to our engineers, their assistants and maintenance forces, for their prompt and intelligent action in meeting the many unexpected emergencies of the year, under oftentimes trying conditions, and their untiring efforts in surmounting them.

The policy of improving the riding surface of our roads has continued throughout the year. Two mudjack crews have been continuously engaged and have practically completed the work of raising low points and other depressions in the paved highways; other improvements have been the surface treating of over twenty-five miles of traffic bound secondary road, following the Department's policy of improving these highways as rapidly as the traffic warranted.

During the thawing period of the past spring, the loads on all State Highways were restricted as provided by law for approximately two weeks. For the first time since the spring of 1918



New Castle County. Snow removal U. S. Route 13, Coleman duPont Boulevard near State Road.

frost boils and heaves developed; no serious damage resulted to any of the higher type roads and the restriction appears to have been amply justified. The truck owners of the State in nearly all cases co-operated in a fine manner in a mutual effort to protect our large investment in paved highways. The secondary roads suffered the most and broke through in many places; repairs, however, were simple and inexpensive.

All these unexpected contingencies have increased the cost of maintenance for the year, and with an extensive program of sodding have made our expenditures the highest of any year in the history of the Department.

I believe the close of the year, however, finds our entire system in better general condition as to appearance, safety and easy riding than at any previous period.

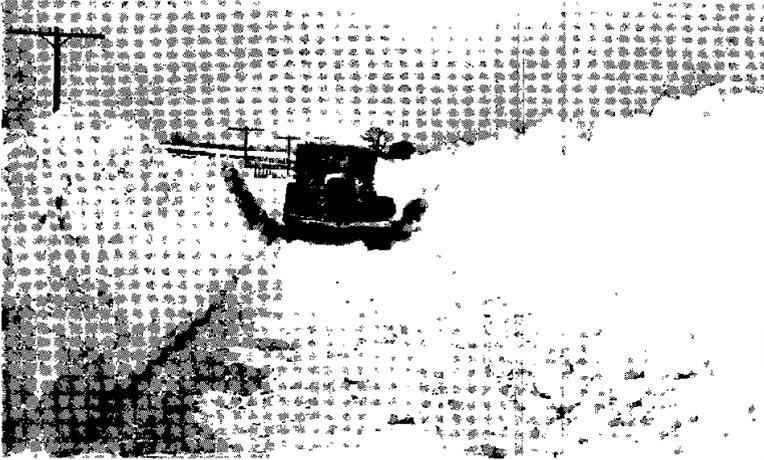
The total cost of maintenance on the State system for the twelve months ending November 30, 1934, was \$447,989.74 or an average cost of \$377.73 per mile. This includes the cost of all new trucks, tools, snow plows, road machinery and materials as well as labor and overhead expenses required in the maintenance of all roads, bridges, culverts, traffic lights and signs, the painting of center lines and guard rails, the mowing of roadsides and parkways, the planting and care of trees and shrubbery, the resurfacing of bituminous highways, clearing the roadways of snow and ice, the sodding of slopes and banks, and the salaries of bridge tenders at the Department's eight drawbridges.

RIGHT OF WAY DIVISION

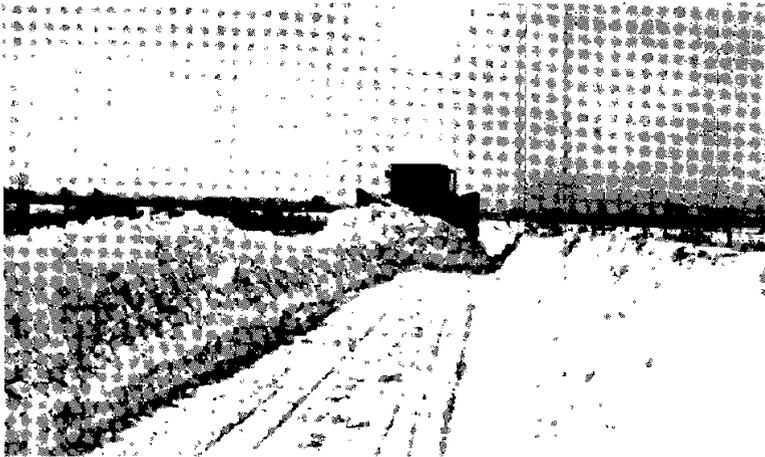
During the year ending November 30, 1934, this division has secured rights of way on twenty-five road projects having a total mileage of 101.45 miles and 697 property owners, three dual road projects having a mileage of 13.3 miles and 67 property owners.

Construction work has necessitated the moving of 36 houses, 12 barns, 8 stables, 6 filling stations, 3 garages and a number of small buildings.

Other work of this division consisted of the writing of 746



New Castle County. Clayton to Delaney. Snow removal.



Kent County. Downes Chapel-Maryland Line. Snow Removal.

descriptions, obtaining 637 options, securing the execution of 468 deeds and 376 releases, conducting the hearing of 24 condemnation commissions and 5 condemnation juries.

CONSTRUCTION, 1934

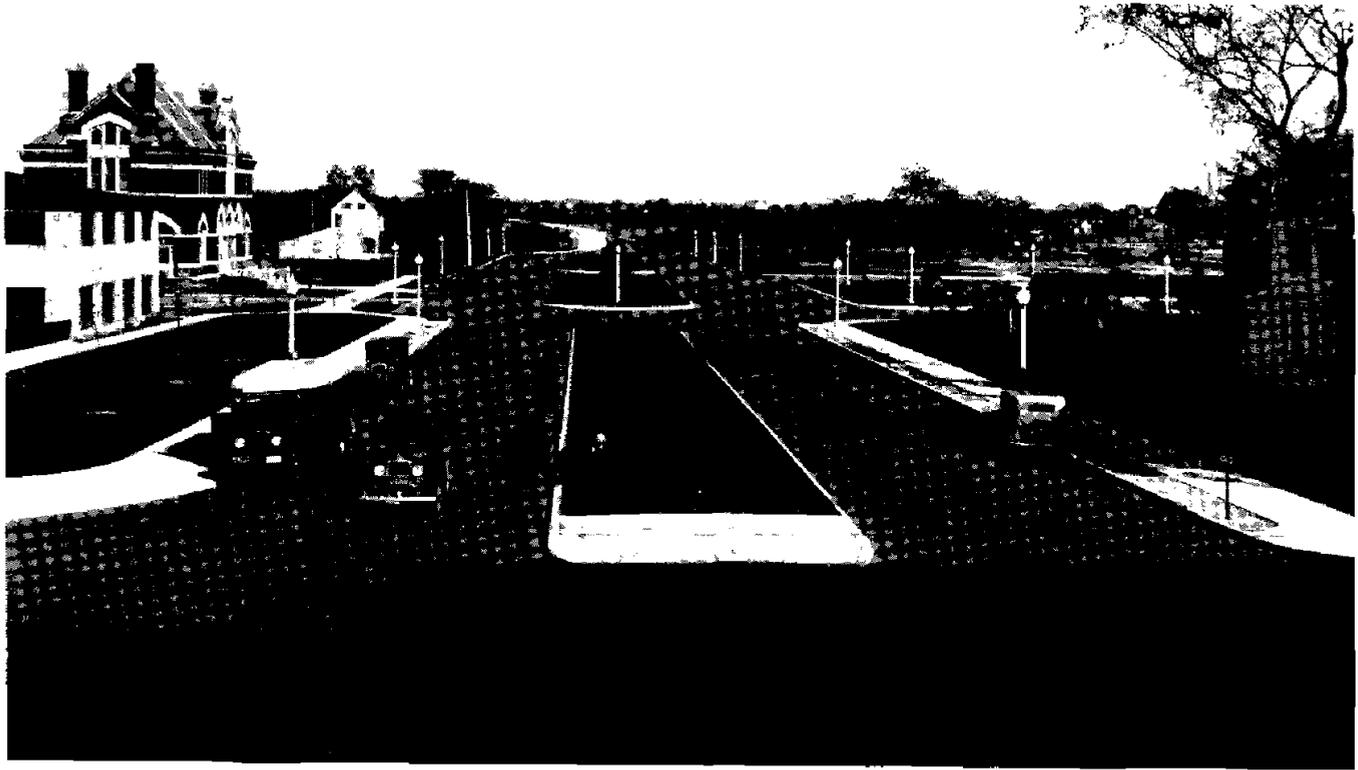
The Department, during the year, held eleven (11) road and bridge lettings comprising sixty-two (62) contracts which were divided as follows:

- 51 Completed roadway contracts.
 - 1 Major grading contract including structures.
 - 3 Sidewalk contracts.
 - 2 Bridge contracts.
 - 2 Surface treatment contracts.
 - 2 Jetty contracts.
 - 1 Dredging marsh fill contract.

There were two hundred and sixty-eight (268) bidders who submitted proposals on the above contracts, an average of better than four (4) per contract and the total low contract bid for construction projects amounted to \$2,343,109.36.

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

- 2.00 Mi. Dredging Marsh Fill Mahon's Ditch Road.
- .49 " Chestnut St. Cut Off Fill, New Castle.
- 1.70 " 44-66 Ft. Conc Paving Dual Rd. Thru Smyrna.
- 7.456 " 20 Ft. Concrete Dual Road.
- 7.134 " 20 Ft. Concrete Pavement.
- 1.75 " 18 Ft. Concrete Pavement.
- 9.85 " 4 Ft. Widening Conc. Pavt.
- 4.905 " 2 to 8 Ft. Widening Conc. Pavt.
- 1.90 " Sidewalk and 2 to 8 Ft. St. Widening.
- 2.26 " Sidewalks.
- 3.318 " 20 to 38 Ft. Bit. Conc. on Con. Base.
- 1.220 " 22 Ft. Bit. Conc. on W. B. Base Course.
- .70 " 16 Ft. Bit. Conc. on W. B. Base Course.
- 1.37 " 14 Ft. Bit. Conc. on W. B. Base Course.
- 2.138 " 12 Ft. Bit. Conc. on W. B. Base Course.
- 7.63 " 9 Ft. Bit. Conc. on W. B. Base Course.



Kent County, Dover—East Loockerman St. extension to meet the Dover By Pass on U. S. Route 113, Coleman duPont Boulevard.

43.407	"	18 Ft. Traffic Slag.
27.23	"	16 Ft. Traffic Slag.
4.891	"	18 Ft. Traffic Stone.
17.387	"	16 Ft. Traffic Stone.
7.98	"	20 Ft. Mix in place Asphaltic Roads.
51.35	"	Surface Treatment.

The mileage of roadway and sidewalk actually completed during the year was as follows:

1.70	Mi.	44-64 Ft. Conc. Pavt. Dual Road (Thru Smyrna).
14.41	"	20 Ft. Conc. Pavt. dual road of which 7.45 miles were carried over from 1933.
1.03	"	24 Ft. Conc. Pavt. carried over from 1933.
1.424	"	22 Ft. Conc. Pavt.
5.594	"	20 Ft. Conc. Pavt. of which 19 miles were carried over from 1933.
3.318	"	20-32 Ft. Bit. Conc. on Conc. Base.
7.61	"	9-22 Ft. Bit. Conc. on W. B. Macadam Base Course.
7.98	"	20 Ft. Mixed in place asphaltic Concrete.
22.24	"	18 Ft. Slag Traffic Road.
27.10	"	16 Ft. Slag Traffic Road.
17.38	"	16 Ft. Stone Traffic Road.
9.85	"	4 Ft. Conc. Roadway Widening.
1.90	"	2 to 8 Ft. Conc. Roadway Widening.
1.90	"	Conc. Sidewalk and Roadway Widening.
2.26	"	Conc. Sidewalk.
51.4	"	Surface Treatment.
5.02	"	16 Ft. Traffic Bound Road (Built by S. H. Dept. maintenance).
5.7	"	Sand Clay (built by S. H. Dept. Maintenance).

The mileage of roadways and the types to be carried into the 1935 working season is as follows:

2.586	Mi.	22 Ft. Conc. Pavt.
0.50	"	20 Ft. Conc. Pavt. (Dual Road).
1.51	"	20 Ft. Conc. Pavt.
1.75	"	18 Ft. Conc. Pavt.



Sussex County. Broadkirk Beach Road. Traffic bound slag.

- 5.45 " 9 to 14 Ft. Bit. Conc. on W. B. Macadam.
- 4.891 " 18 Ft. Traffic Stone.
- 21.407 " 18 Ft. Traffic Slag.

The mileage of new roadways of all types completed, omitting dual highways and widening to existing roads, amounts to 97.16 miles. This total, added to the present State system of 1142.4 miles, amounts to 1239.5 miles, or 32½% of the State's rural highways. This completed mileage has been exceeded only twice during the history of the Department, viz: during the years 1931 and 1933.

