

REPORT OF THE CHIEF ENGINEER

DELAWARE STATE HIGHWAY DEPARTMENT

July 1, 1955 to July 1, 1956

DOVER, DELAWARE

Chairman and Members
Delaware State Highway Department
Dover, Delaware

Gentlemen:

The report which follows concerns the activities of the Delaware State Highway Department for the fiscal year 1955-56. It covers an 8-month period which was under the administration of the former Chief Engineer, Mr. W. B. McKendrick, Jr. My appointment as Chief Engineer was effective March 1, 1956.

Although approximately 2½ years have elapsed since my previous term as Chief Engineer of the State Highway Department I feel that I have, through my recent affiliation, maintained an interest in the highway picture in this and other states, and yet I realize as I return to this position that much more has happened in the Highway field in our State than perhaps is generally known.

In my 1951 Annual Report to the State Highway Department it was pointed out that 52 million motor vehicles were crowding the highways. This at that time seemed to be a tremendous problem. And yet here in 1956 we have approaching 66 million vehicles now on our highways, and future predictions point to upwards of 92 million vehicles by 1975. Delaware's share of this total has been increasing rapidly, and the highway problems which accompany these motor vehicle increases stand out vividly to the highway administrator and engineer.

At the same time, the last year has shown many outstanding accomplishments. The enactment by our Legislature of legislation permitting the issuance of \$10,000,000 in bonds for the construction of dirt roads was indeed a forward

step. The problems of dust in the summer and muddy conditions in winter which existed to some extent in each county, but primarily in Kent and Sussex Counties, will be cared for over a period of time under the conditions in the Bill. However, although the Department engineers have endeavored to design and to have constructed the most economical hard surface road, there is no doubt in our minds but that the money advanced by the Legislature will not be sufficient to hard surface each road in our State. This does not negate the intent of the legislation, but merely points out the financial problems, some of which were impossible to predetermine at the time of the enactment of the Legislation.

Secondly, the enactment of the Legislation which sets up the Delaware Interstate Highway Division and permits the refinancing of the Delaware Memorial Bridge bonds for the construction of arterial connecting highways is also of prime importance. Should the needed Congressional approval for concurrent legislation be achieved, Delaware will be in a position to construct an arterial highway network second to none serving the State and the eastern seaboard.

As Chief Engineer of the State Highway Department and also of the Interstate Highway Division, I feel that this Legislation is as important to the State of Delaware as was the enactment of the 1956 Federal Aid Highway Legislation by Congress for the country.

The 1956 Federal Highway Bill passed by Congress provides for a system of Interstate Highways throughout the country consisting of some 41,000 miles, of which 40,000 has been allocated. Delaware's share amounts to slightly less than 40 miles, all of which is in New Castle County. This mileage is eligible to receive 90% Federal-Aid funds for engineering, right of way, and construction costs. The long range plans which the Department has had for connecting links to the Delaware Memorial Bridge coincide with the Interstate Highway System. Thus, Delaware legislation of the Interstate Highway Division and the Federal Legislation have a common meaning. The year 1956 should see the beginning of the engineering work for the Interstate Highway System in our State, and in the next fiscal year construction is expected to start.

In order to achieve the benefits offered by the two previously discussed forms of State and Federal Highway Legislation the General Assembly also enacted into law legislation which provides for the construction of controlled-access high-

ways. While at the present time this is limited to New Castle County, it indicates the acceptance of necessary and forward thinking highway legislation.

The State Highway Department will continue its plan for the construction and reconstruction of other highways throughout the State. The accompanying list of recommendations shows an immediate need for the expenditure of over \$123,269,000 which is in addition to the need for the Interstate network, for dirt road reconstruction and for suburban street work. The expanded traffic activity on State highways continues to present a pressing problem for the Department.

As I complete the fiscal year ending June 30, 1956, I should like to express my appreciation for the trust and cooperation which has been given me by Mr. J. Gordon Smith, Chairman of the State Highway Department, and by the other Commissioners. I also express my thanks and appreciation to all the Division Engineers and other employees of the Department. Without their loyalty and assistance it would be impossible for the State Highway Department to function.

General Recommendations

It seems appropriate to list at this point some specific recommendations which are offered for your consideration. Obviously, many of these have been considered from time to time in the Department. It is my feeling that every effort should be made to take the necessary steps to have these recommendations adopted.

1. Some form of Civil Service Legislation be enacted for State Highway Department employees.

2. Since there is little chance that the State Highway Department will cease to function as the Department of Public Works, the Department should be set up as such with the necessary administrative changes to accomplish results.

3. Allowance be included in the budget for the establishment of a Suburban Development Maintenance section within the New Castle County Division.

4. The Department cooperate with the preparation of Legislation providing State aid to municipalities for the purpose of local street maintenance and construction. The two basic elements of any formula should include street mileage not now controlled by the State Highway Department, and population.

5. A central sign shop be provided in Dover.

6. Legislation be enacted to strengthen our Right of Way law in order that land can be purchased for future State highways. Also, that provisions for a revolving Right of Way fund be established.

7. Continued emphasis for Mosquito Control activity emphasizes the need for additional funds for this work.

8. The number of roadside rests and picnic areas should be continued and expanded.

9. Policy concerning Suburban Development Communities should be changed to require sidewalk construction along county roads and State highways where schools, shopping centers, and other facilities indicate the need.

10. Arrangements be made between the Department and the Board of Education to develop a planned approach for the construction of sidewalks in the vicinity of schools.

11. The Department should seek Legislative means for a State Drainage Engineer whose function would include the preparation of a master plan for drainage correction throughout the State, and the designation of agency responsibility.

In the last four months of this fiscal year the Department has undergone a reorganization aimed at meeting the challenge of the next few years, but we are not complacent and expect, with your cooperation, to meet the demands as they arise. And they will.

CONSTRUCTION

During the 1955-56 fiscal year, 97 projects were under contract excluding the Suburban Division's work. They are broken down as follows:

New Castle County	33
Kent County	30
Sussex County	34

Within the fiscal year beginning July 1, 1955 and ending June 30, 1956 active contracts under construction for New Castle County amounted to \$4,487,943.92; for Kent County—\$2,442,959.67; Sussex County—\$2,524,546.58, or a total of \$9,455,450.17. Contracts carried over from the previous fiscal year for New Castle County amounted to \$2,267,293.67; Kent County—\$447,727.51; Sussex County—\$546,168.50, or a total of \$3,361,189.68. The total for the carryover and the work contracted for amounted to \$12,816,639.85.

The mileage of work contracted for during the current fiscal year is as follows:

New Castle County 6.764 Miles
Kent County 27.017 Miles
Sussex County 53.205 Miles

or a total of 86.986 miles. This mileage does not include any part of the work carried over from the previous year, nor any Suburban Division Work.

Some of the contracts completed during this fiscal year are as follows:

NEW CASTLE COUNTY

Contract No. 1301 (Governor Printz Boulevard
—11th St. — 30th St.)

This highway was widened to provide four (4) running lanes consisting of cement concrete base with a hot-mix asphaltic concrete surface. It also has a parking lane on each side, constructed of the same material, which can be used as additional running lanes, providing for six (6) running lanes during peak periods or in case of emergency. A divisor constructed of crossable separators has been constructed throughout and a left turning lane at 30th Street.

Contract No. 1302 (Delaware Avenue, Newark)

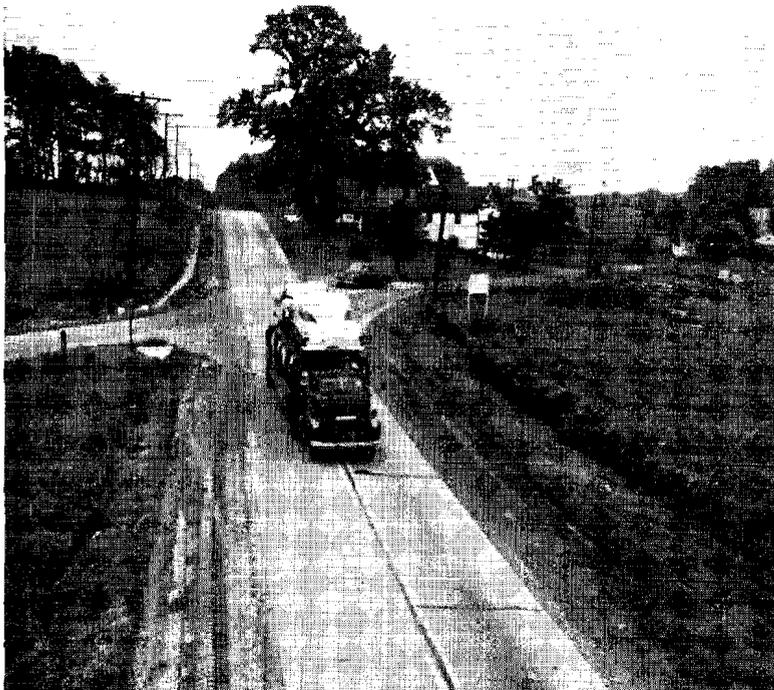
This improvement consists of reconstructing a portion of Delaware Avenue and extending the street on new location to provide for access to a new high school. A channelized intersection is provided at the junction of Route 2 and Route 273. This street is used for eastbound traffic and is a vital part of a "one-way" street system which has been adopted by the City of Newark. It is constructed of reinforced concrete pavement, 40 to 48 feet wide between curbs in the city, and 24 feet wide, with shoulders, outside of the City.

Contract No. 1258 (New Castle Avenue)

New Castle Avenue is being reconstructed and widened from a point near Landers Lane to Rogers Corner to provide for four (4) traffic lanes and two (2) parking or disability lanes, separated by a barrier type median, 4 to 16 feet wide. Parallel service roads are extended or constructed wherever feasible. The existing concrete pavement will be widened and resurfaced with hot-mix asphaltic concrete pavement. An extensive storm water system is also included as a part of this improvement.



Reconstruction of New Castle Avenue.



Above: Section of Gap Road, New Castle County. Before Reconstruction. Below: Section of Gap Road, New Castle County, After Reconstruction.

Contract No. 1329 (Gap Road)

This highway was widened and resurfaced from a point near the Brandywine Sanatorium to the intersection of Route 48, southeast of Hockessin. The highway was reconstructed at certain locations to provide better vertical sight distance. Several large retaining walls were constructed, one at the Brandywine Sanatorium, and at other locations in order to reduce property damage.

Contract No. 1377 (Philadelphia Pike, Bellevue Road to Claymont)

The Philadelphia Pike improvement consists of widening and resurfacing the highway between Bellevue Road and Claymont. It will provide for four (4) traffic lanes and two (2) parking lanes throughout the entire section. This is one of the more important roads in the Wilmington area and an improvement which should have been undertaken a number of years ago. The highway will be widened with concrete base course and resurfaced with hot-mix asphaltic concrete surface. New curbs are being constructed throughout the length of the project and sidewalks wherever they have been disturbed during construction. An extensive storm water drainage system is also made necessary because of improvement, and other complications were involved due to public utility facilities in the right-of-way.