This program has added much to the State Highway system; among the most important projects undertaken in New Castle County were the North East Boulevard and its connection in the City of Wilmington; the continuation of the Dual Highway on the Glasgow Road, U. S. 40; and the New Castle Cut Off; in Kent County, the construction of the dual highway between Dover and Smyrna, the improvement of the Frederica Causeway, and the Eastern Boulevard between Dover and Little Heaven; in Sussex County, the surfacing of the Ocean Highway between Rehoboth and Bethany Beach, the widening of the streets from Clarksville through Millville, Ocean View and Bethany Beach, and the widening of the Highway from Five Points to Rehoboth.

In addition, 77.4 miles of secondary roads were completed, with 26.3 miles under contract, but uncompleted.

Attached is a detailed summary of roadways, streets, bridges and widening contracts, their types and location in the three counties.



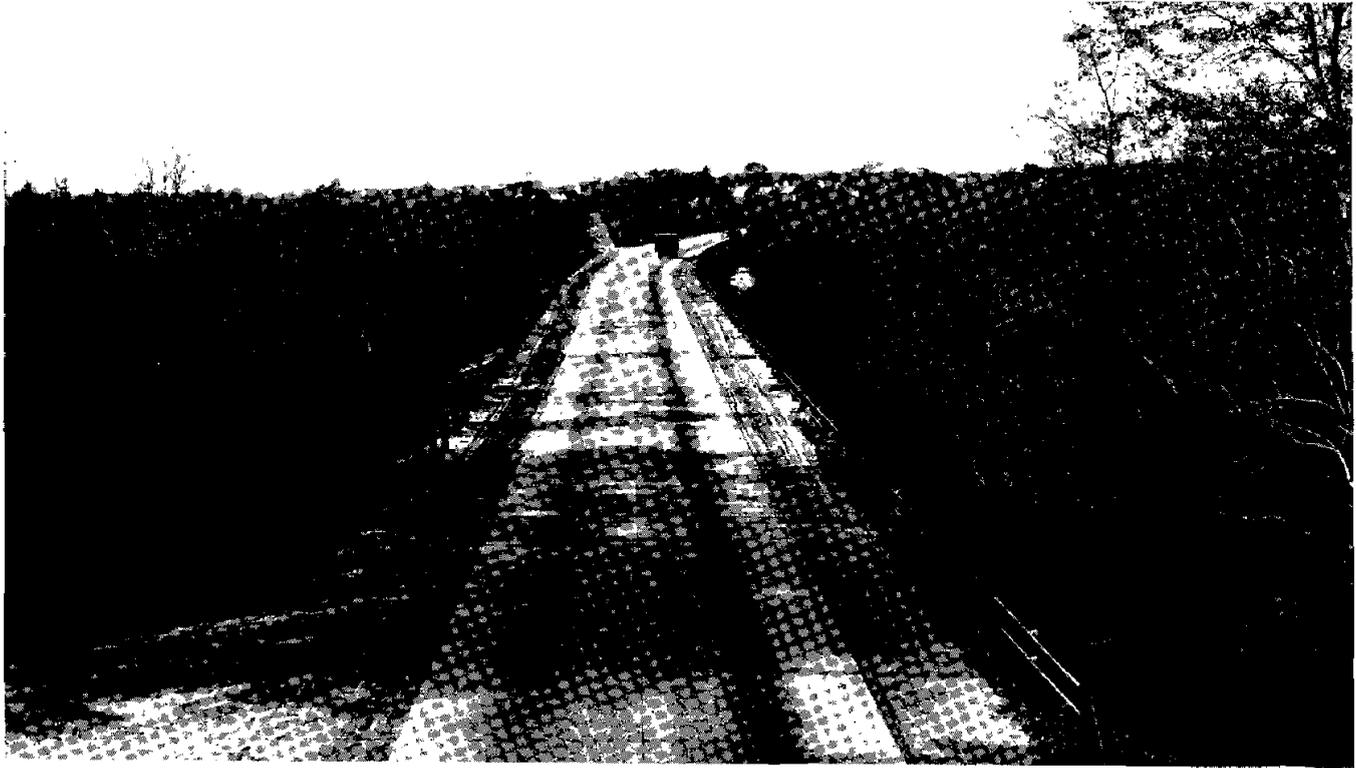
New Castle County. Maryland Line to State Road—U. S. Route 40 looking north toward junction with U. S. Route 13.

NEW CASTLE COUNTY

Type and Location of Roads and Sidewalks Advertised and Awarded, 1934

Cont.	Location	20'-32'		20'	18'	Bit. Conc. on W. B. Mac.					4-Ft. Sidewalk & Conc. Widen- ing	18' Traffic Slag	4-Ft. Side- walk	Sur- face Treat- ing	Fill Grad- ing	
		Bit. Surface on Concrete Base	22' Conc. Pavt.			20' Pavt. Conc.	18' Conc. Pavt.	22'	16'	14'						12'	9'
340	N. E. Blvd., Wilm. to Edge- moor	0.93	0.869													
347	West & Wash. Sts., Wilm.	0.813														
378	Church & Spruce Sts., Wilm.	1.144														
219C	Chestnut St. Cut Off Pav- ing, New Castle		0.555													
261A	Glasgow-Bear, Paving				3.238*											
350	N. E. Blvd., Edgemoor-Holly Oak		2.531													
367	N. E. Blvd. Edgemoor-Under- pass		.056													
CN42	Newark-Milford X Roads				1.75											
CN35	Faulk Rd.-Grubbs X Rds.- Naamans									0.64						
28 CN36	Faulk Rd.-Naamans-Pa. State Line									0.58						
CN40	West End Ave., Holloway Terrace							0.70								
CN43	Red Lion-Porter Station								1.37							
CN34	Bird Corner Road									0.74						
CN37	Thoroughfare Neck Road										2.10					
CN38	Oak Hill Road										2.85					
CN39	Chestnut Hill Road										0.95					
CN44	Welsh Tract, Church Road										1.73					
CN45	School Lane Road									1.40						
360	Reynolds Cor. - Armstrongs Cor.											3.454				
363	Howell School-Kirkwood											2.204				
CN41	Green St. & Lawson Ave., Claymont											0.363				
386	Union Park Gardens-Elsmere												2.26			
274A	Saw Mill Bridge & Approach										0.13					
219B	Chestnut St. Cut Off Fill, New Castle															0.479
382	New Castle County Surface Treatment														13.58	
Totals		2.887	4.011	3.238	1.75	1.22	0.70	1.37	2.14	7.65	5.888	0.363	2.26	13.58	0.479	

*Indicates Dual Highway



Kent County. Dover-Milford U. S. Route 13. Frederica Causeway looking towards Frederica.

KENT COUNTY

Type and Location of Roads and Sidewalks Advertised and Awarded, 1934

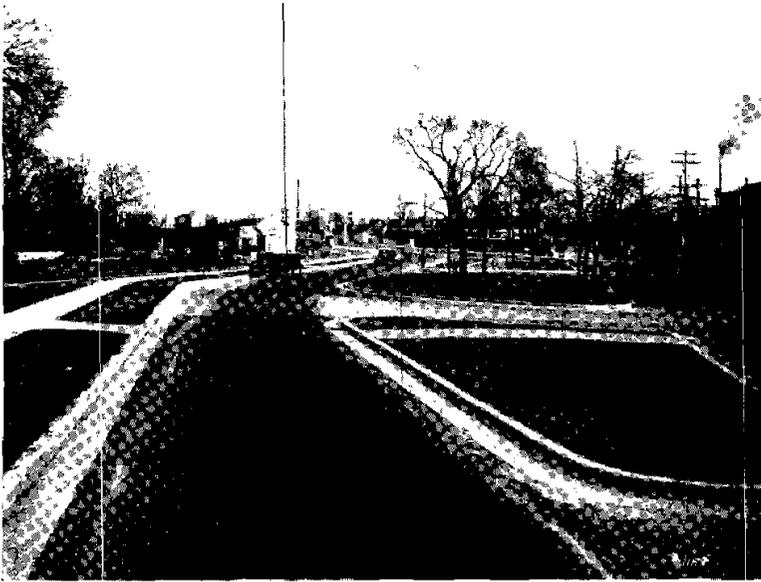
Cont.	Location	Conc. 44 ft. to 66 ft.	20-ft. Conc.	Bit. Surface on Conc. Base 24 ft.	4-ft. Widen- ing	18-ft. Traffic Stone	18-ft. Traffic Slag	Dredging Marsh Fill	Sur- face Treatment
286	Dover-Bishop's Corner .....	...	4.224*						
283	Thru Smyrna Pavt.	1.70							
330	Bay Road-Police Station No. 3		3.208	0.431	3.78				
390	Little Heaven-Bay Road		3.896						
137	Hasting's Cor.-Moore's Cor.					4.891			
306	Md. Line-Flemings Cor.						6.677		
327	Wright's Cor.-Hazletville						6.232		
354	Underwood's Cor.-Blanco						3.50		
364	Smyrna-White House						2.74		
308	Port Mahon Road							2.00	
286A	Fencing, Dover-Cheswold								
287A	Fencing, Cheswold-Smyrna								
384	Baustrades, Court St. Bridge, Dover								
382	Kent County, Surface Treatment								13.60
	Totals	1.70	11.328	0.431	3.78	4.891	18.849	2.00	13.60

*Indicates Dual Highway.

SUSSEX COUNTY

Type and Location of Roads and Sidewalks Advertised and Awarded, 1934

Cont.	Location	16-ft. Slag	18-ft. Traffic Slag	16-ft. Stone Base	4-8 Ft. Conc. Widening	4-ft. Widen- ing	Surface Treat- ment	20-ft. Mixed in Place	4-ft. Sidewalks and Widening
294	Pepper-Jones Cross Roads	5.75							
356	Md. Line-Pepper Box	1.20							
369	Cedar Neck Sch.-Cedar Beach	2.40							
370	Cokesbury Ch.-Old Furnace	2.70							
372	Springfield X Rds.-Fairmount	3.75							
244A	Sandy Forks-Bryan's Store	7.30							
338	Lowes X Rds.-Newfound			6.24					
352	Rehoboth Rd.-Broadkill Beach			4.04					
371	Atlanta-Smithville			4.18					
376	County Farm-Stockley			2.92					
351	Ellendale-No. 6 School		2.55						
353	Redden-Milton		4.24						
357	Five Points-Woodland		5.22						
359	Lincoln-Shawnee		2.22						
387	Bayard-Ocean View		4.58						
379	Clarksville-Bethany Beach				4.64				
391	Rehoboth-Five Points, Wid.					6.09			
120A	6th St.-Lindbergh Ave., Repairs .....				.265				
388	Rehoboth Beach Groins								
389	Bethany Beach Groins								
382C	Zoar Camp Road Surfacing						4.00		
213	Thru Blades .....								.75
374	Laurel-5 Pts. Sidewalk .....								.81
382	Sussex Ct. Surface Treatment							24187.98	
	Totals	27.10	18.81	17.38	4.905	6.09	4.00	24187.98	1.54



Wilmington. Eleventh St., showing Church and Spruce St. approaches to Eleventh St. Bridge



Wilmington. Intersection of Thirtieth St. and Northeast Boulevard. Looking south on Boulevard.

NORTH EAST BOULEVARD

In order to better accommodate traffic through and around Wilmington, several projects were undertaken this year as part of a comprehensive system to relieve the congested conditions on the business streets of the city. Washington Street was widened and repaved from Front Street to Delaware Avenue and West Street from Front to Fourth Streets, thus providing improved facilities in connection with the Washington Street Extension constructed in 1933.

Of more ultimate importance is the widening and paving of Church and Spruce Streets from Fourth to Eleventh Streets, and the construction of a dual highway on Eleventh Street between Church and Kirkwood Streets. By these improvements adequate approaches with one-way traffic are given to the Eleventh Street Bridge, which is the starting point of the North East Boulevard.

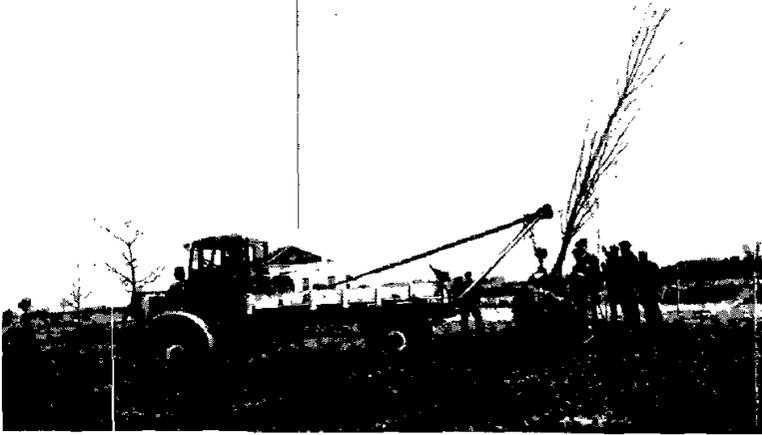
The first section of this highway has been completed and is now in use as far as Edgemoor Road; an underpass carrying the new road beneath Edgemoor Road is completed, and the section from this point to Holly Oak is now under construction.