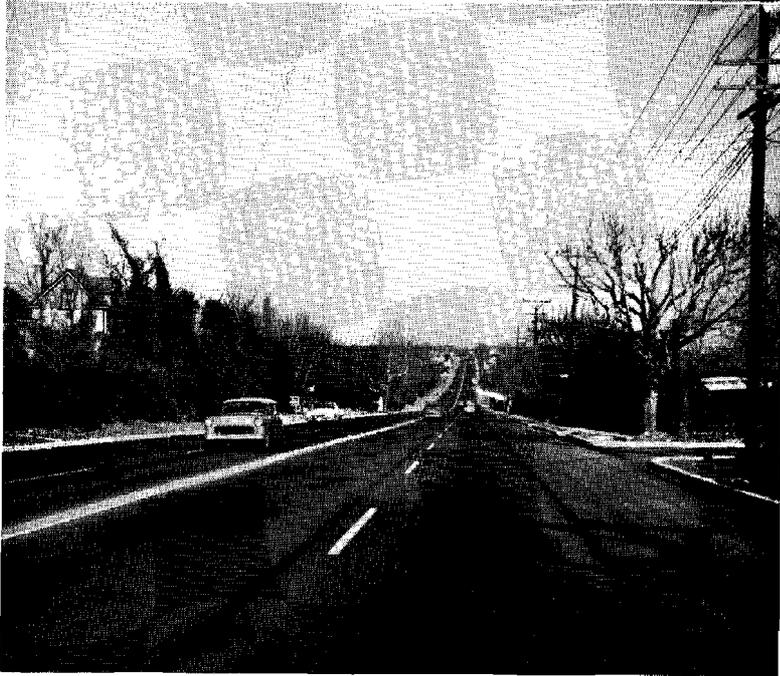
KENT COUNTY

Contract No. 916 (Farmington through Harrington)

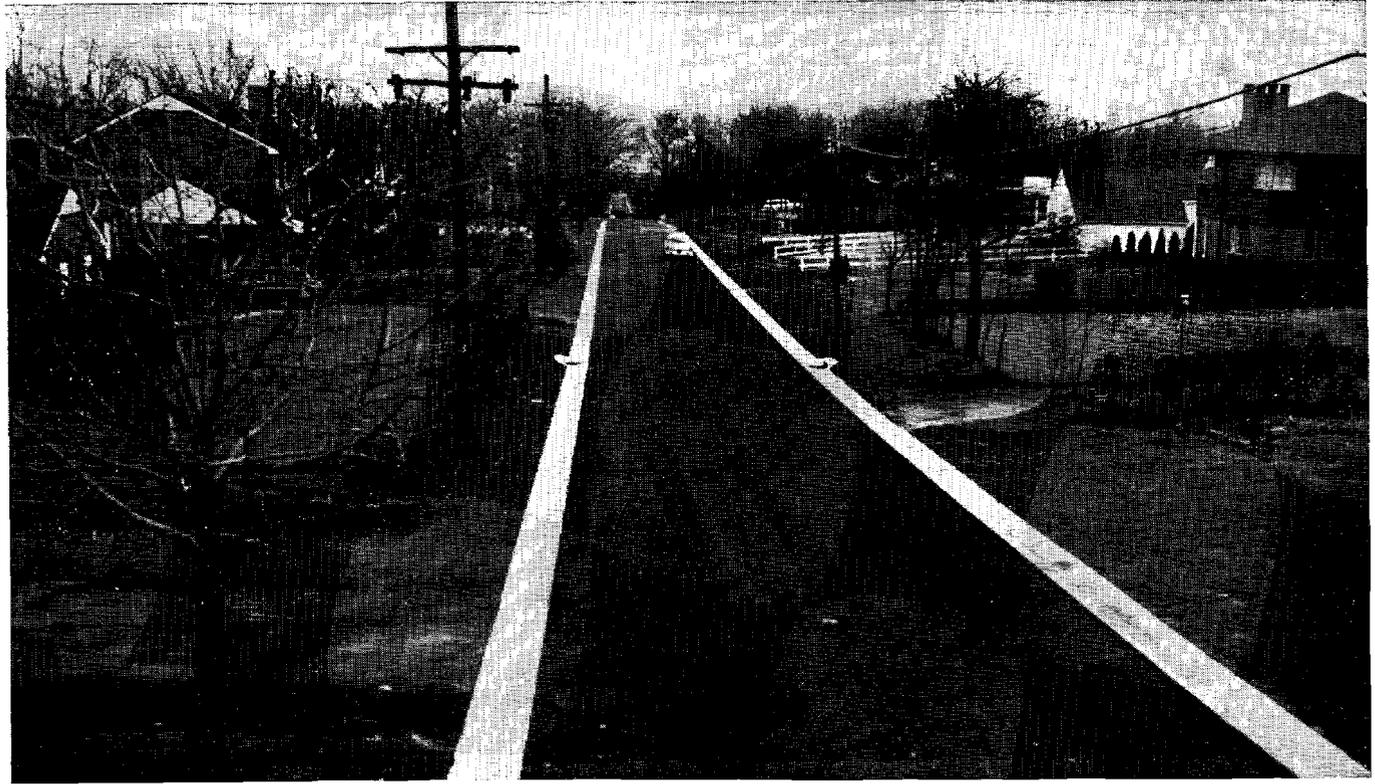
This project consists of constructing the northbound lane of Route 13, beginning at Farmington and extending to and joining the present Dual Highway north of Harrington. A 50 foot median is provided throughout the project except through Harrington where the present roadway is maintained for southbound traffic, and a new highway is being constructed for northbound traffic, and consists of two (2) 12 foot lanes of concrete pavement with wide shoulders.

Contract No. 1146 (Commerce Street, Smyrna)

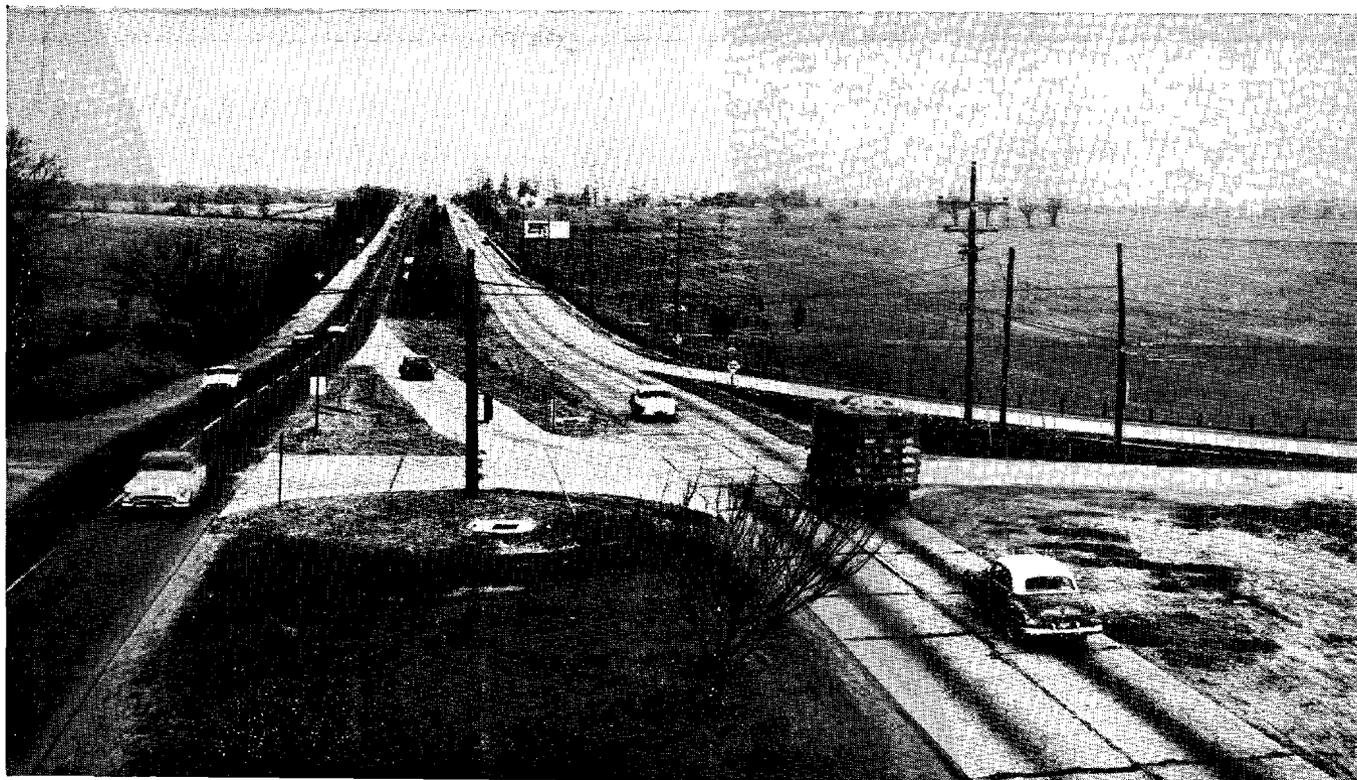
This contract provides for the reconstruction of Commerce Street and the widening of Clayton Boulevard beginning at the intersection of Route 300 and continuing to its intersection at Commerce Street, thence along Commerce Street to its intersection with U.S. 13, the DuPont Highway. Clayton Boulevard will be widened with concrete base and resurfaced with hot-mix asphaltic concrete. Commerce Street



Above: A section of Philadelphia Pike, before reconstruction.
Below: A section of Philadelphia Pike after reconstruction.



Bellevue Road, a reconstructed suburban street, north of Wilmington.



Reconstruction of Wrangle Hill Intersection, providing additional traffic lanes.



A completed section of Dual U.S. 13 south of Harrington

will be reconstructed of reinforced cement concrete pavement, 32 to 40 feet wide. Curbs and sidewalk and an extensive storm water system will be provided on this project.

Contract No. 1372 (Burrsville Relocation—Route 14)

This short section of highway approximately one-half mile in length was constructed to meet a highway relocated by the State of Maryland and consists of a macadam base course with hot-mix asphaltic concrete surface. This road can be used as a relief road for summer resort traffic which reaches its peak over weekends.

SUSSEX COUNTY

Contract No. 925 (Greenwood to Farmington)

This Improvement consists of constructing the north-bound lane of U.S. Route 13 from Greenwood to Farmington. The roadway is constructed of reinforced concrete pavement, 24 feet wide, with a 30 to 50 foot median, except through the town of Greenwood where the road is constructed on new location and places of business and residents are permitted in the wide median area. The existing road is used as a south-bound lane. The grade will be adjusted at certain locations in order to improve sight distance.

Contract No. 1044 (Laurel to Sharptown)

This improvement consists of widening and resurfacing portions of Route 24 between Laurel and the Maryland-Delaware State Line. A section in the Town of Laurel has been resurfaced, but not widened.

Dirt Road Program

During the fiscal year the General Assembly passed House Bill No. 172 as amended which directs the State Highway Department to hard-surface all the dirt roads in the State and authorizes the issuance of bonds to finance the cost thereof.

The Bill further directs the Department to hard-surface in each county 1/10 of the dirt roads existing so that all the dirt highways under the jurisdiction of the Department shall be hard-surfaced at the end of ten years. The Bill provided for the issuance of bonds in the amount of Ten Million Dollars for this purpose.