This entire road is over a new location with easy grades and curves; the present contract provides for a two-way road 22 feet in width, but sufficient right of way is being secured to provide for a dual highway as traffic demands and funds permit.

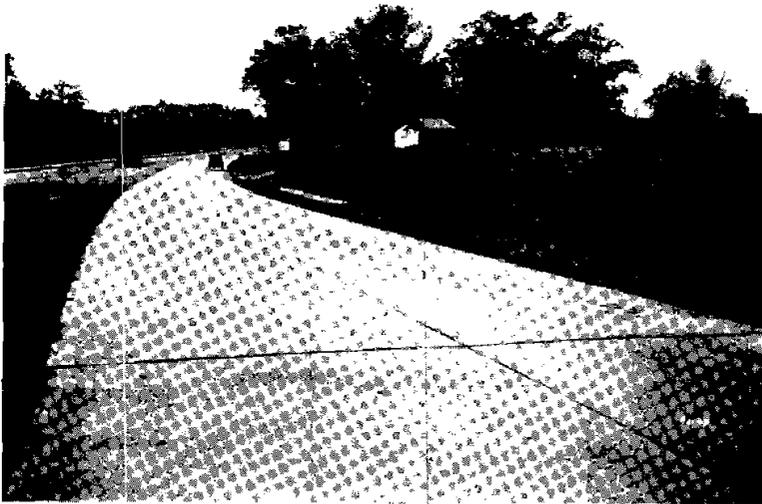
With the completion of this road to the State line, as contemplated, and the widening of Heald Street and its approach as planned during the coming year, this highway will not only afford great relief to traffic passing through the City of Wilmington, but will be a large factor in the development of the entire district bordering the Delaware River between Wilmington and the Pennsylvania Line.

WIDENING HIGHWAYS

As recommended in last year's report, the highway between Rehoboth and Five Points has been widened to 20 feet; there still remains a considerable mileage of 14 and 16-foot pavement which should be widened.



Kent County. Transplanting trees in parkway. Dual Highway near Dover.



New Castle County. Augustine Bridge Cutoff. Showing sodding of shoulders and back slope.

Those most in need of this attention are the routes from Lewes to Laurel via Georgetown and from Milford to Five Points in Sussex County. In New Castle County, the State Highways between Blackbird and Middletown; Mt. Pleasant via Summit Bridge to Tybout's Corner; and New Castle to Cranston Heights via Newport. I would recommend the widening of all of these roads as funds are made available.

HIGHWAY BEAUTIFICATION

Each year an increased interest is shown by the public in the appearance and beauty of our highways. Correspondingly, the Department has sought to keep abreast of public sentiment and annually make new improvements.

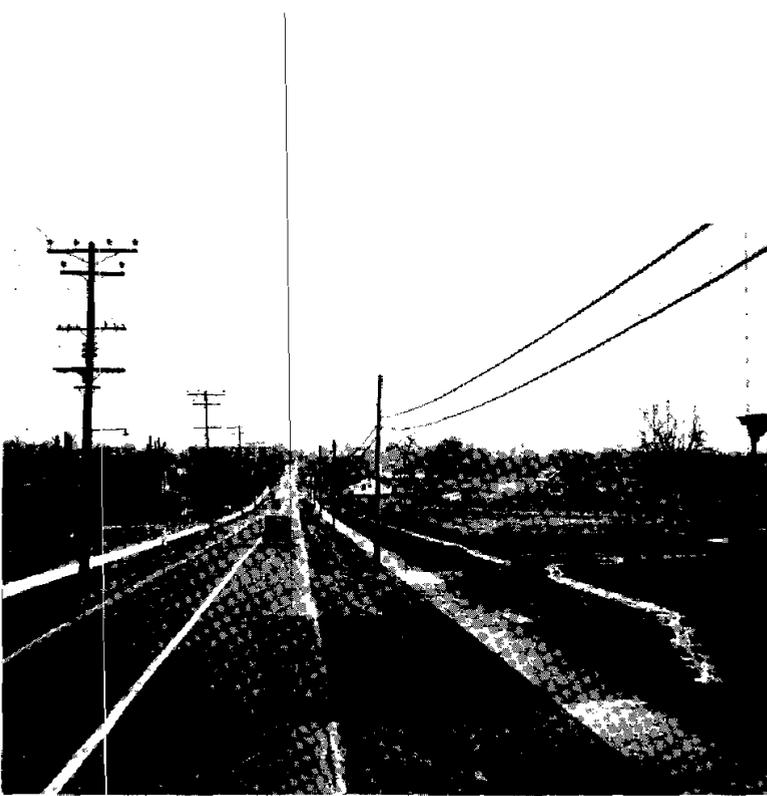
During 1934, in addition to the planting of numerous shrubs, vines and trees, and the usual mowing and maintenance of the roadside, an extensive project of sodding banks and slopes was carried on along the dual highway between State Road and Dover, resulting in a marked improvement in the general appearance of that highway and the complete concealment of the ugly slopes and washes which are usually so evident an accompaniment of new construction.

Plans are in preparation for a planting project between Wilmington and State Road, for which Federal funds are available, and bids will be taken early in the year.

DUAL HIGHWAYS

The high point in the year's activities was reached on September 22 when the final section of the dual highway between Wilmington and Dover was opened for traffic, thus completing a six-year program uniting the Capital of the State and its chief city, with a highway which has been pronounced by competent authorities as being second to none in safety, utility and beauty, and one in which all Delawareans can take pride. The completion of this highway is hardly less important than the completion of the original Coleman du Pont Highway in 1923.

The forty-six miles between Wilmington and Dover can now be speedily and comfortably traveled through attractive surround-



New Castle County. New Road, Elsmere. Rubble masonry and sidewalk.



New Castle County. New Road and N. duPont Road, Elsmere.
Rubble masonry and sidewalk.

ings without the usual annoyances and hazards of two-way traffic.

Special features in this year's construction were the design adopted through the Town of Smyrna, a distance of nearly two miles, and the cutoffs between Dover and Smyrna, whereby the alignment was greatly improved.

Foresight in building the original road through the Town of Smyrna provided a 100-foot right of way, and no additional right of way was required. Separated roadways varying from 22 to 32 feet in width with curbed parkways 8 feet to 17 feet wide were constructed. The design selected was the result of careful study of local conditions, and greatly adds to the appearance of the highway through Smyrna and its approaches and to the convenience and safety of the travelling public and local pedestrians.

The proposed dual highway along U. S. 40, State Road to the Maryland Line, has been graded its entire length and the completed road, including the concrete roadway, is now under contract, with the exception of the last four miles. With the completion of this highway, the State will have approximately fifty-seven miles of dual highway located on two of the heaviest travelled roads of the State, which should be a big factor in facilitating the movement of traffic with a maximum of safety.

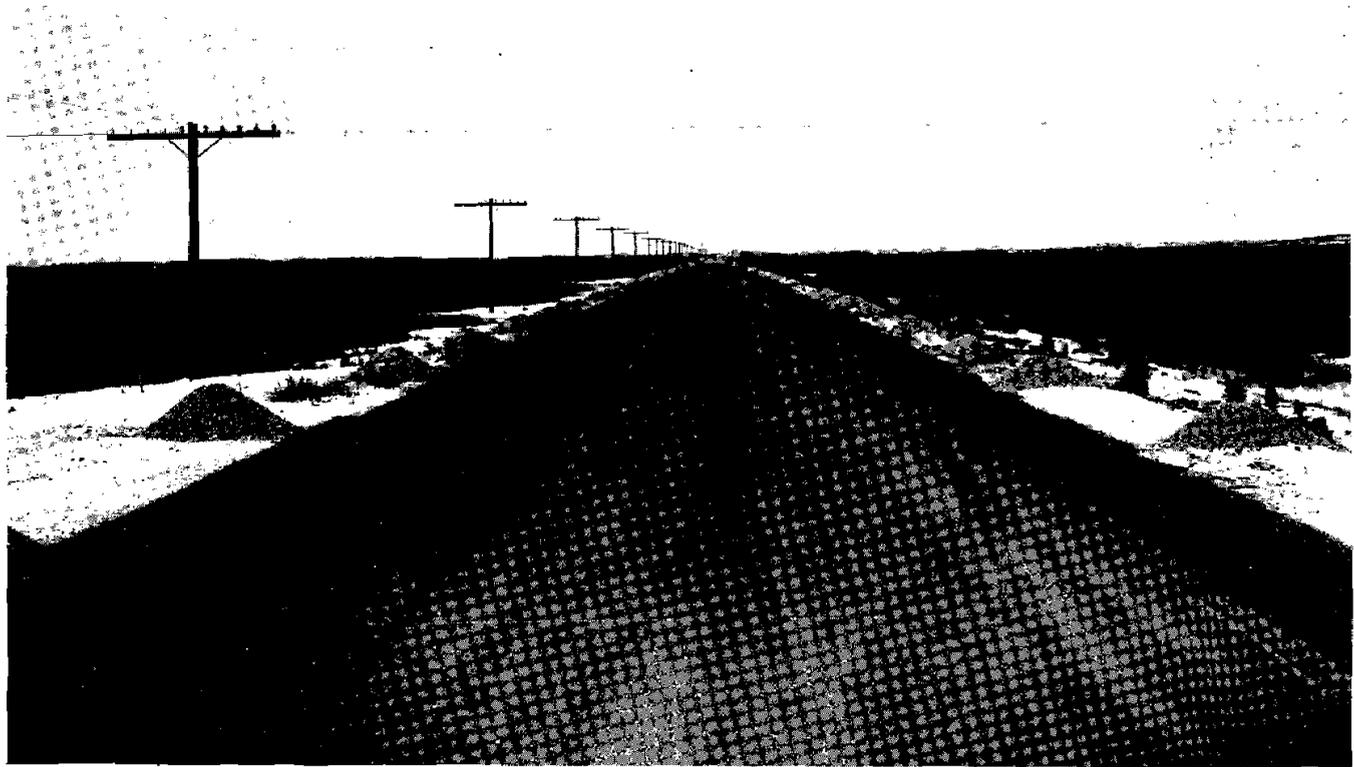
SIDEWALKS

Three sidewalk projects totalling 4.16 miles were constructed during the year, making a total of 29.72 miles, or about 2½ per cent of our highway mileage. While pedestrian deaths in the state have increased over 1933, they are still below those recorded in 1931 and 1932. A study of the police reports show that a large majority of these deaths occur in towns and where pedestrians are walking across and not along the highway.

The value of these sidewalks has been clearly demonstrated and I would recommend further construction in well-chosen locations.

SECONDARY ROADS

The Department continued its policy of building secondary low cost roads as outlets for farming districts. These roads were



Sussex County. Ocean Highway—Rehoboth-Bethany Beach. Mixed in place bituminous gravel surfacing before applying seal coat.

widely distributed throughout the State and have met with the approval of the majority of those affected.

As noted elsewhere, 77.4 miles of this type of road were constructed during the year, with 26.3 miles under contract but uncompleted, making, to date, a total completed or under contract of 349.1 miles.

The construction of these roads has been described in previous reports; suffice it to say that the initial cost is small, the maintenance charges are reasonable and, when sufficient traffic develops to warrant, they can be surface treated with asphalt or tar with a resulting dustless surface of unusually good riding qualities. Forty miles of this type have been so treated, and include the Woodland Beach Causeway; a portion of the King's Highway, Dover; Court Street to Bay Road, Dover; the Dover-Hazletville Road, in Kent County; while in Sussex County the Bayard Road, the Roxanna-Frankford Road; thru Lincoln City; the Flowers Station Road; the Gravelly Hill-Millsboro Road; the Rehoboth-Bethany Beach Road; Pilot Town Road, Lewes; and a portion of the Georgetown-Springfield Road, have been similarly improved.

OCEAN HIGHWAY

The Ocean Highway constructed between Rehoboth and Bethany Beach with a gravel surface has been treated with asphalt by the mixed-in-place method and is now a smooth, dustless highway providing a short cut between our two ocean front resorts.

This has proven one of the most popular additions to the State Highway system in recent years and was largely used during the past season. It has opened up the entire ocean and bay front between these two towns for gunning, bathing and surf-fishing.

The sand fences described in detail in last year's report have proven effective in protecting the roadway from storm damage.

I would recommend the extension of this highway to the Maryland Line at Fenwick's Island, at which point it is believed a connection will be made by the Maryland State Roads Commission extending to Ocean City. As heavy storms now break over this beach at many places, I would further recommend that no



Sussex County. Lincoln City to Waples Mill Pond. Surface treated traffic bound slag.

construction be started on this section until sand fences have been erected for approximately one year or until artificial dunes have been built up sufficiently to afford ample protection.

FEDERAL AID

Unusually liberal Federal appropriations since 1929 have increased until during the past two years they amounted to over one-half of our total construction expenditures and have made possible valuable additions to our system, including the completion of the dual highway to Dover.

On the passage of the National Industrial Recovery Act in June, 1933, Delaware was apportioned \$1,819,088. These monies have all been allocated and expended with the exception of some small balances.

The Hayden-Cartwright Road Act approved June 18, 1934, allotted to Delaware by direct grant \$909,544 for immediate expenditure and also provided for the return to the original Federal Aid plan in 1935 for a two-year period, with certain added provisions, whereby each state would be required to provide an equivalent amount of money, sharing the cost on a fifty-fifty basis.

Over seventy-five (75) per cent of this direct grant has been placed under contract in Delaware as against a national average of thirty (30) per cent as of November 30, 1934, and a considerable amount of work has been completed giving employment to a large number of men during the fall and early winter. The remainder will be advertised for bids early in the year.

On the 27th of December, 1934, the Secretary of Agriculture apportioned to the State of Delaware under the provisions of the Hayden-Cartwright Act the amount of \$609,375.00 for the fiscal year beginning July 1, 1935. Under this Act, the State is obliged to share equally with the Federal government the cost of construction and provision is made to discourage the diversion of motor vehicle funds for other than highway purposes by providing that in the event a state diverts any of these funds in amounts in excess of those provided by laws as they existed at the time of the passage of the Act on June 18, 1934, it may be subject to the loss

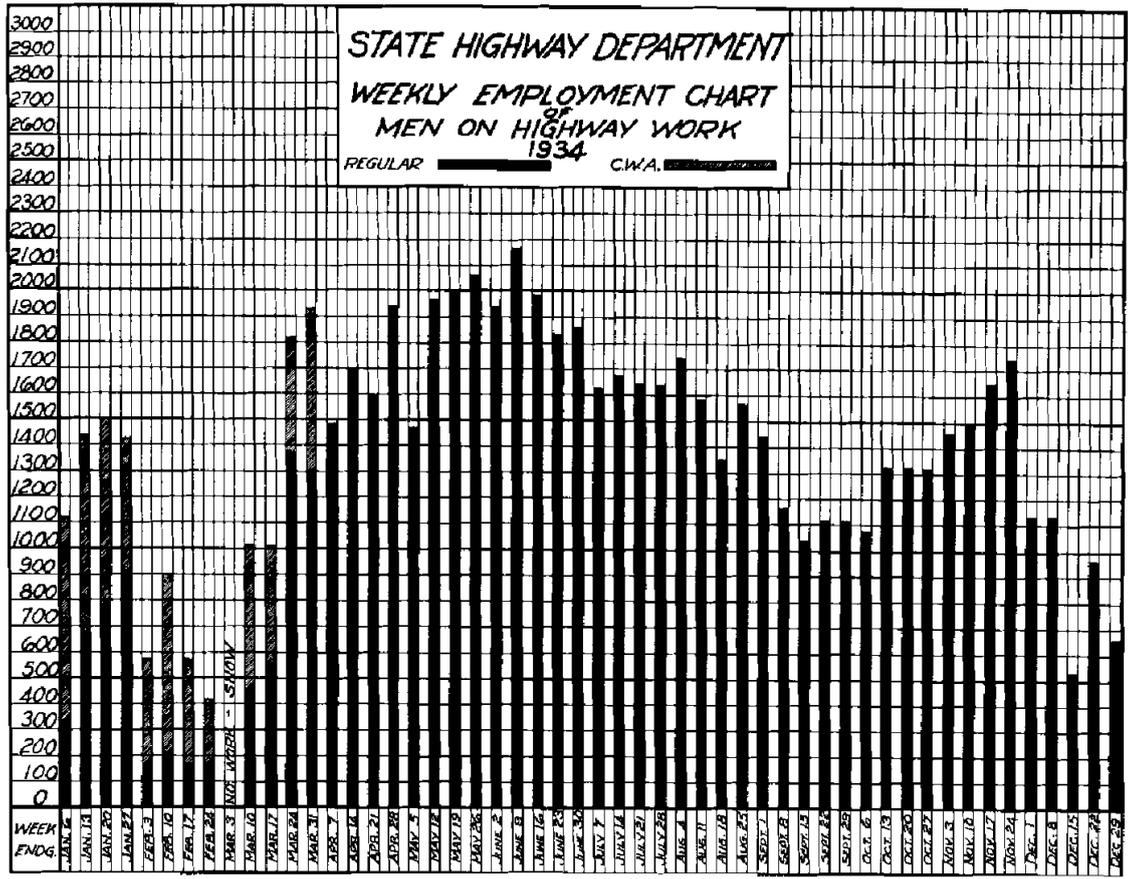
STATE HIGHWAY DEPARTMENT

WEEKLY EMPLOYMENT CHART

of MEN ON HIGHWAY WORK

1934

REGULAR ██████████ C.W.A. ██████████



of one-third of the amount of Federal funds to which it was entitled.

The result of this provision may have an effect upon the State's highway program in case of the diversion of motor vehicle funds.

The action of the 75th Congress just convened in Washington will be awaited with eagerness by all interested in highway affairs, for unless further legislation is enacted there will be a greatly reduced program of highway construction during the coming biennium.

UNEMPLOYMENT RELIEF

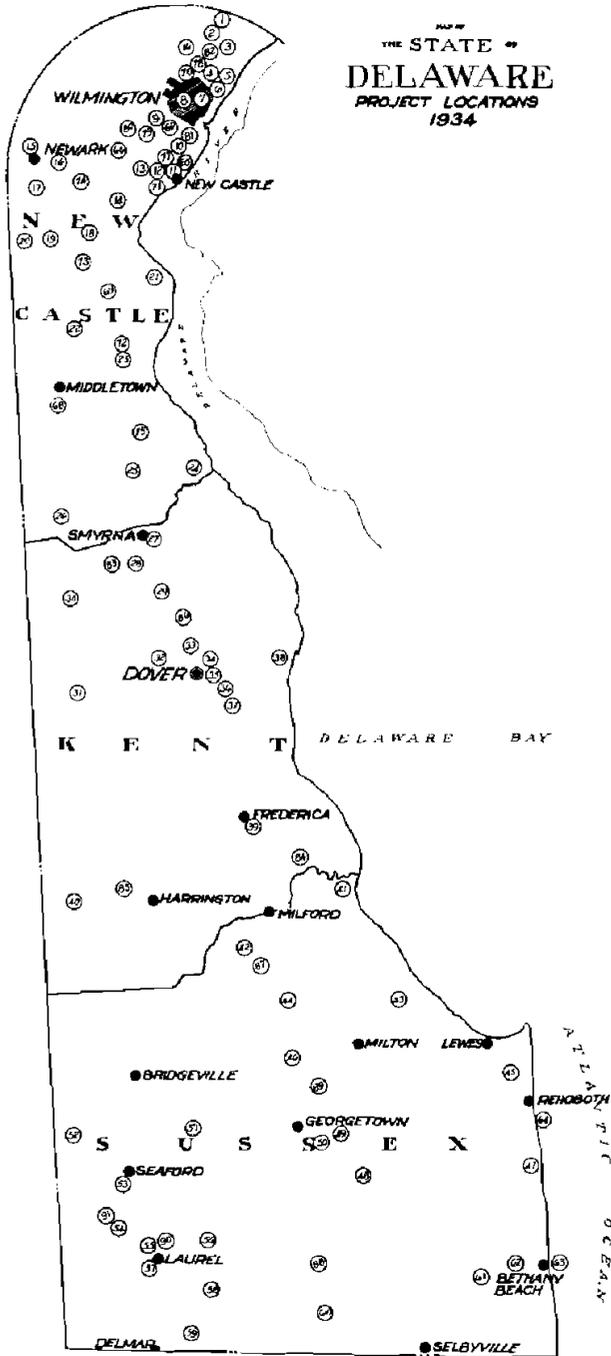
A greater number of workmen have been employed in State Highway building than in any previous year. Construction work was carried on throughout the entire year without letup except for the months of February and March when zero weather made road work impossible.

As in the year previous most of the contracts provided for the use of hand labor, especially on grading, where a large proportion of hand labor could be used. A better distribution of the road lettings kept the average of men employed during each week of the year more uniform. The records show that the peak of men employed occurred the week of June 9th when 2160 men were employed and the lowest September 15th when 1130 men were employed, while on all projects for the season from March 31st to December 15th the average was 1500 per week.

During the winter months of 1933-34, the Federal government expended considerable sums of money to provide work relief for the unemployed through the Civil Works Administration. Road work offers one of the best opportunities of speedily employing large numbers of this class.

The organization of the Department with its trained personnel was utilized to get a large number of men at work on short notice, and twenty-eight (28) projects were started within a short time; the peak of C. W. A. employment was reached in the week of January 6th when over 800 were employed on C. W. A. projects

MAP OF
THE STATE OF
DELAWARE
PROJECT LOCATIONS
1934



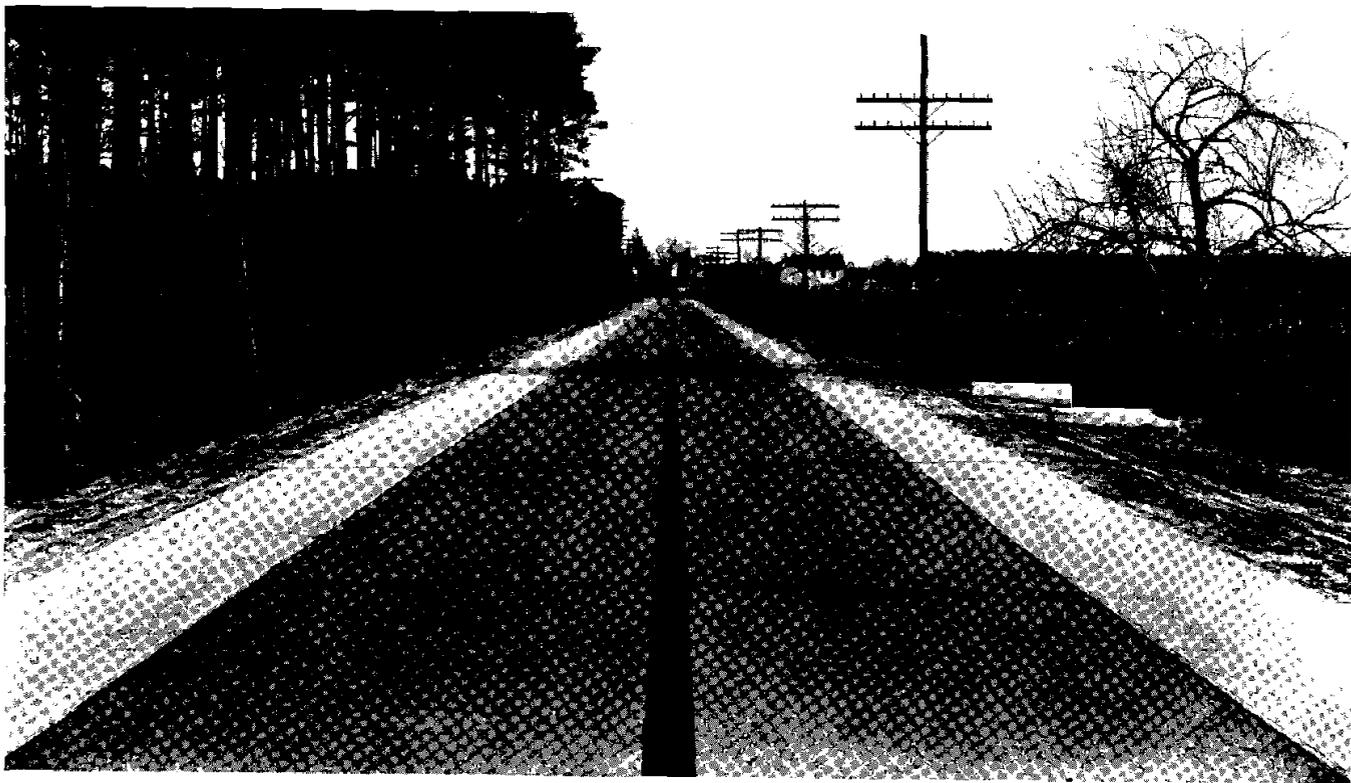
Map Showing Location of Construction Projects
During 1934

under State Highway Department control and supervision. The work was carried on throughout the State, and consisted largely of clearing and grubbing, ditching, grading, sodding, construction of sidewalks, building of masonry culverts and bridges and the repairing of dikes along the banks of the Delaware and Christiana Rivers. The Department shared in the expense of these projects to the extent of twenty-five (25) per cent of the total amount.

The average for the entire year was 1410 men per week.