During the fiscal year nine contracts were awarded. These contracts involved the resurfacing of 60.799 miles of dirt roads at a total cost of \$926,258.18. Of this amount approximately \$154,440.00 was Federal money. It is planned that future dirt road construction in the State will be continued at a rapid rate under the provisions of this Dirt Road Legislation.

Table I, Appendix, is a complete list of contracts awarded and completed during this fiscal year.

Table II, Appendix, shows contracts awarded during this fiscal year but construction has not been completed.

**CONSTRUCTION RECOMMENDATIONS
NEW CASTLE COUNTY**

INTERSTATE SYSTEM

	Miles	Estimated Cost
FAI - 1 Maryland Line to Interchange W. of Farnhurst	13.10	\$ 20,000,000
FAI - 2 Interchange W. of Farnhurst to Penna. Line (via West of Wilmington)	11.60	33,000,000
FAI - 3 Interchange W. of Farnhurst to Penna. Line (via East of Wilmington)	11.60	27,000,000
Total Interstate System	36.30	\$ 80,000,000

**CONSTRUCTION RECOMMENDATIONS
NEW CASTLE COUNTY**

URBAN

Road No.	Location	Rating	Mileage	Estimated Cost
4A	Baynard Boulevard—Washington Street to Concord Avenue	58	0.63	\$ 205,000
43	Washington Street—Baynard Boulevard to N. Wilmington Line	56-64	1.88	660,000
19	Wilmington Road—Road 55 to N. New Castle Line	56-58	0.87	305,000
498	Broom Street—Lancaster Avenue to Pennsylvania	61	0.77	270,000
41	W. Main Street—Route 2 to Newark Limits	61-73	1.18	380,000
13	N. Chapel Street—Route 2 to N. Newark Limits	63-73	1.03	310,000
313	New London Avenue—Route 2 to N. Newark Limits	63-67	1.26	380,000
9	Eleventh Street—Northeast Boulevard to King Street	62-65	0.67	235,000
237	Lancaster Avenue—DuPont Road to Greenhill Avenue	64	0.32	110,000
11	Union Street—Sycamore Street to Pennsylvania Avenue	65	1.07	375,000
50	S. Heald Street to Spruce Street	65	0.33	115,000
24	Market Street—18th to City Line	64	1.19	415,000
28	S. Heald Street—S. Wilmington Line to 0.25 S. "D" Street	65	0.25	90,000
Total New Castle County Urban System			11.45	\$ 3,850,000

22

**CONSTRUCTION RECOMMENDATIONS
NEW CASTLE COUNTY**

PRIMARY				
Road No.	Location	Rating	Mileage	Estimated Cost
18	Route 273 — Newark to Christiana	54-69	4.90	\$ 610,000
19	New Castle Avenue — N. New Castle Limits to Landers Lane	54	0.89	285,000
6	Route 41 — Cranston Heights to Basin Corner	58-63	3.91	1,570,000
21	Route 41 — Cranston Heights to Brandywine Sanatorium	56-62	1.95	350,000
369	Rogers Road — New Castle Avenue to U.S. 13	61	0.70	175,000
237	Lancaster Pike — Center Road to Route 41	58-61	3.68	295,000
28	S. Heald Street — Rogers Corner to S. City Line	65	0.30	30,000
3	Route 273 — Churchman's Road to Route 7	65	2.49	250,000
43	Washington Street Extension — N. Wilmington Line to Philadelphia Pike	65-80	1.21	240,000
6	Route 41 — Basin Corner to Road 55	65	1.23	100,000
50	Governor Printz Boulevard — Stockdale to N. Wilmington Line	73-81	5.15	770,000
34	U.S. 13 — St. Georges to State Road		6.2	500,000
1	U.S. 13 — Smyrna to Point Breeze		5.1	460,000
11	Kirkwood Highway — Price's Corner to Wilmington Avenue		1.2	100,000
41	Route 273 — W. Newark Limits to Maryland Line		.7	75,000
Total New Castle County Primary System			39.61	\$ 5,810,000

23

**CONSTRUCTION RECOMMENDATIONS
NEW CASTLE COUNTY**

SECONDARY

Road No.	Location	Rating	Mileage	Estimated Cost
271	Center Road -- Lancaster Pike to Barley Mill Road	31	0.77	\$ 230,000
259	Barley Mill Road -- Center Road to Kennett Pike	37	2.47	140,000
212	Silverside Road -- Philadelphia Pike to Marsh Road	33-49	1.90	340,000
214	ShIPLEY Road -- Washington Street Extension to Wilson Road	34-45	1.56	156,000
270	Faulkland Road -- DuPont Road to Centerville Road	35-38	1.76	176,000
336	Stanton to Newport	35-37	2.03	510,000
232	Rockland Road--New Bridge Road to Rockland	35-43	1.43	150,000
279	Harvey Road--Veale Road to Naamans Road	39-59	2.94	300,000
373	Landers Lane -- 373A to New Castle Avenue	40	0.78	80,000
13	Route 72--Milford Crossroads to Limestone Road	41-45	3.51	280,000
203	Faulk Road--Concord Pike to Naamans Road	41-58	4.00	400,000
366A	Route 7 to Ogletown	41-47	2.84	285,000
5, 336 and 31	Route 7--Pennsylvania Line to U.S. 71	42-71	12.10	1,310,000
330	Kiamensi Road--Road 336 to O'd Capitol Trail	42-44	0.84	25,000
221	Road 221B to Kennett Pike	45-52	2.60	260,000
336	Cooch's Bridge to Christiana	46-50	4.55	455,000
261	Road 242 to Road 247 thru Ashland	48	1.72	170,000
441	Mathews Corners to Odessa	48-50	1.03	100,000
27	DuPont Road--Maryland Avenue to Route 2	49	0.44	55,000
307	Road 324 to Road 329	49	1.77	55,000
337,				
338	Road 336 to Route 2	50-65	0.50	\$ 40,000
429	Armstrong's Corner to Odessa	51-61	3.63	290,000
378	Delaware City Road to New Castle	52-65	5.44	545,000

**CONSTRUCTION RECOMMENDATIONS
NEW CASTLE COUNTY**

SECONDARY

Road No.	Location	Rating	Mileage	Estimated Cost
410	Delaware City to Road 378	52.59	2.54	205,000
46	Road 378 to U.S. 13	71	1.52	120,000
448	Noxontown Road to Fieldsboro	52	2.48	200,000
243	Old Kennett Road—Kennett Pike to Pennsylvania Line	53	2.96	240,000
40	Road 483 to Kent Line	58	1.55	45,000
294	Limestone Road to Lancaster Pike	58	1.33	105,000
433	Summit Bridge to Maryland Line	58	3.27	260,000
452	Stump's Corner to Fieldsboro	58	1.73	52,000
484	Road 469 to Road 471	—	1.45	22,000
485	Road 30 to U.S. 13	—	1.18	17,000
207	Darley Road—Philadelphia Pike to Naamans Road		2.2	350,000
355	Harmony Road—Capitol Trail to 366A		2.33	186,000
281	Duncan Road—Kirkwood Highway to 276		1.65	132,000
Total New Castle County Secondary System			84.80	\$ 8,286,000
Grand Total New Castle County			172.16	\$97,946,000

**CONSTRUCTION RECOMMENDATIONS
KENT COUNTY**

SECONDARY

Road No.	Location	Rating	Mileage	Estimated Cost
190	Layton Avenue, Wyoming—First to South	47	0.36	\$ 29,000
65	North Street, Smyrna to New Castle Line	49-62	1.50	150,000
29	Road 52 to Road 27, Camden	53-70	2.96	307,000
39	W. Clayton Limits to Route 370	55-68	1.02	85,000
57	U.S. 113 to W. Felton Limits	56-62	0.65	52,000
34	U.S. 113 to U.S. 13	58-70	6.81	545,000
35	U.S. 113 to Road 34	58-63	7.35	735,000
45	Cheswold to Kenton	59-68	5.10	410,000
88	U.S. 13 to Route 9	59	2.51	225,000
357,				
26	U.S. 113 to Rising Sun	59-62	2.52	252,000
53	Route 10 — Wyoming to Maryland Line	60-66	12.41	993,000
384	Route 14 to Houston	62	0.89	71,000
16	Route 8 — U.S. 13 to Little Creek	67-68	3.87	310,000
453	Road 38 to Route 6, Clayton	67	0.41	32,000
17	Road 68 to S. Little Creek Road	68	3.95	395,000
276	Hazletville to Chapeltown (Road 222)	68	3.18	160,000
33	Road 380 to Route 12	69	2.23	225,000
104	Road 158 to Road 100	70	1.13	56,000
334	Road 88 to Route 9 (Road 15)	70	0.77	39,000
57	Felton to Whiteleysburg	73	9.74	
380	Road 33 to Route 12	—	3.91	60,000
	Total Kent County Secondary System		73.27	\$ 5,124,000
	Grand Total Kent County		104.51	\$ 8,939,000

27

**CONSTRUCTION RECOMMENDATIONS
KENT COUNTY**

URBAN

Road No.	Location	Rating	Mileage	Estimated Cost
20	Walnut Street, Milford—Route 14 to U.S. 113	68	0.40	\$ 120,000
	Loockerman Street—Dover	55	0.77	230,000
21	Route 14—Mispillion River to Road 20, Milford	60	0.93	280,000
Total Kent County Urban System			2.10	\$ 630,000

PRIMARY

8	U.S. 113—Route 9 to Route 14	61	8.64	1,300,000
23	Loockerman Street—End of Divided Highway to U.S. 13	61-67	0.25	40,000
27	U.S. 113A—Little Heaven to Coopers Corner	54-70	7.82	625,000
7	U.S. 113—Route 9 to S. Little Creek Road	55-62	4.93	740,000
36	Route 14—U.S. 13 to Road 37	67-71	3.50	280,000
2	U.S. 13—Dover to Bishops Corner	77	4.00	200,000
Total Kent County Primary System			29.14	\$ 3,185,000

**CONSTRUCTION RECOMMENDATIONS
SUSSEX COUNTY**

URBAN

Road No.	Location	Rating	Mileage	Estimated Cost
14	Route 14—S. Milford Limits to Kent Line	59-62	0.69	\$ 175,000
Total Sussex County Urban System			0.69	\$ 175,000

PRIMARY

50	Route 14—Indian River to Rehoboth	46-58	6.89	\$ 865,000
50	Route 14—Maryland Line to Bethany Beach	60	5.98	750,000
14A	Route 14A—End of Dual to Rehoboth Limits	62-71	0.59	90,000
24	Route 24—U.S. 113 to Road 248	62-71	0.71	180,000
50	Bayard Avenue—Philadelphia Street to Rehoboth Avenue	65	0.10	30,000
26	Route 26—Dagsboro to Bethany Beach	69-76	10.37	830,000
18A	Market Street, Bridgeville—404 to 4A	72	0.45	135,000
14	Route 14—Five Points to S. Milford Limits	71-74	17.00	2,550,000
13	U.S. 13A—Road 20 to 20A, Seaford	65-68	0.88	265,000
13	U.S. 13A—0.09 S. of Maryland Avenue to Route 28, Laurel	72	0.24	72,000
18	Route 18—Route 404 to Georgetown	73-86	9.66	775,000
18, 18A	Bridgeville to Maryland Line	77-88	9.51	760,000
Total Sussex County Primary System			62.38	\$ 7,302,000

**CONSTRUCTION RECOMMENDATIONS
SUSSEX COUNTY**

SECONDARY

Road No.	Location	Rating	Mileage	Estimated Cost
370	Road 52 to Road 382	43	1.44	\$ 72,000
382	Road 54 (Omar) to Road 389	45-73	5.25	265,000
76, 419	East Delmar Limits to W. Delmar	46-59	0.92	74,000
224	Slaughter Beach to Road 216	46-58	3.78	305,000
36	Route 14 to Road 208	48-51	1.20	95,000
357	Ocean View—Road 26 to Canal	52	2.60	30,000
376	Frankford to Church Street, Selbyville	52-62	4.06	325,000
397	Road 58 to Maryland Line, Selbyville	54	0.61	31,000
26	Road 26A to U.S. 113	55	5.58	445,000
399	U.S. 113 to Maryland Line	55	2.48	7,000
421	Road 26—Dagsboro to U.S. 113	55-65	2.39	190,000
339	Road 331 to U.S. 113	56	0.71	36,000
377	Road 376 to U.S. 113	56	0.52	26,000
16	Road 32 to U.S. 13	57-59	1.48	120,000
319	Road 248 to Road 22 (Route 5)	57	1.33	27,000
346	Road 26 to Road 54	57	0.67	10,000
524A	Route 18 to Road 46	57	2.88	145,000
536	Woodland to Lewes Creek	57	2.42	49,000
20	Route 20—U.S. 113 to Road 431	59	4.23	347,000
78	U.S. 13A to Road 493	59	2.56	51,000
225	Lincoln to S. Milford Limits	59	1.93	100,000

**CONSTRUCTION RECOMMENDATIONS
SUSSEX COUNTY**

SECONDARY

Road No.	Location	Rating	Mileage	Estimated Cost
16	Route 16—Milton to Route 14	60	2.69	\$ 215,000
70	King Street, Laurel, to 64	61-63	5.40	425,000
297	Route 24 to Oak Orchard	61	1.99	107,000
331	E. Millsboro Limit to Road 334, Dagsboro	61	3.76	75,000
544	13A to 0.29 W. of 546	61	1.72	35,000
546	Road 544 to Cannon	63	1.07	21,000
549	Route 20 to Road 553	61	3.39	68,700
64	U.S. 13A to Route 26	62-69	10.73	860,000
285	Road 22 to Route 18	62	5.82	117,000
591	Road 47 to Road 600	62	2.16	33,000
319	Road 18 to Road 248	62	5.47	108,000
360	Route 14 to Road 357	62	1.30	26,007
493	U.S. 13A to N. Bethel Limits	62	2.04	16,000
571	Route 16 to Maryland Line	62	4.47	90,007
207	Road 225—Lincoln to 113	63	1.11	
352	Road 84 to Millville Limits	63	0.84	
365	Road 52 to Road 54	64	1.85	
427	Road 414 to Road 64	64	1.83	
Total Sussex County Secondary System			102.61	\$ 4,932,070
Grand Total Sussex County			165.68	\$ 12,409,000

STATEWIDE DIRT ROAD PROGRAM

Dirt road construction to be continued in accordance with Legislative directive. Work to be divided in proportion to remaining dirt roads in each of the counties.		\$ 1,000,000
Grand Total Statewide Road Construction	442.35	\$120,294,000

RECOMMENDED BRIDGE CONSTRUCTION NEW CASTLE COUNTY

Location		Cost
Fenimore Bridges	\$	175,000
Drawyers Bridge and Approaches		600,000
Appoquinimink Bridge Repairs		100,000
Silverside Road—B&O Underpass		400,000
Darley Road—B&O Overpass		200,000
Marrow Road—P.R.R. Underpass		225,000
State Road—Grade Separation		300,000
White Clay Creek—Harmony Road		250,000
Long Bridge Over Saw Mill Branch, Northeast of Smyrna		125,000
Misc. Steel Truss Replacements, New Castle County		200,000
New Castle County Total	\$	2,575,000

SUSSEX COUNTY

North Approach Indian River Inlet	\$	400,000
Sussex County Total	\$	400,000
Total Bridge Construction	\$	2,975,000
Grand Total Statewide Construction	\$	123,269,000

MAINTENANCE

Kent County

The Maintenance Program in Kent County during the fiscal year is reported under several headings.

1. **Roadway Maintenance** includes not only the care of the paved roads, but also the continued blading of the dirt roads. Principal problems of the concrete pavements were the repairs to "blow-ups" in the summer and the repouring of the "joints" in the winter. The surface treated roads pot-hole and break up along the edges during the winter months.

2. **Shoulder Maintenance** is a problem on our Primary Roads. In general Secondary Road shoulders are allowed to grow grass, and are only cut back when the road water is blocked from entering the ditches. The shoulder maintenance on the Primary Roads is a never-ending cycle, i.e., shape until the material is worn out and then adding more selected material, compact, and begin cycle again. A limited amount of surface treated shoulders have been constructed. It is felt that in the long run much maintenance money would be saved if shoulders on high-volume roads were surface treated.

3. **Mowing** can sometimes be considered as shoulder maintenance. Most of this work is performed by private contractors. Twelve units operated under contract during the year and four mowers were owned and operated by the Division. The intent is to mow the Primary System twice a year and the Secondary System once.

4. **Beautification** has become a major operation in the past several years. Trash in the parkways and shoulders keeps one crew busy as also does the maintenance of five (5) public dump areas. Tree trimming and the removal of diseased trees is a major winter work item. The plantings at the main intersections have started to snowball. Thus, plantings vs. solid safety islands is a moot question.

5. **Drainage** is the key to good roads. Many sections of the existing roads were not designed for receiving the run-off from adjacent built-up areas. The suburban developments particularly present a problem when they dump their run-off on Highway Right of Way. Also, the cleaning of existing systems is a never-ending job. Our drainage work is confined to the Right of Way, except where this drainage shows evidence that roadway water constitutes a major part of the run-off.

6. **Snow Removal and Ice Control** — Since this is an unpredictable item the cost varies from year to year, depending on the amount of snow or ice which occurs. The trend has in the past few years been toward the control of freezing rain or snow with the use of chemicals. This entails more expense than the older method of sanding, but it does assist in the manpower usage. It is expected that use of chemicals will continue for this purpose.

7. **Miscellaneous Maintenance** covers various other duties which fall within the responsibility of the Division. This includes beach erosion, Right of Way agreements, drainage projects, and work for various incorporated towns.

Sussex County

Unusual weather conditions starting with an extremely dry summer which necessitated accelerated dust control activities, plus storm damage, flood conditions, and heavy rains in August and September, required unusual manpower. Late spring snows in the northwestern part of the county prevented much of the normal spring maintenance activities, for as one emergency or priority job was completed, another one was staring us in the face.

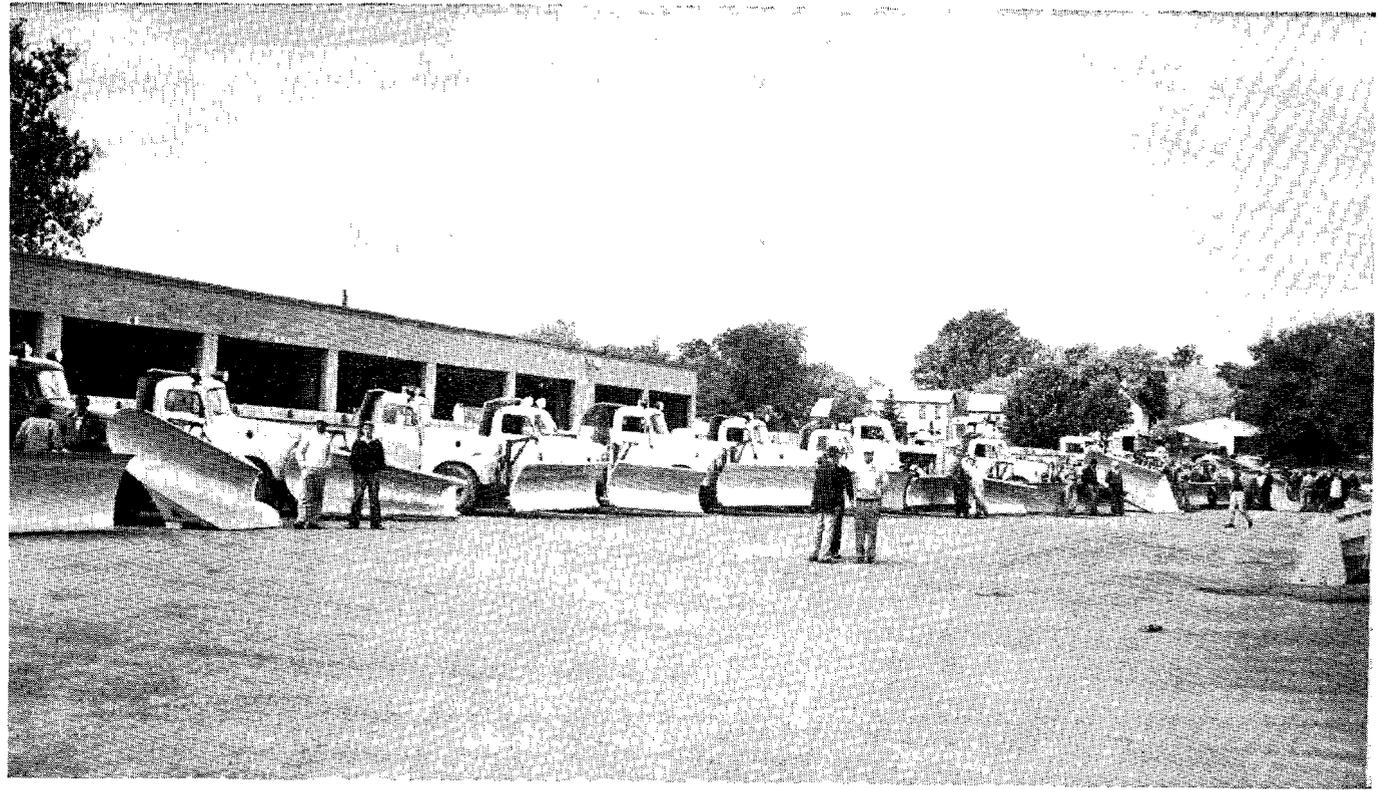
One of the work loads, which considerably increased in this fiscal year, is the removal of trash from additional picnic areas and the increased use by the public of the many trash cans, located along various highways.

Heavy traffic conditions throughout the county and the midyear reduction in number of employees delayed much of our normal activities. The breakdown of many roads such as Route 14, Route 24, and Route 13A necessitated neglecting more routine maintenance problems.

Each of our work districts encountered circumstances during the year which would normally be considered unusual.

Dust Control

Starting with the beginning of the fiscal year, our problem in many areas of the County was working out a solution to the complaints received in this office about excessive dust conditions. Many of the public comments were justified, particularly from the persons living near dirt roads or from the rural storekeepers and service station operators whose places of business were located at the junction of dirt roads and surface treated roads.



Snow Plow inspection.

SIGNS SHOWING
PICNIC AREA
LOCATIONS.