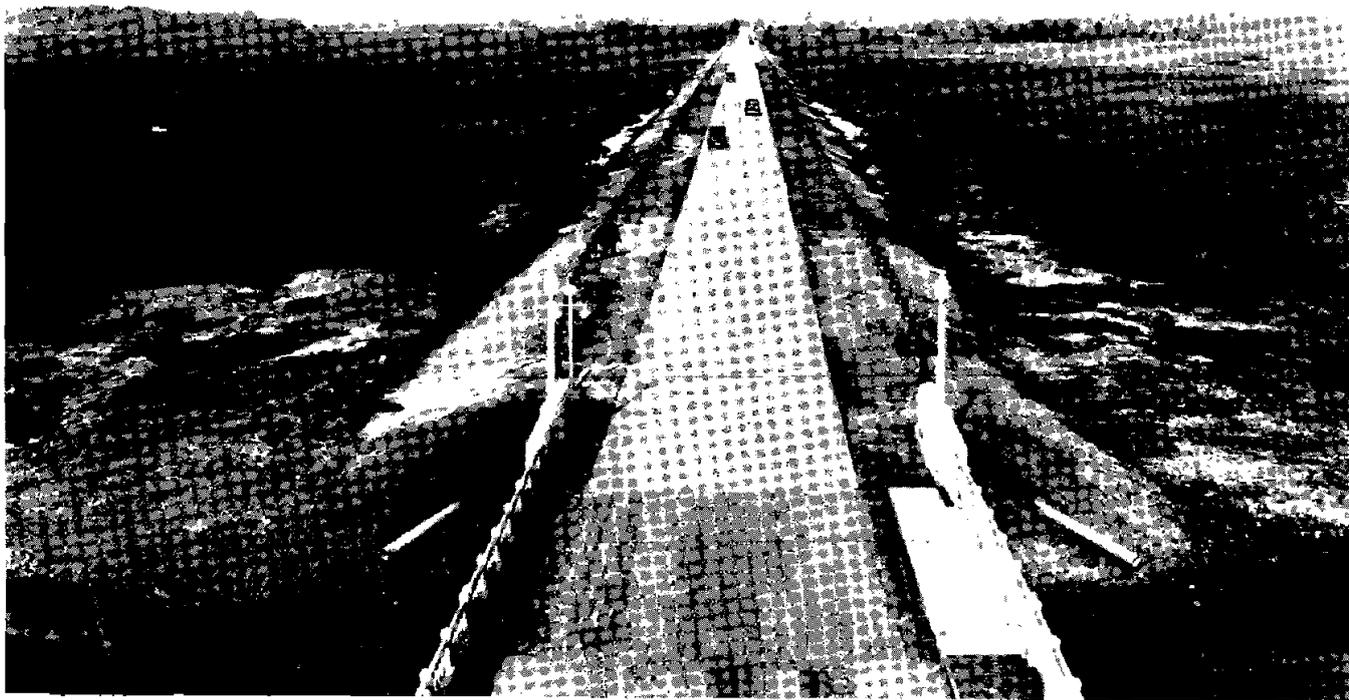
A map showing highway relief given the State during the year is hereby attached. This includes roads, streets and bridges. The numbers before the designations of locations serve as a key for the map.

No.	Location
1	Faulk Road-Naamans to Pennsylvania Line.
2	Faulk Road to Naamans Road.
3	Green and Lawson Aves., Claymont.
4	Edgemoor Underpass.
5	Edgemoor-Holly Oak.
6	Wilmington-Edgemoor.
7	Church and Spruce Sts., Wilmington.
8	West and Washington Sts., Wilmington.
9	Richardson Park to Wilmington.
10	West End Ave., Holloway Terrace.
11	Chestnut St. Fill, New Castle.
12	Chestnut St. Paving, New Castle.
13	School Lane Road.
14	Bear to State Road Paving.
15	Newark to Milford X. Roads.
16	Welsh Tract Church Road.
17	Chestnut Hill Road.
18	Red Lion to Porters
19	Glasgow to Bear Dual Paving.
20	Md. Line to Glasgow, Grading.
21	Delaware City Bridge Approaches.
22	Howell School to Kirkwood.
23	Birds Cor. Road.



Sussx County. Clarksville to Bethany Beach, Concrete widening.

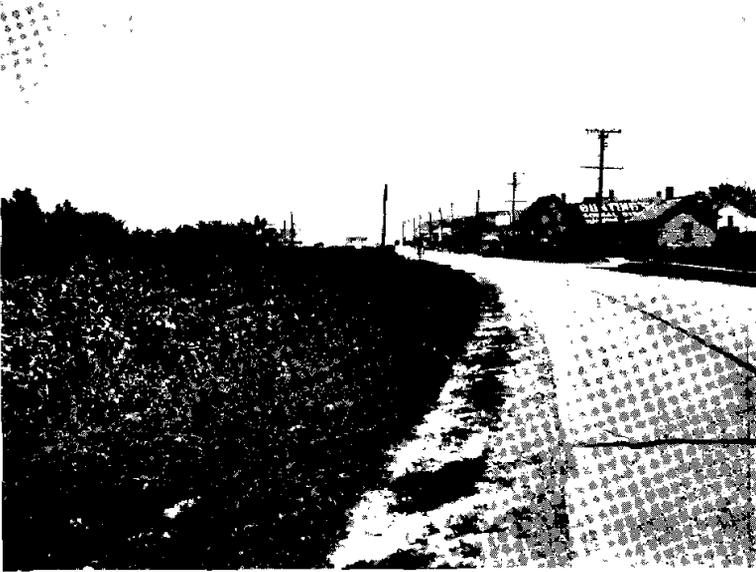
- 24 Thoroughfare Neck Road.
- 25 Reynolds Cor. to Armstrongs Cor.
- 26 Oak Hill Road.
- 27 Thru Smyrna.
- 28 Smyrna-White House.
- 29 Bishops Corner to Smyrna (Dual).
- 30 Underwood Cor. to Blanco.
- 31 Wright's Corner to Hazletville.
- 32 Hasting's Corner to Moore's Corner.
- 33 Dover to Bishop's Corner (Dual).
- 34 Bay Road to Police Station No. 3.
- 35 Balustrades on Court St. Bridge, Dover.
- 36 Barker's Landing Bridge.
- 37 Little Heaven to Bay Road.
- 38 Port Mahon Road, Marsh Fill.
- 39 Frederica Causeway Paving.
- 40 Md. Line to Flemings Corner.
- 41 Cedar Neck School to Cedar Beach.
- 42 Lincoln to Shawnee.
- 43 Rehoboth Road to Broadkill Beach.
- 44 Ellendale to No. 6 School.
- 45 Five Points to Rehoboth.
- 46 Redden to Milton.
- 47 Rehoboth to Bethany Beach. Surface Treatment.
- 48 Zoar Camp Road. Surface Treatment.
- 49 Springfield X Rds. to Fairmount.
- 50 County Farm to Stockley.
- 51 Cokesbury Church to Old Furnace Mill.
- 52 Atlanta toward Smithville.
- 53 Blades Sidewalk.
- 54 Five Points to Woodland.
- 55 Laurel to Five Points. Sidewalk.
- 56 Sandy Forks to Bryan's Store.
- 57 Sixth St. and Lindbergh Ave. Repairs.
- 58 Pepper to Jones X Roads.
- 59 Md. Line to Pepperbox via Wards.
- 60 Lowes X Roads to Newfound.
- 61 Bayard to Ocean View.
- 62 Clarksville to Bethany Beach. Widening.



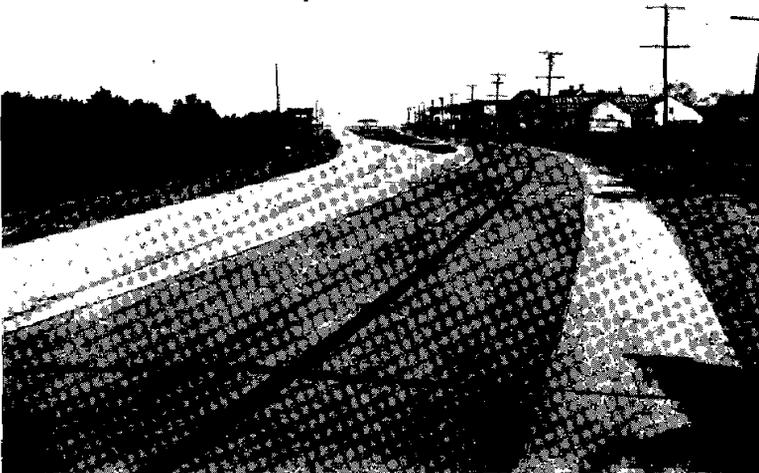
Kent County. Dover By Pass. Causeway across deep marsh at Barker's Landing Bridge.

- 63 Bethany Beach Groins.
- 64 Rehoboth Beach Groins.
- 65 Sidewalk-Sub-grade Balton-New Castle.
- 66 Widening Shoulders Lincoln Highway-Marshallton.
- 67 Raising Dykes Along Christiana.
- 68 Sidewalk, St. Anne's Church.
- 69 Removing dead trees along Highway.
- 70 Car Road to Washington Street Extension.
- 71 Repairing Dykes-New Castle.
- 72 Sidewalk, Odessa-Drawyers.
- 73 Grading sidewalks Kirkwood to Howell's School.
- 74 Road Repairs, Jester's Corner.
- 75 Grading road to Blackbird to Walker's School Road.
- 76 Road-Rockland to Thompson's Bridge.
- 77 Fill at Chestnut St.-New Castle.
- 78 Road thru Allopocas Woods.
- 79 Grading for Sidewalk, Wilmington to Oak Grove.
- 80 Grading for Sidewalk thru Rural Communities.
- 81 Rose Hill Grading along Highway.
- 82 Removing dead trees along Highway.
- 83 Underwood's Corner to Blanco.
- 84 Tub Mill to Big Stone Beach.
- 85 Md. Line to Flemings Cor.
- 86 26,000 Sq. Yds. Sodding.
- 87 Shawnee to Lincoln City.
- 88 Lowes Cross Roads to Newfound.
- 89 Redden to Georgetown Milton Road.
- 90 Sidewalk (Laurel Five Points).
- 91 Laurel to Woodland.

The Special Session of the General Assembly having failed to provide funds for the relief of the destitute and unemployed and in view of the urgent necessity of relief in the City of Wilmington and its suburbs, an agreement was entered into between the State Highway Department and the Levy Court of New Castle County by which the Levy Court appropriated for relief purposes \$300,000 previously designated for highway construction and the State Highway Department assumed the obligation of constructing the roads as planned.



Sussex County. Bethany Beach, before Parkway and widening.



Sussex County. Bethany Beach, after Parkway and widening.

Bids were received by the Department for twelve contracts totaling \$271,048.90, which were placed under contract.

The engineering department of New Castle County, under the direction of Mr. Alban P. Shaw, made the surveys and plans for these projects and had charge of the construction work under the general supervision of the State Highway Department.

INDIAN RIVER INLET

The Indian River Inlet was opened early in the year at a cost of \$24,651.66. At present, the Inlet is in fair condition, but without further dredging will probably be in danger of closing before the end of 1935.

The construction of adequate jetties well protected with stone would probably permanently solve this continued problem and safeguard the fishing and other interests of landowners adjacent to the Indian River and Rehoboth Bays and their tributaries. This would appear to be a project worthy of the consideration and adoption by the Federal Government in its Public Works plan.

GAS TAX INSPECTION

As provided by Statute, the Department has examined the books of all motor fuel distributors and importers since 1927. The Motor Fuel Tax Law of 1933 has made this audit much more effective.

During the year, a monthly examination has been made of reports as submitted by the licensed distributors, and additional taxes of \$3,387.23 collected besides penalty and interest collections amounting to \$1,674.81. A Field Audit completed during the first half of 1934 covering the last six months under the old law disclosed additional taxes due of \$8,295.00. At the close of the year there were overdue accounts of \$12,512.15, which have been placed in the hands of the Attorney General for collection.

In connection with the examinations of the distributors' monthly reports a better idea of the extent of the work may be obtained from the following summary:



Sussex County. Frankford-Roxana Road. Surface treated traffic bound slag.

"A" During the year the motor fuel imported into the State amounted to 110,000,000 gallons of which about 70,000,000 gallons were exported. The verification of the items making up these totals consisted of:

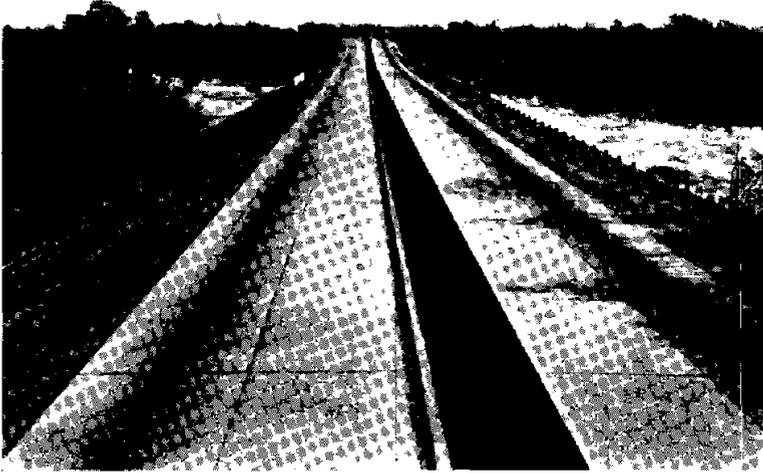
1. The receipt of reports from the United States Department of the Interior covering imports by ocean-going vessels.
2. Advice from other states' motor fuel departments of imports from their states by tank car, barge and tank truck; also monthly reports from common carriers of shipments arriving in Delaware.
3. Other states were notified of all exports from Delaware by barge, tank car and tank truck.