SIGNS USED TO
DISCOURAGE LITTERING
OF THE HIGHWAYS.



TYPICAL ROADSIDE PICNIC AREA

NUMBER OF PICNIC AREAS

NEW CASTLE COUNTY	8
KENT COUNTY	15
SUSSEX COUNTY	<u>9</u>
TOTAL	32

LITTERING COSTS THE
DELAWARE TAXPAYER
APPROXIMATELY \$125,000⁰⁰
EACH YEAR.



New type of equipment used for highway maintenance.

This same dirt problem also created an extra work load on each district, because of the dust settling or drifting on hard surfaced roads. This traffic hazard was kept at a minimum, manually, by district crews.

Ironically, with dust problems in part of the County, and all of the County at some time during the Summer, we were simultaneously confronted with torrential rains in certain areas. This added to the maintenance chores of several districts. Our bridge maintenance crews were used for some of the repairs.

Weed Control

Through the use of "outside" mowers we were able to keep the right-of-way clear in the majority of districts. Though this weed and grass problem has been with the County each year, weather conditions of late Summer and early Fall of 1955 increased weed growth tremendously. The growth of grass and weeds was again a problem during the late months of the fiscal year. Cost of cutting grass and weeds along highways and roads has risen to such a figure that we are planning a cost study in an attempt to determine methods of reducing weed and grass control cost.

Snow and Ice

Early Winter sleet and wet snow-falls called for the use of salt spreading on roads and sanding at intersections. Police reports to this office indicated that traffic was able to move at all times during the Winter, though ice did create hazardous driving on several occasions.

Ditches and Drains

Spring of 1956 brought to our reduced crews a work load which should be considered as abnormal — drainage ditches needed cleaning, culverts and banks needed regrading, bushes and trees were cleared. New cross pipes were installed in nearly all of the road districts. Blind corners on dirt roads were straightened to aid safe driving.

NEW CASTLE COUNTY

1. Surface Treatment

The surface treatment contract terminated June 30, 1956. During the project length 114.6 miles of roads were surfaced

or resurfaced. Although surface treatment continues to be satisfactory on roads with light traffic, it is becoming evident that we should consider a more durable surface, such as hot-mix asphaltic concrete, on those roads and streets carrying heavy traffic or in the vicinity of heavy industry. As a matter of fact, residents in suburban developments often express dissatisfaction with the surface-treating procedure.

2. Bituminous Concrete Patching

In order to maintain many of our secondary roads which were exceptionally hard-hit by the past winter, a procedure was adopted which had maintenance work being done by contractors in the Department. This procedure allowed much more work to be done than the Department forces could have handled by themselves.

3. Snow and Ice Control

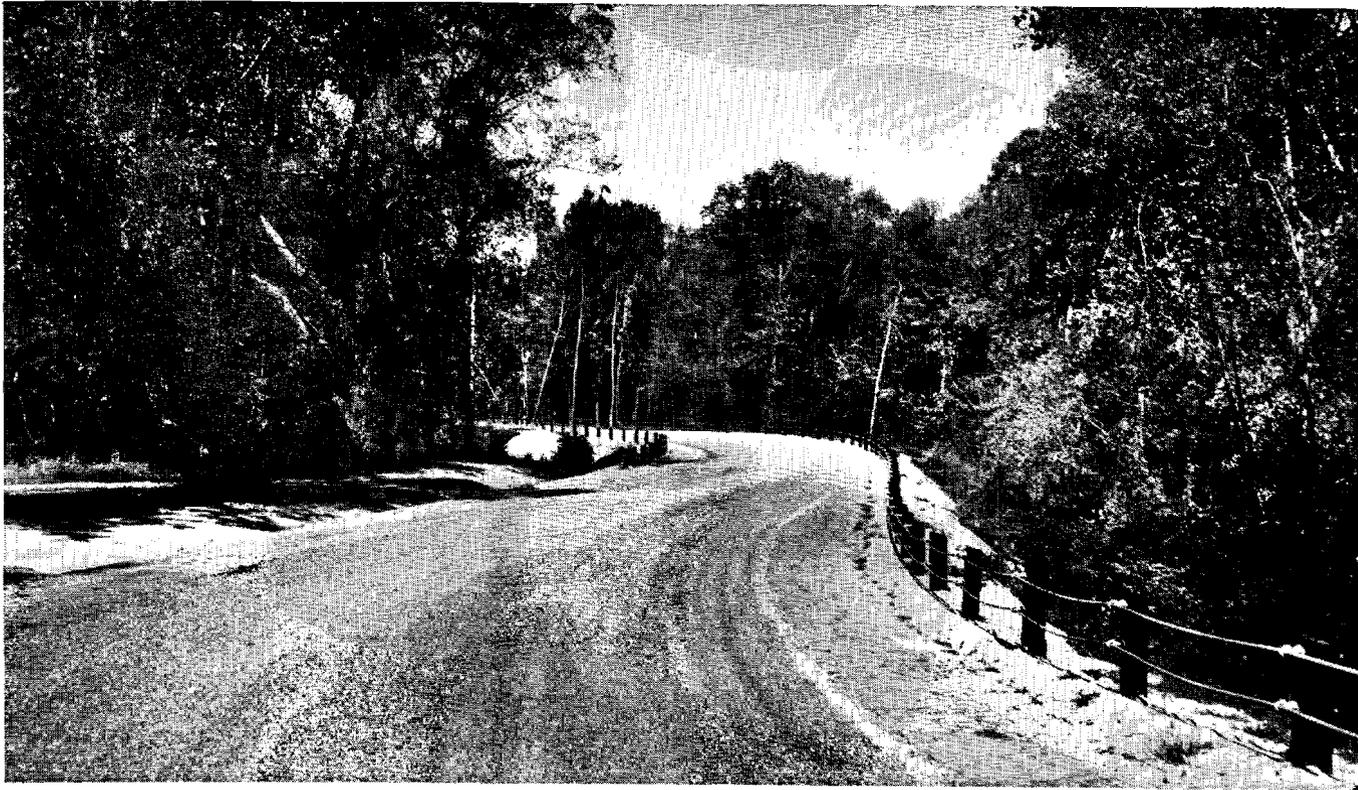
Erection of our 20 miles of snow fence was started early during the fiscal year, and again proved quite helpful during the storms which were accompanied by high winds. The following materials were purchased for snow and ice control:

Sand	Calcium Chloride	Sodium Chloride
4,052.90 Tons	89.35 Tons	115.75 Tons

Snow storms and icing conditions required the use of maintenance personnel on the following dates:

Saturday	November 19	4:00 A.M.
Saturday	November 19	10:00 P.M.
Friday	December 9	11:00 P.M.
Thursday	December 29	10:00 P.M.
Monday	January 9	1:15 A.M.
Friday	January 13	3:24 P.M.
Saturday	January 14	2:30 A.M.
Monday	January 16	10:00 A.M.
Thursday	January 19	11:21 A.M.
Sunday	January 29	1:15 A.M.
Thursday	February 2	3:00 A.M.
Friday	February 17	4:00 A.M.
Tuesday	February 28	9:00 P.M.
Tuesday	March 13	12:30 A.M.
Sunday	March 18	7:30 A.M.

The last storm required the use of contractors, drivers, and helpers to relieve our regular maintenance personnel and resulted in an expenditure of \$5,027.23.



A reconstructed dirt road in Kent County.

4. Suburban Developments

21.7 miles more of suburban development streets were added for maintenance during the fiscal year, most of which occurred in New Castle County. In addition, approximately 90 miles were added by Legislative action. Our total in the suburban development responsibility is now approaching 350 miles. This additional work load on the Department necessitates additional funds, and additional manpower and equipment in order to perform the work properly. It is expected that within the next few years a separate section will be set up for this work, exclusive of other road maintenance work.

5. Movable Bridges

South Market Street Bridge was opened 596 times during the year.

Newport Bridge was opened for boats, 22 times; for tests, 11 times.

Flemings Landing Bridge was opened 83 times during the year.

Fenimore Bridge was opened for test only.

Third Street Bridge was opened 2,170 times.

Seventh Street Bridge was opened 133 times.

An important change occurred for the operation of Third Street Bridge and South Market Street Bridge when after a public hearing had been held, the Corps of Engineers determined that the Department could maintain Third Street Bridge and South Market Street Bridge in a closed position during the morning and evening highway peak hours.

6. Utilities and Special Permits

The control of utilities and their location within the Right of Way is still a provoking problem. In addition to inspecting these installations, the Department supervises the placing of entrances and exits onto the Right of Way. Approximately 769 permits and 79 franchises were investigated before approval this year. Each required attention ranging from the routine of preparing an entrance permit to the inspection of the work covering the placement of thousands of feet of underground installation.

A new policy manual concerning entrances and exits was issued by the Department during the year, which greatly assists the issuance of entrance and exit permits by the Department.

PLANS AND DESIGN DIVISION

During this fiscal year the work load increased, and the number of employees decreased. Forty contract plans, affecting more than 124 miles of roads, were drawn up by this Division; five of the projects were designed in cooperation with Consulting Engineers.

It is pointed out that the tabulation below shows a total of 124.19 miles of roads designed for this fiscal year, as compared with 57.87 miles reported in the previous year. However, it should also be noted that the 1952 Annual Report tells of considerable overtime work necessary to produce that year's designs; and the 1954 Annual Report (page 43) points out that more work will have to be put out to Consultants if the shortage of highway engineers continues. The number of projects done by Consultants during this year (see tabulation) bears out the validity of this prediction. Further inspection of this year's work shows that Consultants designed 1.87 miles of reinforced concrete pavement out of a total of 14.69 miles; and Consultants designed 14.96 miles of widening and resurfacing out of a total of 31.68 miles. The balance of the work done, as shown below, was of a resurfacing or surface-treating nature.

Again it must be stated that this Division, and the Department as a whole, is hampered by the lack of trained highway engineers. Work by Consultants is of necessity, slow and expensive, requiring much supervision on our part.

Classification and Length of Roads Designed

Reinforced Concrete Pavement

916	Farmington through Harrington	4.72
925	1 Mi. S. of Greenwood to Farmington	5.57
1169	Court Street—Dover	0.38
*1258	New Castle Avenue	1.87
1269	Churchmans Road	1.18
1385	Veale Road	0.97
Total		14.69

Widening and Resurfacing

1044	Laurel to Sharptown	7.93
*1146	Commerce Street—Smyrna	1.12
1377	Philadelphia Pike	2.40
1421	Five Points to Lewes	2.64
*1422	Stein Highway & Shipley Street—Seaford	2.28
*1446	Shaft Ox Corner to Maryland Line	5.65
*1490	Shaft Ox Corner to Millsboro	5.91

1496	Wendalls Corner to Woodland Beach Causeway	3.75
	Total	<u>31.68</u>

Hot-Mix Resurfacing

1431	Resurface Portions of Route 14	7.94
1448	Tybouts Corner to Corbit	1.94
1460	Through Smyrna	1.64
	Total	<u>11.52</u>

Roadway Grading and Surface Treatment

1336	North Star Road (Complete new road)	0.57
1395	Road 275 via Conley's Chapel	5.36
1397	Roads 389 and 390	2.04
1436	Kent County Dirt Roads	9.96
1437	New Castle Dirt Roads	2.63
1438	Sussex County Dirt Roads	14.51
1439	Kent County Dirt Roads	5.56
1440	Sussex County Dirt Roads	4.35
1440A	Sussex County Dirt Roads	5.60
1440B	Sussex County Dirt Roads	1.40
1441	Kent County Dirt Roads	5.30
1442	Sussex County Dirt Roads	4.53
1443	Sussex County Dirt Roads	3.95
	Total	<u>65.76</u>

Other

1398	Bellevue Road Reconstruction	0.54
1400	Incidental Construction—New Castle Cty.	
1404	Intersection Alterations—New Castle Cty.	
1405	Intersection Alterations & Drainage—Kent Cty.	
1424	Concrete Patching—New Castle County	
1425	Concrete Patching—Kent County	
1426	Concrete Patching—Sussex County	
1456	Sidewalks for State Buildings—Dover	
1458	Five Points to Rehoboth—Drainage	
1505	Wrangle Hill and Corbit Crossings	
	Total	<u>0.54</u>
	Grand Total	124.19

* Indicates work done by Consultants.

Other work done by the Plans and Design Division is listed below:

1. Assisted the County Division Engineers in Maintenance Surveys.
2. Assisted Right-of-Way Division in property line surveys.

The Bridge Division also performs the engineering functions for a majority of Special Legislative Appropriation Bills to the State Highway Department.

3. Assisted Construction Division in borrow pit, cut, and fill surveys.
4. Reproduced by blue print process maps for other State agencies.
5. Supervised planning of new headquarters building for State Police.
6. Assisted Game and Fish Commission in design, advertisement, etc. of dams.
7. Assisted various municipalities with engineering problems.
8. Assisted Suburban Development Division with surveys, drafting, and engineering.

Our Blue Print Department processed 70,000 prints during the fiscal year.

BRIDGE DIVISION

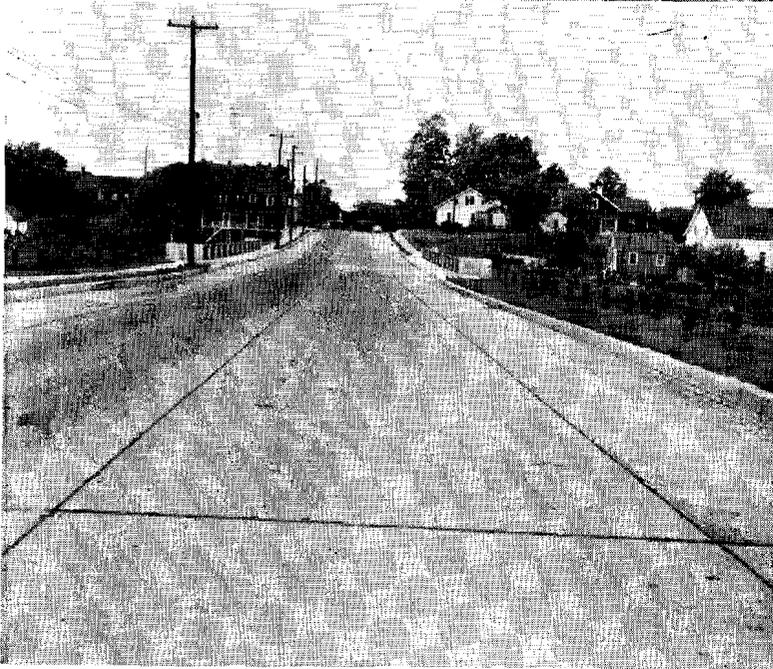
The principal function of the Bridge Division ^{is} the design and preparation of plans, special provisions, and specifications for bridges, culverts, retaining walls, dams and spillways, shore protection structures, tidal water control structures, special drainage projects, and miscellaneous structural designs. Other duties include routine correspondence, checking and approving shop drawings and inspection of projects under construction. Some of the more important projects handled by the Bridge Division during the report period are as follows:

are - prelim engr studies

Contract 1169—Court Street, Dover

This contract consists of reconstruction of Court Street, Dover, from a point east of the Legislative Building to its junction with the Dover By-Pass (U.S. Route 13).

An important part of this contract consists of the construction of a new bridge across the St. Jones River. A firm of consultants was retained to prepare plans and specifications for the bridge. This work was begun early in 1952 and continued into the following year, when a decision was made to postpone the construction of the project. Early in 1956, the Bridge Division was directed to complete the preparation of the contract plans and specifications for the bridge. Upon final completion of the combined bridge and roadway plans, the contract was awarded on June 9, 1956 to James Julian, Inc. of Wilmington, Delaware. Preliminary clearing and



Above: High Street, Seaford, before construction.
Below: High Street, Seaford, after construction.

earthwork operations were in progress at the end of the report period.

The Court Street Bridge consists of a single skewed reinforced concrete arch with an approximate clear span of 60 feet. It provides for two (2) roadways, each with a clear width of 26 feet between curbs, a central brick-paved separation mall or dividing strip 8 feet wide, and two (2) pedestrian sidewalks, each approximately 12 feet wide. The bridge parapets are composed of brick and stone posts and piers, joined by ornamental iron railings. The structure is faced and trimmed with brick, marble, and granite. Architectural features and details are designed to harmonize with the early Colonial style of the nearby State buildings.

The completion of this project will provide not only a greatly improved traffic artery connecting Dover with the new dual highway east of the city, but will also serve as a scenic and impressive approach to Delaware's historic State capital.

Contract 1224 — Walnut Street Extension — Wilmington ✓

The design, plan preparation, and early phases of construction of this project were described in the previous annual report. At the end of this report period the status of the construction work under the supervision of the Bridge Division was as follows:

Contract 1224 (2)—Pennsylvania Railroad Underpass—
Completed March 6, 1956.

Contract 1224 (3)—Walnut Street Bridge—Substructure
Contract was 97% complete.

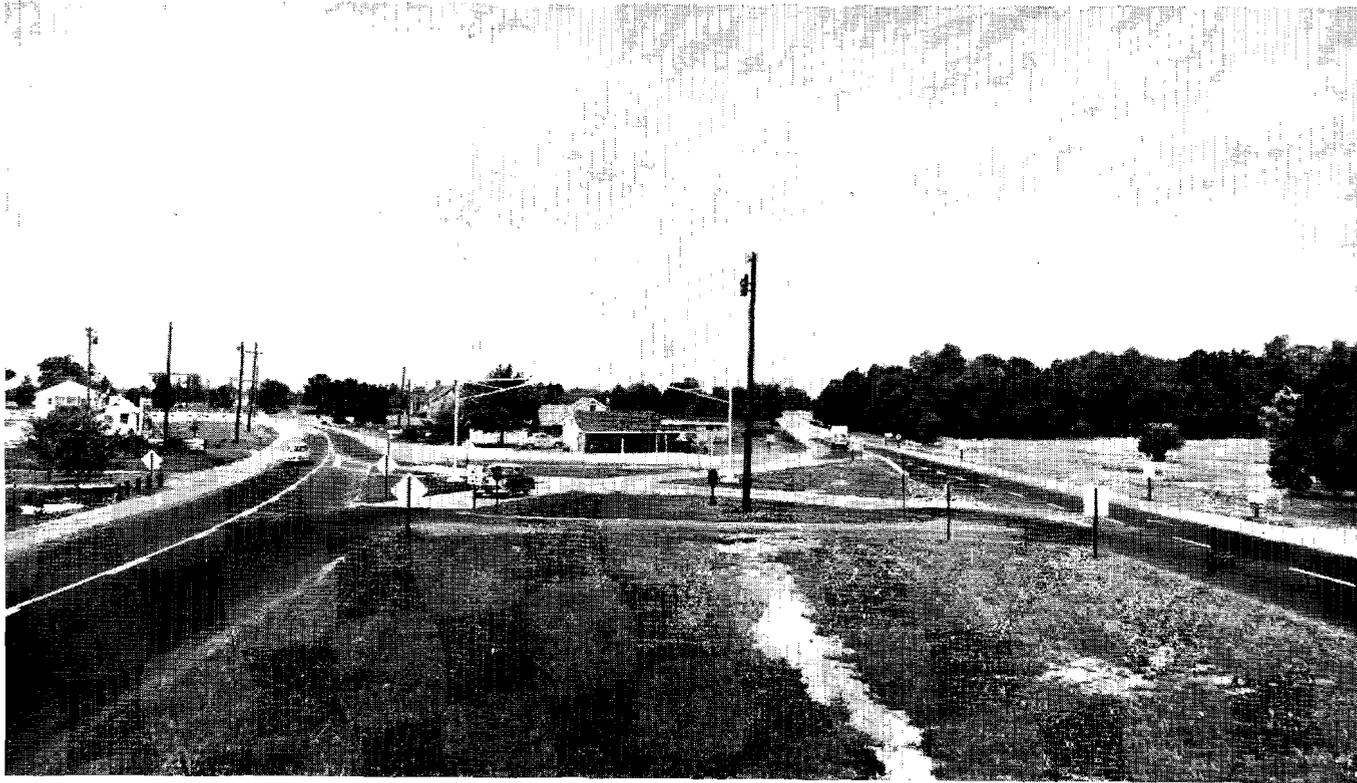
Contract 1224 (4)—Walnut St. Bridge—Superstructure
Contract was 56% complete.

It is estimated that all bridge structure portions of the Walnut Street Project will be completed in January, 1957.

Contract 1315 — Naamans Road Underpass ✓

This project provides for the construction of a new railroad underpass near Naamans Road and the widening of Philadelphia Pike to a four-lane highway. Preliminary work on the railroad underpass is covered in the 1955 Annual Report.

A contract for the construction of the new underpass was awarded October 7, 1955 by the Pennsylvania Railroad



Intersection of U.S. 113 and 113A at Little Heaven, after reconstruction.

Company to A. S. Wikstrom, Inc. at a low bid price of \$306,250.00.

At the end of the report period only minor operations had been performed on this contract, mainly due to non-delivery of the permanent structural steel.

Contract 1493 — Collins Pond Dam, Near Bridgeville,
Sussex County ✓

A maintenance repair contract was planned, to correct a long-standing seepage condition existing around and under the concrete spillway. Plans were completed and a contract awarded on June 22, 1956.

Reflooring and Repairs — Movable Bridges

Contracts for reflooring, painting, and miscellaneous repair work were awarded and construction completed for Barkers Landing Bridge and Rehoboth. Electrical and mechanical repairs were made at the Lewes Bridge.

Contract 1461 — Ingrams Pond Dam Near Millsboro, Sussex
County ✓

As the result of the enactment of House Bill 348 by the current General Assembly, an investigation was made into the feasibility of the project, and a preliminary cost estimate was prepared. It was found that the sum appropriated by the Assembly would not cover the entire anticipated cost of the project; however, after consultations with officials of the Game and Fish Commission, additional funds were made available to complete the financing of the project.

The Bridge Division prepared detailed plans and specifications for the project. At the end of the report period, the contract was complete and advertised, with bid proposals to be received early in July.