"B" Approximately 30,000,000 gallons passed from the importing distributor to other distributors who were held responsible for the tax. These items were verified through the detailed information submitted by all distributors concerning their purchases and sales.

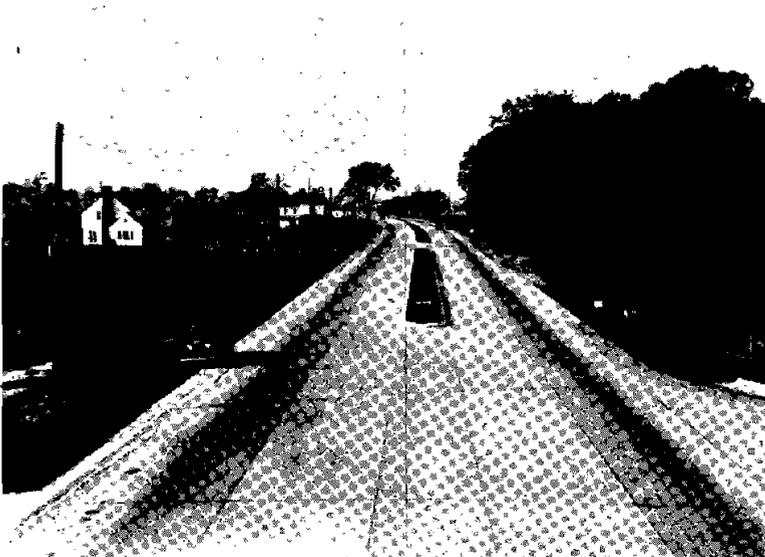
"C" All tax exempt sales to the United States Government were substantiated by U. S. exemption certificates. During the year these exempt sales totaled approximately 214,000 gallons.

In the course of properly accounting for the motor fuel taxable to the State it was necessary to verify:

Imports	110,000,000 gallons
Exports	70,000,000 gallons
Tax exempt sales—	
Between Distributors	30,000,000 gallons
To U. S. Government	214,000 gallons
Taxable Sales in the State	40,000,000 gallons



Kent County. U. S. Route 13. Coleman duPont Boulevard Dual Highway.
Entrance to Smyrna looking south.



Kent County. U. S. Route 13. Coleman duPont Boulevard Dual Highway.
Entrance to Smyrna looking north.

Beginning October 1, 1934, all tax free exports and imports have been reported individually as shipments were made. This change was made to conform with the method adopted by the adjoining states as approved by the Northeastern States Conference earlier in the year and by the North American Gasoline Tax Conference held in September in Atlantic City, N. J.

The work has been most efficiently done by certified public accountants, and under present methods, it is believed that there is a minimum of evasion, which is further indicated by our continually increasing income from this source.

In 1932 the Department organized a Motor Fuel Tax Refund Division to check the refunds which had been yearly increasing. Since the passage of the Motor Fuel Tax Law of 1933 this division has also issued the Motor Fuel Dealer's License required of retail dealers.

During the year 1107 Motor Fuel Dealer's Licenses were issued as follows:

New Castle County	406
Kent County	304
Sussex County	397

Applications for gasoline tax refunds which were illegally made or improperly proven and were not allowed when personal contact was made, amounted to 83,680 gallons, or an increase in revenue to the Highway Department of \$2,510.40, while revenues from Retail Dealers' Licenses were \$2,214, the total revenues thus brought directly to the Department by this Division by personal contact totaling \$4,724.40.

In making the personal contacts necessary for the above results, 1556 calls were made and 32,226 miles were traveled.

A tabulation of applicants for refunds is given showing a decrease of 315, or about 15%, under the previous year.

Applicants for Gasoline Tax Refunds—1934

Applicants	Total	New Castle	Kent	Sussex	Foreign
Farms	1097	233	481	363	20
Boats	274	36	142	54	42
Domestic	196	33	49	104	10
Commercial	97	37	15	22	23
Government	28	5	10	11	2
Clubs	7	5	1	1	0
Contractors	34	13	4	6	11
Aviation	32	16	2	0	14
Political Divisions	28	10	14	4	0
<hr/>					
1934 Total	1793	388	718	565	122
1933 Total	2108	464	885	656	103
<hr/>					
Decrease	—315	—76	—167	—91	+19

Applicants have learned to prepare their applications in proper form, to keep a daily record of their uses of gasoline and the orderly procedure under which refunds are granted, and because of these facts there is only a slight difference between the percentage of last year.

The ratio of refunds to collections other than from governmental agencies was 3.75% for the year, which is the lowest of record and probably represents a reasonable minimum.

The successful work of the division is indicated in comparing the refunds of 1931 of \$70,055.00, 1932 of \$55,836 and the present year of \$46,252.00, and is the result of the intensive and efficient work of the personnel employed.

Estimating that the refunds of 1931 would have otherwise become no larger, this Division, in the two years and ten months that it has been at work, has saved the State in tax refunds a total of \$62,676.00.

In all of the work of auditing of accounts and investigation of refunds the Department has had the active and energetic support of Mr. George S. Williams, former State Treasurer, without whose assistance these results could not have been secured.

STATE POLICE

Judging by the increasing number of calls made by private citizens upon the State Police their usefulness is becoming more generally recognized.

The past year has been one of unusual activity and reflects credit on the entire personnel. Increases are noted in nearly all items of record; officers of the force during the year covered nearly one million miles on patrol, or 912,316, made 4,792 arrests for 116 different offenses, issued 31,434 reprimands, weighed 44,569 trucks, inspected 18,869 cars for lights and brakes, spent 5,557 hours on investigations, 11,459 hours on special duty, and recovered 70 stolen cars.

To accomplish these results has necessitated faithful and unremitting vigilance and devotion to the service of the people of the State at all hours and under all conditions throughout the 365 days of the year.

The special night patrol established for the first time last year has been effective in reducing poultry and grain thefts and has resulted in the arrest and conviction of numerous offenders for these and other crimes.

Satisfactory results were also secured in an effort to eliminate sleepy and exhausted truck drivers. This campaign elicited much favorable comment not only locally but nationally.

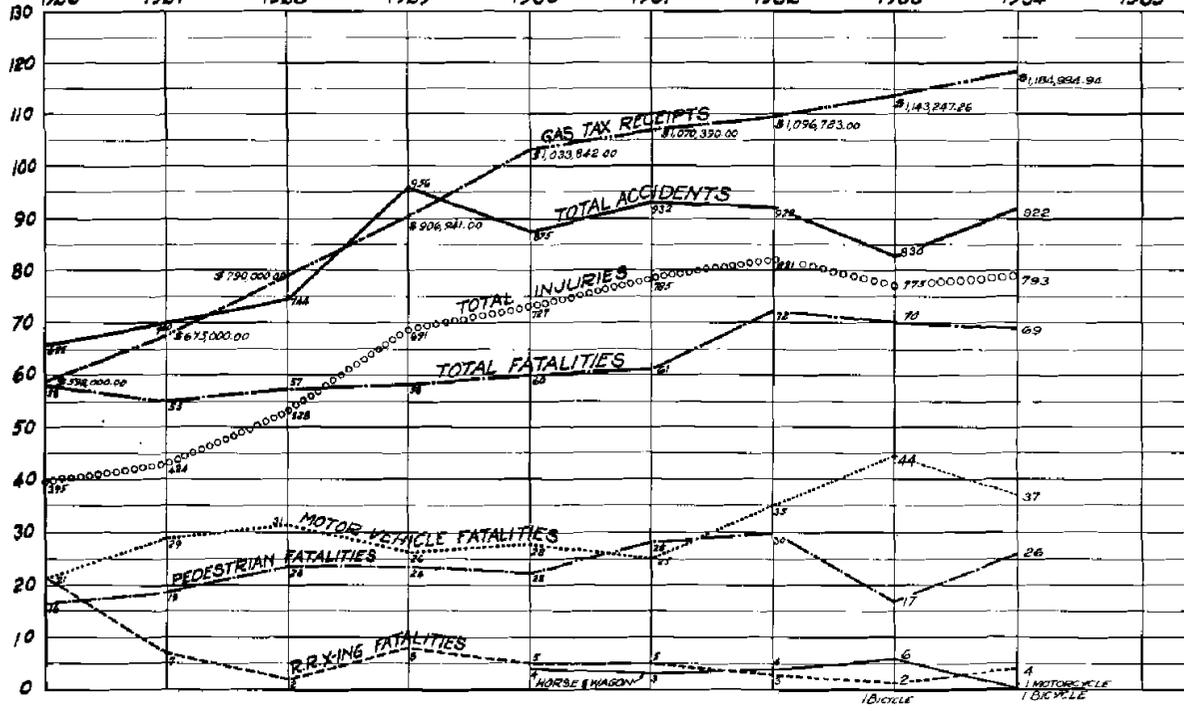
In October, in conjunction with the Department of Public Safety of the City of Wilmington, teletype service was secured for Station No. 1; by its use immediate information can be secured or furnished in interchange with eight other states. This is of great value in the pursuit and apprehension of fugitives from justice.

Of the total of 4792 arrests, the greatest number, 1378, was for reckless driving, 11 were for murder, 24 for breaking and entering, and 184 for larceny.

Drunken drivers numbered 211, compared to 209 in 1933 and 204 in 1932, while arrests for drunk and disorderly were 226, compared to 210 in 1933 and 142 in 1932.

STATE OF DELAWARE STATE HIGHWAY DEPARTMENT ACCIDENT CHART

NUMBER OF ACCIDENTS PER FATALITY	11.3	12.7	13.1	16.5	14.6	15.2	12.9	11.8	13.3	
MILES DRIVEN PER FATALITY (10 MI/GAL)	3,402,300	4,090,909	4,619,884	5,212,304	5,741,500	5,815,633	5,035,745	5,444,403	5,724,565	
	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935



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

There was one dismissal from the force during the year.

SAFETY

In spite of increased police activity and improved safety facilities throughout the State, the hope of a materially improved safety record for which the first half of the year held promise was not realized. Several unusually serious accidents in the later months overcame the gains previously made.

The total of 69 killed on the public highways and streets of the State outside the City of Wilmington is one less than the previous year and three less than in 1932. Pedestrian fatalities are responsible for the failure to make a better record, there being 26, in contrast to 17 for the previous year.

Thirteen intoxicated pedestrians were involved in accidents, compared to 7 in 1933.

Viewed in the light of an estimated national increase of 16 per cent in motor vehicle fatalities, the known increase in registration and gasoline consumption, and the recent and contemplated completion of new sections of dual highways, with the help and co-operation of the motoring public there is more than a hope that Delaware can and will reduce this shocking list of tragedies which are caused by the carelessness and irresponsibility of a small percentage of the users of our highways.

ARRESTS FROM JANUARY 1st TO DECEMBER 31st, 1934

Abortion	1
Accessory	5
Adultery	2
Aiding and abetting	1
Allowing body to protrude over side	4
Allowing illegal use of tags	1
Allowing live stock to run at large	3
Allowing minor to operate	3
Allowing an unlicensed operator to operate	75
Allowing unregistered car to be operated	10
Arson	1
Assault	22
Assault and battery	154
Assault felonious	10
Assault to murder	5

Bastardy	2
Breach of peace	1
Breaking and entering	24
Breaking jail	1
Carrying concealed a deadly weapon	16
Cruelty to dumb animals	1
Defective brakes	128
Desertion (Wife)	3
Destroying state property	2
Disorderly conduct	114
Displaying another's license	7
Drunk and disorderly	226
Exceeding legal height	9
Exceeding legal width	4
Exceeding registered weight	118
Failed to display red lantern	15
Failed to have car inspected	12
Failed to signal	10
Failed to stop at main highway	111
Failed to stop at request of officer	5
Failed to surrender registration	13
Forgery	6
Fugitive from justice	9
Gambling	27
Harboring a fugitive	1
Harboring a minor	4
Held as witness	50
Highway robbery	3
Hitch hiking	3
Horse-drawn vehicle, no lights	8
Improper lights	36
Improper tags	28
Indecent exposure	1
Interfering with driver	7
Interfering with officer	1
Juvenile delinquent	5
Keeping disorderly house	4
Keeping gambling house	4
Larceny	184
Leaving accident	37
Lending license plates	2
Lending operators license	7
Lottery	3
Making threats	24
Malicious mischief	1
Manslaughter	37
Murder	11
No chauffeur's license	64
No clearance lights	18
No fuel permit	45