Repairs and Replacements of Small Bridges and Culverts

Under the current state-wide construction program, the Department has authorized funds to be used for a program of repairs and replacements of small, inadequate bridges and culverts throughout the State. At the end of the report period, an initial contract has been awarded for repairs and replacements for three (3) small bridges. Additional contracts will be awarded, as soon as the necessary field data can be obtained, and required plans and specifications prepared. It is hoped that, under a continuation of the present program,

most if not all of the existing small bridges on the secondary highway system will in time be repaired or replaced with new structures or pipe culverts which will provide adequate waterway area, roadway width, and live-load capacity to meet present-day needs.

FEDERAL AID DIVISION

For all contracts under the supervision of the State Highway Department, the activities of this Division include: the preparation of advertisements for bids; the assembly of bid proposals; the tabulation of bids; the audit of all progress and final payments; and the maintenance of such records as the Department may require. It is also the responsibility of this Division to process and submit all documents pertaining to Federal-Aid projects to the Bureau of Public Roads in compliance with Federal laws and regulations.

During the fiscal year advertisements were authorized for 72 projects on which 363 bids were received and tabulated. Approximately 2,500 bid proposal forms were prepared by the Division.

There were 231 progress estimates and 46 final payments checked and passed for payment by this office. These payments amounted to a total of \$7,332,824.09.

On July 1, 1955 the status of Federal allotments was as follows: Under contract \$5,289,516.52; Submitted for Approval \$549,872.50; Approved Program \$454,403.00; Available Unprogrammed Balance \$3,916,498.39. In August 1955 Federal funds for the fiscal year 1957, in the amount of \$4,018,661.00, were made available for programming and advancement to construction. In June 1956, additional Federal funds for the fiscal year 1957, in the amount of \$6,783,214.00, were apportioned to the State under the Federal-Aid Highway Act of 1956. At the close of the 1956 fiscal year the status of Federal allotments was as follows: Under Contract \$6,323,087.52; Submitted for Approval \$510,075.00; Approved Program \$1,959,000.00; Available Unprogrammed Balance \$10,535,546.77.

In the past year the following functions were performed by this Division in connection with projects financed, in part, with Federal funds: Projects Programmed 43; Plans, Specifications and Estimates Presented for Approval 34; Vouchers submitted — Progress 39, Final 18; Total Reimbursements received from the Federal Government \$2,486,271.78.

Of particular importance during the past fiscal year was the beginning of construction under House Bill 172, which provides \$10,000,000.00 over a period of 10 years for the improvement of Dirt Roads in Delaware. At the close of the year contracts had been awarded and construction was underway on 10 of these projects. The chief effect of this legislation is that it will enable the Department to allocate its regular highway construction money, when made available by the Legislature, to higher type roads carrying a greater volume of traffic.

With the enactment, by the Congress, of the Federal-Aid Highway Act of 1956, increased emphasis has been placed on the construction, to completion, of the National System of Interstate Highways. Funds for the Interstate System have been authorized over a period of thirteen years and the Federal share of the total cost of any project on the system has been increased to 90%. The funds provided for the Primary and Secondary Systems and for the extensions of these systems in Urban areas have been increased under the 1956 Act, and it will be necessary that additional money be provided by the State if the Highway Program is to continue without interruption.

TRAFFIC AND PLANNING DIVISION

As traffic volumes and the demands for traffic services increase throughout the State, and as increased planning activities must precede stepped-up construction intentions, so do the activities of the Traffic and Planning Division increase. This year has seen such increased activities.

The Division has two basic objectives:

- (1) To provide safe and efficient traffic service to highway users, and
- (2) To provide long range planning service through the collection, study, projection, and utilization of vast amounts of varied traffic and inventory data.

In addition to its routine duties, its personnel are often required to take part in outside activities both in and out of the State. It is closely associated with the general public. Representatives often meet with Civic and Safety Groups, hold public meetings, cooperate with appropriate agencies, advise and consult with local officials, and attend conferences and special courses of instruction. A few examples of this

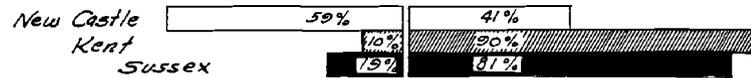
RESULTS OF 1955-'56 SUFFICIENCY STUDY

← INADEQUATE HIGHWAYS → ← ADEQUATE HIGHWAYS →

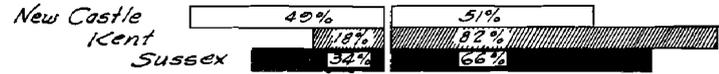
Primary System



Secondary System



Tertiary System



100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100
PERCENT

SUMMARY OF INADEQUATE HIGHWAYS FOR ALL THREE SYSTEMS

COUNTY	MILES INADEQUATE	PERCENT INADEQUATE
New Castle	384	43
Kent	146	14
Sussex	455	25

type of activity during the year are as follows: Advanced Highway Training at University of Maryland, Governor's Safety Meetings, State Police School, Christiana River Bridge Hearings with Corps of Engineers, Traffic Control Meetings with various Civic Organizations, Wilmington Planning Commission Meetings, Delaware Roadside Council Meetings, and many others.

Following is a partial summary of the many and varied functions of the Division.

Traffic Engineering

The increasing traffic volumes throughout the nation indicate the continued need for traffic engineering studies to determine the most efficient methods of traffic operation. Favorable results are being attained in Delaware as evidenced by the material reduction in the accidents per vehicle mile of travel in the State.

Case Load: During the year the Staff conducted 142 studies and investigations. This routine work of the Division increased 51 percent as compared with the previous year.

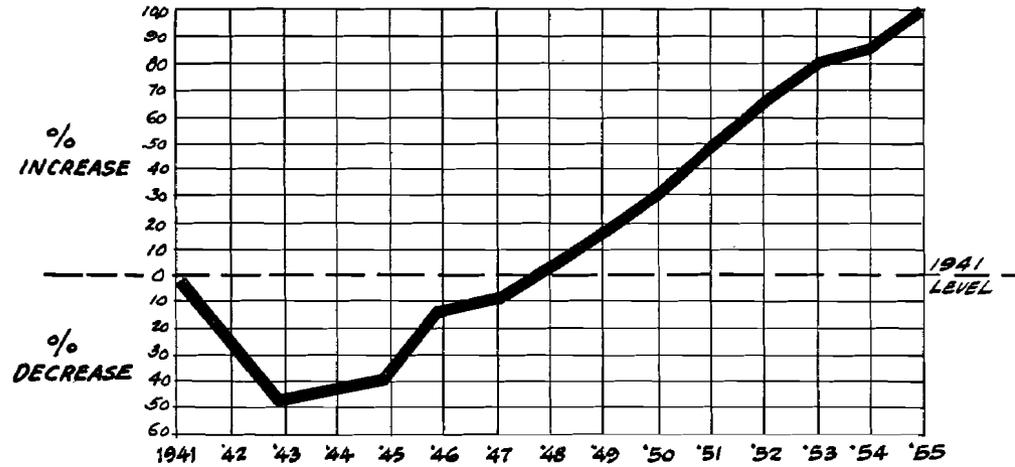
The number of actual petitions received was a mere 13, 9 of which were for road improvement and 4 for construction of proposed crossovers. The passage of House Bill 172 by the Delaware State Legislature authorizing the State Highway Department to improve dirt roads over a ten-year period aided in reducing the total number of petitions to a minimum.

The work of the Division involved detailed studies on various problems. Quite often there is no previous experience for a particular problem and original methods must be used to obtain the proper solution.

Some of the more important studies were:

- A Policy Manual for Entrances and Exits,
- Newark—An Origin and Destination Survey,
- Study for Civil Defense,
- Access Control Study,
- Traffic on Christina River Bridges,
- New Castle—Tidewater traffic problem, downtown parking problem, and one-way street problem,
- Millsboro Intersection Study
- Newark Area—Traffic Expansion Study
- Wilmington—Street Study

*% Change In Average Traffic Volume
At Five Automatic Counter Stations.
1941-1955*



Highway Department Traffic Paint Test
 DuPont and Hercules Traffic Paint Tests for A.S.T.M.
 Various studies and reports in connection with the Interstate
 System.

The following tables in the Appendix show data derived from functions performed by the Traffic and Planning Division:

Table III: Mileage of Streets and Highways Maintained by the State Highway Department, listed according to surface type.

Table IV: Mileage of Streets and Highways listed according to system classification.

Table V: A Comparison of Hauling Permits issued during fiscal years 1954-1955 and 1955-1956.

Table VI: A Comparison of Traffic Volumes Recorded by Automatic Counter Stations from 1941 to 1956.

Traffic Operations

A. Signals

A total of 128 traffic signals are maintained by the State and 9 are maintained by others. The following table lists by counties the various types of signals in operation as of June 30, 1956:

MAINTAINED BY STATE

County	Flashing	Manual & Fixed Flashing	Time	Semi-Actuated	Full Actuated	Speed Control	Permit	Total
New Castle	8	4	14	36	22	2	7	93
Kent	5	0	4	9	5	0	2	25
Sussex	14	0	1	4	0	0	0	19
Total	28	4	19	50	27	2	9	137

There were 35 requests for signals at various locations during the fiscal year. In addition, other studies were made to determine the adequacy of existing signals. As a result, traffic signals were installed at 13 locations. The temporary signals at Basin Corner Intersection were removed as were signals on the southbound lane in Minguadale.

SIGNALS INSTALLED

Location	County	Month Installed	Type
Marsh Road and Crest Road	New Castle	August	Manual & Flasher
U.S. Route 13 and Del. Route 24	Sussex	August	Flasher
U.S. Route 13 and Del. Route 28	Sussex	August	Flasher
U.S. Route 13 and S. Heald Street	New Castle	September	Semi-Actuated
Boxwood Road and Del. Route 141	New Castle	September	Semi-Actuated
U.S. Route 13 and Looekerman Street	Kent	October	Density
Del. Route 141 and Faulkland Road	New Castle	November	Semi-Actuated
U.S. Route 13 and Road No. 46	New Castle	December	Semi-Actuated
Del. Route 273 and Del. Route 7	New Castle	December	Flasher

Murphy Road and Faulk Road	New Castle	February	Density
U.S. Route 13 and Del. Route 20	Sussex	February	Flasher
U.S. Route 13 and Road No. 535	Sussex	April	Flasher
U.S. Route 113 and U.S. Route 113A	Kent	June	Semi-Actuated

SIGNALS REMOVED

Location	County
U.S. Route 13 and Hazeldell Avenue (S.B.)	New Castle
U.S. Route 13 and Delaware Route 141	New Castle

Due to reconstruction of the highways, the following signal installations were completely modernized:

Location	County	Type
Del. Route 2 and Del. Route 141	New Castle	4 Phase, Full Actuated
U.S. Route 13A and Rogers Road	New Castle	2 Phase, Full Actuated
U.S. Route 13A and Vandever Ave.	New Castle	2 Phase, Full Actuated
Del. Route 48 and Del. Route 141	New Castle	2 Phase, Full Actuated
U.S. Route 13A and Lore Avenue	New Castle	3 Phase, Semi-Actuated
U.S. Route 13A and Rysing Drive	New Castle	3 Phase, Semi-Actuated
U.S. Route 13 and Division Street	Kent	3 Phase, Density
U.S. Route 13 and U.S. 113A	Kent	3 Phase, Density

Minor alterations were necessary at ten locations.