No horn	5
No mirror	134
No muffler	9
No operators license	483
No photo on license (chauffeur's)	2
No windshield wiper	2
Non-support	6
Obtaining goods under false pretenses	3
Obtaining money under false pretenses	3
Operating after revocation	12
Operating pool room, no license	1
Operating while intoxicated	211
Overloaded rear axle	105
Overloaded semi-trailer	46
Overloaded trailer	5
Overloaded truck	84
Parking on concrete	12
Parking no lights	7
Passing on right	2
Passing red traffic light	25
Passing worthless checks	19
Perjury	2
Pointing fire arm	3
Policy writing	2
Possession of stolen goods	7
Possession of stolen car	4
Receiving stolen goods	8
Reckless driving	1358
Resisting arrest	1
Riding without owner's consent	2
Robbery	4
Running over fire hose	1
Selling car without title	5
Sodomy	1
Subordination of perjury	1
Taking car without owner's consent	28
Tampering with automobile	13
Throwing rubbish on highway	3
Title not signed	1
Trespassing	29
Unregistered car	207
Using female child for immoral purposes	3
Vagrancy	7
Violating Dyer Act	3
Violating fuel act	2
Violating game law	2
Violating health law	6
Violating learner's permit	16
Violating liquor law	145
Violating milk law	1
Wife beating	2
Total number arrests	4,792
Total number reprimands	31,434

Total number trucks weighed	44,569
Total number miles patrolled	912,316
Total number of cars inspected for lights and brakes	18,859
Total number hours spent on investigation	5,557
Total number hours spent on Special Duty	11,459
Total number hours on duty	161,987
Total number stolen cars recovered	70
Total number of school children addressed on safety	1,500

REPORT OF ACCIDENTS FOR THE YEAR 1934

Total number accidents	922
Total number killed	69
Total number injured	793
Estimated property damage	\$145,999.00

Type of Collision

In Collision with:	Total	Fatal	Non-fatal
Pedestrian	102	26	76
Automobile	533	23	510
Animal or horse-drawn vehicle	32	---	32
Railroad train	8	4	4
Street car	10	---	10
Motorcycle	7	1	6
Fixed object	129	8	121
Bicycle	8	1	7
Non-collision accident	92	6	86
Miscellaneous	1	---	1
Total	922	69	853

Cause:

Reckless driving	160
On wrong side of road	68
Operator had been drinking	67
Inattention	65
Skidding	62
Failed to stop at main highway	56
Drove or crowded off roadway	43
Failed to signal	38
Jay walking	33
Passing without proper clearance	31
Operator asleep	28
Loss of control	26
Obstructed view	20
Glaring headlights	19
Tire (blow out)	18
Defective steering gear	18
Cutting in	16
Child playing in roadway	14
Defective brakes	14
Pedestrian had been drinking	13
Operator confused	12
Automobile no lights	10
Following too closely	10
Pedestrian coming from behind parked vehicle	9
Pedestrian confused	8
Fell or jumped from motor vehicle	7

Wagon, no lights	7
Inexperienced operator	7
Animal on highway	7
Obstruction in roadway	6
Interfering with operator	1
Operator had physical defect	1
Car ran away	1
Bicycle, no light	1
Not stated	25

Driver's Sex:	Total	Fatal	Non-fatal
Male	1364	76	1283
Female	130	6	124
Not stated	6	1	5
Total	1500	83	1417

Driver's Age:	Total	Fatal	Non-fatal
Under 18 years	35	1	34
18 to 24 years	372	18	354
25 to 34 years	964	55	909
35 and over	106	5	101
Not stated	23	4	19
Total	1500	83	1417

Driving Experience:	Total	Fatal	Non-fatal
Less than 3 months	21	1	20
3 to 6 months	7	....	7
6 to 12 months	16	....	7
1 year or more	1402	71	1331
Not stated	54	11	43
Total	1500	83	1417

Light Conditions:	Total	Fatal	Non-fatal
Daylight	446	30	416
Dusk	28	3	25
Artificial light, good	70	6	64
Artificial light, poor	64	3	61
Darkness	312	19	293
Not stated	2	....	2
Total	922	61	861

Day of Occurrence:	Total	Fatal	Non-fatal
Sunday	185	8	177
Monday	110	6	104
Tuesday	91	5	86
Wednesday	103	9	94
Thursday	107	9	98
Friday	146	7	139
Saturday	180	17	163
Total	922	61	861

Weather Conditions:	Total	Fatal	Non-fatal
Clear	606	47	559
Cloudy	92	1	91
Fog or mist	55	3	52
Rain	125	10	115
Snow	42	....	42
Not stated	2	....	2
Total	922	61	861

Hour of Occurrence

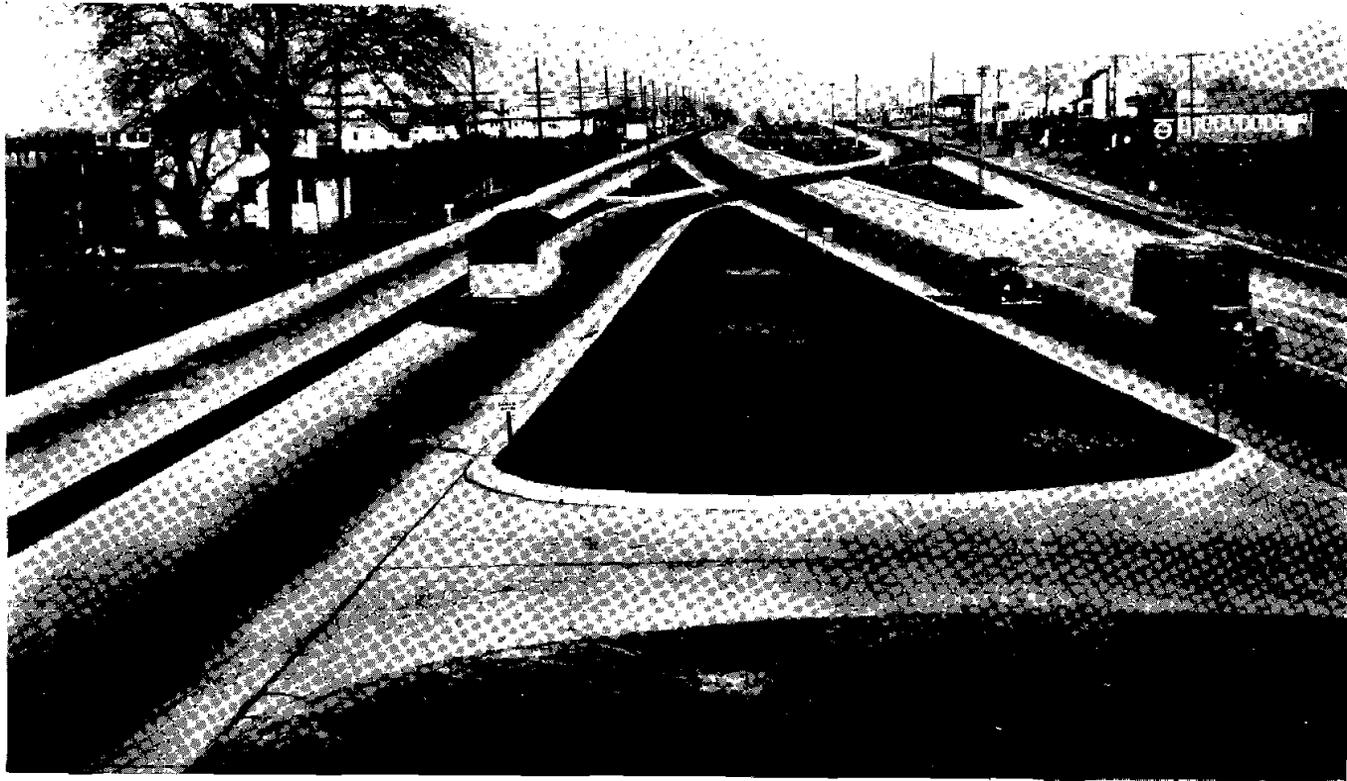
12 to 1 A. M.	40	1	39
1 to 2 A. M.	43	....	43
2 to 3 A. M.	23	1	22
3 to 4 A. M.	27	1	26
4 to 5 A. M.	15	1	14
5 to 6 A. M.	17	1	16
6 to 7 A. M.	21	....	21
7 to 8 A. M.	17	1	16
8 to 9 A. M.	31	2	29
9 to 10 A. M.	20	2	18
10 to 11 A. M.	38	2	36
11 to 12 A. M.	39	1	38
12 to 1 P. M.	31	3	28
1 to 2 P. M.	35	1	34
2 to 3 P. M.	37	2	35
3 to 4 P. M.	58	6	52
4 to 5 P. M.	55	6	49
5 to 6 P. M.	61	5	56
6 to 7 P. M.	71	3	68
7 to 8 P. M.	56	5	51
8 to 9 P. M.	48	8	40
9 to 10 P. M.	44	2	42
10 to 11 P. M.	38	1	37
11 to 12 P. M.	50	6	44
Not stated	7	....	7
Total	922	61	861

Road Location:

Between intersections	32	4	28
Rural intersections	165	4	161
Straight Road	522	36	486
Driveway	32	4	28
Curve	85	4	81
Street intersection	63	5	58
Railroad crossing	8	3	5
Bridge	4	1	3
Street car crossing	10	....	10
Not stated	1	....	1
Total	922	61	861

Road Surface:

Dry surface	634	47	587
Wet surface	187	12	175
Muddy surface	3	....	3



New Castle County. State Road showing junction of U. S. Route 13 and U. S. Route 40.

	Total	Fatal	Non-fatal
Snowy surface	60	1	59
Icy surface	33	1	32
Not stated	5	.....	5
Total	922	61	861

Action of Pedestrian contributing to Accident

	No. of Pedestrians Involved		
	Total	Fatal	Non-fatal
Getting on or off of other vehicle.....	5	2	3
Crossing intersection	7	4	3
In street not at intersection	29	4	25
Children playing in roadway	15	3	12
Coming from behind parked car	8	3	5
At work on car on roadway	2	1	1
Walking on or along highway	35	9	26
Miscellaneous	1	.....	1
Total	102	26	76

Type of vehicles involved in accident:

Passenger car	1162	55	1107
Light delivery car	19	2	17
Bus	13	1	12
Motorcycle	9	3	6
Trucks	293	20	273
Wagons	25	.....	25
All others	9	1	8
Not stated	7	2	5
Total	1537	84	1453

REHOBOTH AND BETHANY BEACH GROINS

An Act of the last General Assembly directed the State Highway Department to construct groins for the protection of the shore fronts at Rehoboth and Bethany Beach at a cost not to exceed \$80,000.00.

Contracts were awarded on October 11, 1934, for nine groins, five at Rehoboth and four at Bethany Beach, at a total estimated cost of \$78,910.00.

The location and grades of these structures were given careful study and were adopted after consulting with competent authorities on Beach Control, and in co-operation with the Delaware Waterfront Commission.

The groins are 250 feet in length and constructed with creosoted timber wales and piling and steel sheeting, and should afford protection for years. Construction is now in progress and the beneficial results are already in evidence, particularly at Bethany Beach. They will be completed during the spring of 1935.

PUBLIC LANDS

The value and importance of the Public Lands of the State have been materially increased by the construction of the Ocean Boulevard and other highways. The resulting accessibility of the ocean front has resulted in a considerable number of encroachments by private individuals. Following the policy established by the Department to hold the lands for the future benefit and enjoyment of the general public the many requests for the purchase have been refused and steps are being taken to protect the Public Lands from all private encroachments and improper use.

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-Shallicross Pond-Shallicross Cor.	4.50 "
Wrangle Hill-Moss Garage	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 "
Completion dual highway Glasgow-Md. Line	7.70 "
Completion Industrial Highway to Claymont	6.00 "
Dual Road, Price's Cor. to Fourth St. Extended	2.50 "
Sidewalk: Marshallton west of Red Clay Creek .....	.50 "
Marshallton School Street .....	.15 "
New Castle: Widening of Bridge over P. R. R.	
Augustine Cut-off thru Alapocas Woods Park to New Bridge Road	

Widening of Kennett Pike from City Line to northerly State Line	6.00	"
Pine Tree to Naylor's Cor. to Taylor's Bridge-Odessa Road	3.00	"
Jamison's Cor. north to St. Georges-Summit Bridge Road; thence west to Lorewood Grove-Mt. Pleasant 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	"
Sidewalk: Baldton to New Castle .....	.50	"
Shallcross Pond-Armstrong's	2.50	"
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		
Blvd.-Canby Park, Wilmington		
Concord Pike-Blueball to Talleyville	1.50	"
Middletown Road, H. & H. Station to Tybout's Cor.	12.50	"
Basin Road, Basin Corner-Newport	2.50	"
Hare's Corner to New Castle	2.00	"
South College Ave., Newark		
Newport-Newport School, Sidewalk	1.50	"

Kent County

Blackiston to Delaney	3.33	"
Big Oak to Mt. Zion Church	3.55	"
Clayton to Underwood Cor.	7.05	"
Friendship Church Road	2.10	"
Postles Corner Road	3.00	"
Wyoming to Ridgley's Corner	1.90	"
Oak Point School Road	4.80	"
Guy Town to Woodside	3.30	"
Star Hill to Magnolia-Canterbury Road	4.67	"
Plymouth to Barrett's Chapel	6.00	"
Tub Mill to Big Stone Beach	7.82	"
Thompsonville to Bennett's Pier	3.20	"
Rice's Cor. to Milford (via McCaulley's Pond)	7.09	"
Williamsville-Milford	3.65	"
Masten's Corner-Burnet's Mill	2.30	"
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	"
Sidewalk: Camden-Odd Fellows Cemetery	0.20	"
Marydel, Tilghman's Cor. Road to Westville-Henderson Road	2.30	"
Vernon-Masten's Corner-Harrington Road via White's Chapel	6.00	"
State College Driveway and Sidewalks		
Barker's Landing northwest to Du Pont Road at Barnard Farm	2.00	"
Rothwell's Cross Roads to Smyrna Landing	1.80	"
Cedar Grove School to Loper's Corner	2.50	"
Sidewalk along North side of bridge across St. Jones' Creek where King's Highway crosses creek .....	.90	"
Hourglass to Hazlettville-Marydel Road		
Bryant's Corner to Wyoming-Hazlettville Road		

Denherger's Filling Station to Hazletville Slag Road	2.00	"
Middle Alley Road		
Barker's Landing to Magnolia-Canterbury State Highway	3.00	"

Sussex County

Northwest Fork Hundred: St. Johnstown Church towards Smith's Store	5.00	"
Seaford Hundred: Seaford-Woodland	6.00	"
Seaford Hundred: Wesley Church-Hearn's Pond	1.50	"
Gumboro Hundred: Lowe's X Roads-Ward's Store	5.00	"
Gumboro Hundred: Lowe's X Roads-Ross' Point	4.00	"
Baltimore Hundred: Fenwick's Island to Bethany Beach..	7.00	"
Baltimore Hundred: Bishopville-Roxana	5.00	"
Indian River Hundred: State Highway at Hindle's residence to Millsboro-Rehoboth Highway	5.00	"
Indian River Hundred: Gosleg's Mill via Conley's Chapel to Millsboro-Rehoboth Highway	4.00	"
Georgetown Hundred: Georgetown via Peter Short's to Jones' Store X Roads	6.00	"
Broadkiln Hundred: Milton-West Hill School	4.00	"
Millsboro-Laurel State Highway to Dagsboro-Shaftox State Highway via Hickory Hill and Indian Town....		
Fisher's School to Big Pine to Woodenhawk School.....		
Concord to Middleford	2.00	"
Prince George thru Omar to Roxana	5.50	"
Concord to Old Furnace-Middleford Road	2.50	"
Owens-Sunnyside School	4.30	"
Whitesville-Maryland Line .....	.40	"
Vines Creek-Sandy Landing	1.60	"
Millsboro-Hickory Hill	5.00	"
Phillips Hill-Pepper	7.70	"
Frankford-Dagsboro Shaftox Road	2.50	"
Stockley to Millsboro-Bryan's Store Road and to Georgetown-Shortley Road	4.10	"
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		
Ellendale via Union Church to Shawnee	6.50	"
Road intersecting Ellendale-Shawnee Road from west of Union Church		
Laurel-Seaford and Laurel-Georgetown intersection to intersection at Market St. and Delaware Ave., Laurel..		
Millsboro: From Highway into North State St. via old State Road over Betts' Pond		
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	"
Hearns "X" Rds.-Bacon-Whitesville Rd.	2.50	"
Shortly-Mission	4.30	"
Md. Line Road west of Deimar	5.00	"
Connection Selbyville-Gumboro	2.50	"
Pusey's Cross Roads to Concord (Sussex County)		

Tucker's Hill following old road via Ellis Millpond	
Rehoboth Beach to Five Points	
Paving of road in front of Milton High School	
Tresslers Corner on Greenwood-Eliendale Road and following existing road to its intersection with the Owens Sta.-Sunnyside Road at Ben. Owens property..	
St. Johnstown near Greenwood in southeasterly direction to Bridgeville-Redden Road at Sunnyside School	
Extension of Pine Street, Georgetown	
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. Sta. 2300 ft.	
Route No. 2, Ellendale	
Road along Delaware-Maryland line east of Delmar	
Lowe's Cross to Jones Church Road, and extending in Westerly direction to Thomas Lowe farm	
Sidewalk through the village of Concord	

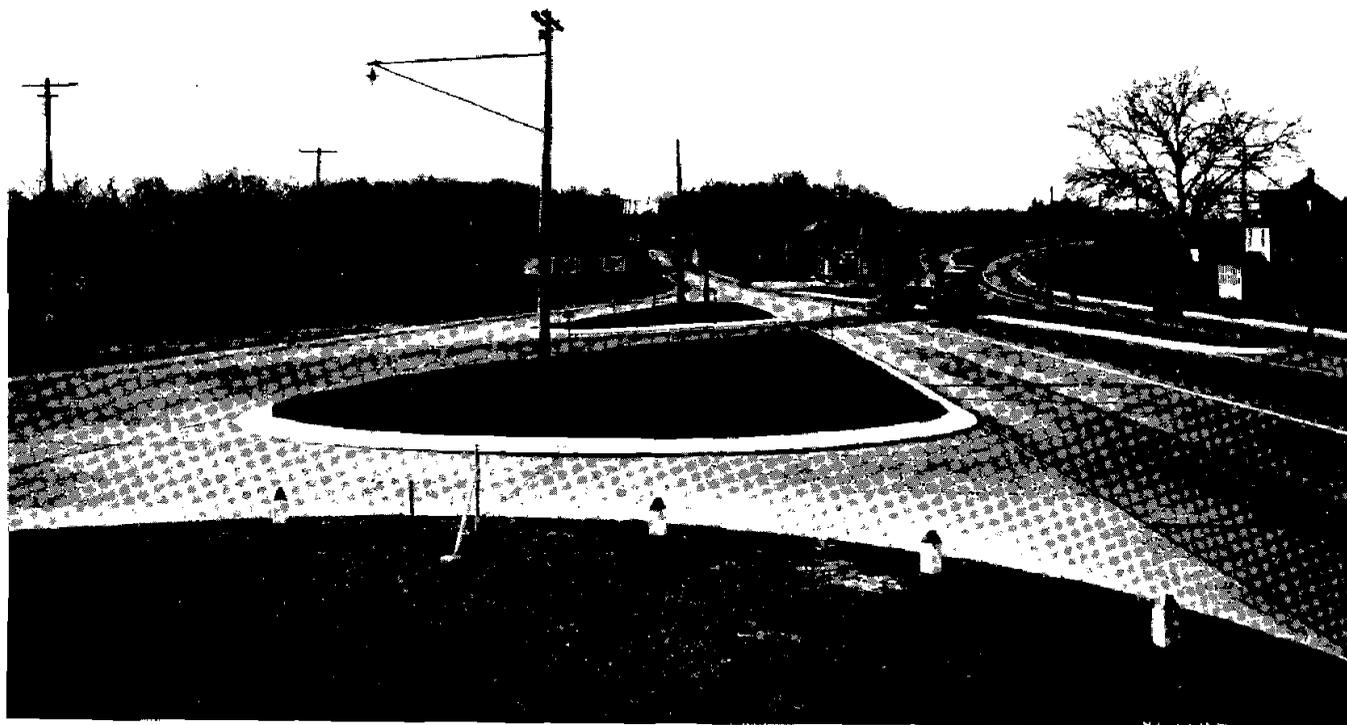


IN MEMORIAM

During the early Spring, the Department lost by death two of its most valued employees, who are sorely missed by all of their friends and associates. Mr. Charles G. Yocum died on March 30th, and was followed ten days later by Mr. Allen Craig, who passed away on April 9th.

Mr. Yocum entered the employ of the Department in 1922 as Assistant Engineer, and became Right of Way Engineer in October, 1925. He entered wholeheartedly and intelligently into any work to which he was assigned, and the effects of his industry and ability were ever evident in the results which he secured.

Allen Craig became associated with the Department as Assistant Engineer in 1919, which position he held until January 1, 1929, when he was appointed Secretary of the Department. Capable and efficient in the conduct of his office, he believed in the highest standards of public service and unswervingly maintained them. His unvarying courtesy was equalled only by his sincerity, while his personal convenience was never considered in his efforts to assist others. In his passing, the State lost a loyal citizen and an able and efficient official, admired and trusted by all who knew him.



New Castle County. State Road looking south showing junction of U. S. Route 13 and U. S. Route 40.

FINANCIAL STATEMENT

The Secretary presented a detailed report of the financial transactions of the Department at the end of the fiscal year. I am attaching a summarized statement of Income and Expenditures for the period beginning December 1, 1933, and ending November 30, 1934.

INCOME

Balance November 30, 1933	\$ 521,516.04
Motor Vehicle Fees	809,818.70
Titling Fees	36,386.05
Gasoline Tax	1,193,878.13
Police Fines	41,250.00
Federal Aid	1,463,616.01
Miscellaneous Rentals and Reimbursements	12,065.34
Motor Fuel Dealers & Distributors License	2,584.00
Total Income	\$4,081,114.27

EXPENDITURES

Administration	\$ 39,936.23
Fixed Charges:	
Sinking Fund on State Highway Bonds	72,625.00
Interest State Highway Bonds	116,200.00
Interest New Castle County Bonds	112,912.50
Interest Kent County Bonds	81,187.50
Interest Sussex County Bonds	118,750.00
Maintenance	429,510.78
Plant and Equipment	47,935.39
State Police	149,465.29
Construction	2,774,304.94
Total Expenditures	\$3,942,827.63
Balance November 30, 1934	\$ 138,286.64

In concluding this report, I wish to express my appreciation of the support and assistance I have received from his Excellency, the Governor, the Chairman, and each Member of the Department, and the many courtesies they have extended me throughout the year.

I wish also to acknowledge the loyal and faithful services of each of my assistants and those employees who have unsparingly given their best to the work of the Department.

Respectfully submitted,

W. W. MACK,

Chief Engineer.

DELAWARE STATE HIGHWAY SYSTEM
HARD SURFACE ROADS
Year Constructed or Acquired

Type of Roadway	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
Conc. 14' to 22'	10.00	12.46	4.04	6.82	28.67	43.72	55.05	74.86	90.32	67.16	72.56
Concrete 9'											
Bit. Conc. Surface on Conc. Base											
Bit. Conc. Surface on Macadam Base											
Brick				3.05	2.95	0.14					
Bit. Macadam	1.14					16.19	1.11	0.12	0.76		1.00
Sand Asphalt											
Traffic Bound											
Gravel											
Sand Clay											
Yearly Total	11.14	12.46	4.04	9.87	31.62	60.05	56.16	74.98	91.08	67.16	73.56
Total Miles to Date	11.14	23.60	27.64	37.51	69.13	129.18	185.34	260.32	351.40	418.56	492.12
Widening and Resurfacing								0.34	0.52		10.67
Dual Highway											
Traffic Bound Roads Surface Treatment											
Sidewalks								0.34	0.52		

DELAWARE STATE HIGHWAY SYSTEM

HARD SURFACE ROADS

Year Constructed or Acquired

Type of Roadway	1926	1927	1928	1929	1930	1931	1932	1933	1934	Total
Conc. 14' to 22'	70.85	22.76	20.63	13.99	20.55	21.49	10.35	8.30	7.26	662.20
Concrete 9' .....	.....	7.30	20.35	19.72	21.48	44.49	11.57	12.38	.....	137.29
Bit. Conc. Surface on Conc. Base .....	.....	.....	.....	.....	.....	.....	.....	.....	3.32	3.32
Bit. Conc. Surface on Macadam Base .....	.....	.....	.....	.....	.....	.....	.....	.....	*6.91	*6.91
Brick .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.14
74 Bit. Macadam	19.37	3.49	1.10	.....	1.20	.....	.....	.....	1.78	47.26
Sand Asphalt	5.85	5.13	15.99	.....	.....	.....	.....	.....	.....	26.97
Traffic Bound .....	.....	.....	.....	14.67	18.32	15.70	34.93	116.80	71.49	271.91
Gravel .....	.....	.....	.....	4.81	4.60	5.10	2.72	6.20	.....	23.43
Sand Clay .....	.....	1.20	.....	15.20	5.30	13.20	7.50	5.70	5.70	53.80
Yearly Total	96.07	39.88	58.07	68.39	71.45	99.98	67.07	149.38	96.82	1239.23
Total Miles to Date	588.19	628.07	686.14	754.53	825.98	925.96	993.03	1142.41	1239.23	1239.23
Widening and Resurfacing	10.67	16.95	6.04	0.20	18.90	18.00	11.07	56.90	18.24	157.83
Dual Highway .....	.....	.....	.....	7.66	.....	4.91	10.94	7.35	14.91	45.77
Traffic Bound Roads Surface Treatment ....	.....	.....	.....	.....	.....	.....	1.50	12.75	25.52	39.77
Sidewalks .....	.....	.....	.....	0.05	1.04	14.44	6.91	3.12	3.80	29.36

*County Work, New Castle County