For the first time a few fire companies have been granted some control over traffic signals at nearby intersections on heavily travelled highways. Following recommendations and estimates, as furnished by the Delaware State Volunteer Fireman's Association and the Traffic and Planning Division, the Legislature appropriated necessary funds for these installations.

The introduction of radar detectors for actuated traffic signals marks the first use of this type of traffic signal detector in Delaware.

B. Highway Lighting

In addition to the traffic signal lighting, the Traffic and Planning Division is responsible for 25 highway lighting systems, varying in size from a few 250 candlepower lamps to the newly constructed Basin Corner system with eighty-five 1,500 candlepower lamps.

C. Signs

During 1956, the Sign Shop made 10,800 new signs and refinished 4,760 signs.

Of special note was the installation of two electrically

illuminated, overhead destination signs at the new Basin Corner Interchange.

More extensive use was made of the "Yield Right-of-Way" sign, the "No Trucks Allowed" sign, and oversized route markers.

Several route numbering changes were made to improve routing for the Chesapeake Bay Bridge.

D. Painting

The improvement in centerline markings in the northern sector of the State was very noticeable during the year. For the first time, it was possible to operate two painting crews each day that weather conditions were favorable.

More extensive use of plastics for special traffic markings will yield increased time savings which can be devoted to the maintenance of guide lines and traffic signs.

E. Permits

Table V. Appendix, indicates the comparative demand for hauling and house moving permits for the past few years.

Mapping

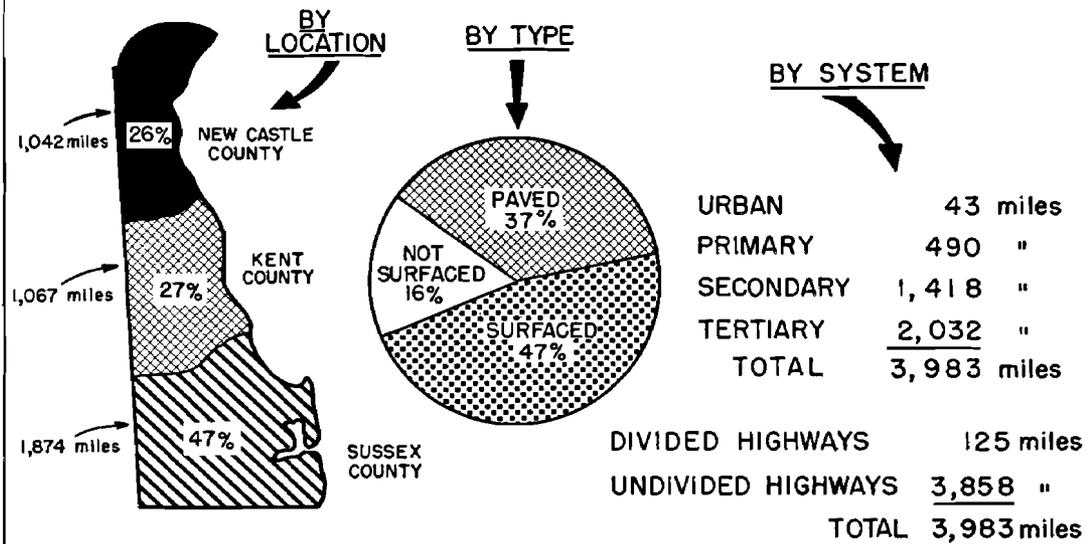
During the fiscal year the large and small county maintenance maps and the 51 incorporated town maps were revised and reprinted. The Official State Map of Delaware and the State General Highway Map are now being revised. Revision of the county traffic flow maps has begun.

Numerous commercial maps were received from mapping firms with the request that the Delaware area be checked for corrections and additions.

The following maps are drafted, periodically revised, and are made available from the Traffic & Planning Division Office.

Type of Map	Size	Approximate Scale
County Maps:		
Maintenance Maps	36"x48"	1"=1 mile
	18"x24"	1"=2 miles
Maps Showing Division of Hundreds	18"x24"	1"=2 miles
Traffic Flow Maps	36"x48"	1"=1 mile
State Maps:		
State General Highway Map	30"x55"	1"=2 miles
Del. Official Highway Map	18"x30"	1"=3½ miles
Incorporated Town Maps:		
Maps of 51 cities & towns	20"x27"	
	10"x13"	Scale varies
Book of 51 Maps	10"x13"	

DISTRIBUTION OF DELAWARE'S HIGHWAYS AND STREETS



Also distributed by the Traffic and Planning Division is the Construction Projects and Detour Bulletin, which is issued each month during the construction season. This bulletin consists of a map illustrating the location of contracts under construction that affects traffic on primary highways and accompanying detailed description of the location, description, traffic conditions and the estimated completion date. Approximately 275 copies are issued each month to travel agencies and other interested parties all over the United States and points in Canada.

DIVISION OF TESTS

During the past fiscal year, this Division has performed their routine duties of sampling and testing the materials that are used in projects supervised and constructed by the Department. In addition to this work, a number of research projects have been undertaken on both new and old materials and on methods of construction in an effort to improve and reduce cost of our construction.

The following tabulation represents some of the research problems we have started:

1. The use of various admixtures in Portland Cement Concrete.
2. Density requirements for asphaltic concrete.
3. Structural steel paint investigation.
4. Motor oil specifications.
5. Field performance of various grass seed.
6. Crack and joint surveys of pavements.
7. The use of gravel and sand in asphaltic concrete.
8. The use of natural and synthetic rubber in Bituminous Surface Treatment.
9. The use of Calcium Chloride, Sodium Chloride and asphalt for base stabilization.
10. The use of Slip Form Paving.
11. The use of Neoprene in Portland Cement Concrete as patching material.

Materials Section

8,822 tests were performed, which included samples of fine aggregate, coarse aggregate, cement, water, lumber products, concrete, pipe steel and castings, lubricating oils, grease, asphalt, paper and other miscellaneous materials.



58

Removing corrugations from bituminous concrete highway with heater planer.

The following tabulation represents quantities of materials inspected and approved:

Fine Aggregate	99,700 tons
Coarse Aggregate (Stone)	149,500 tons
Coarse Aggregate (Gravel)	195,300 tons
Coarse Aggregate (Slag)	42,250 tons
Bituminous Hot-Mix Concrete	155,395 tons
Asphalt	2,968,000 gals.
Lumber	31,718 Board Feet
Posts ..	1,325
Concrete Pipe	168,529 Lineal Feet
Central-Mix Concrete	41,300 Cu. Yds.
Truck-Mix Concrete	9,190 Cu. Yds.
Job-Mix Concrete	49,775 Cu. Yds.

Soils Section

The work performed by the soils section was again on the increase for the past year. A total of six thousand sixty-four (6,064) soil samples were processed through the laboratory. These included checks and controls of borrow pits, strength tests, soil surveys, proctors, and many other items.

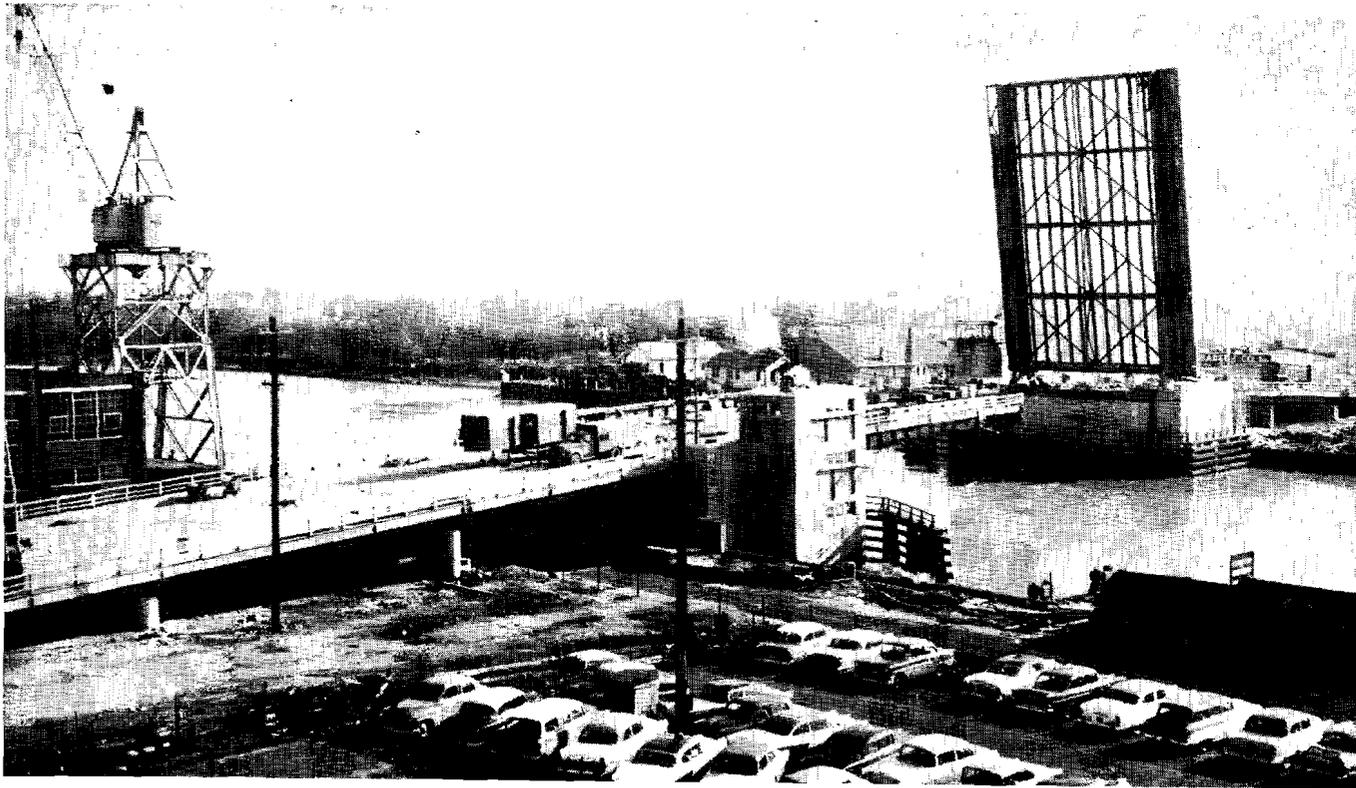
Much time is consumed in searching for select borrow pits which are becoming increasingly more difficult to locate. It is this acute shortage of specification material that is causing the soils laboratory to devote attention toward some means of stabilizing in place and existing soils.

Many design problems were encountered including embankment designs, stability analysis, foundations for buildings, bridges, water towers, marsh stabilization and highway bases.

Perhaps the most interesting design study was made of the proposed sixty-foot (60) high embankments for the approaches to the new Summit Bridge. Working with field and laboratory test data supplied by consultants a complete stability and foundation analysis was conducted using Holl, and Slip-Circle methods of design. Factors of safety against sliding, and determinations of rate and amount of anticipated settlement were calculated. This information was then forwarded to the Philadelphia District of the Corps of Engineers.

A breakdown of the work performed by the soils section of the Division of Tests follows in tabulation form.

Soil Samples Processed	6464
Borrow Pits Investigated for State Highway Department	89
Borrow Pits Investigated for Contract Use	81
Proctors	22
Miles of Soil Survey	19.9
Foundation Borings Lineal Feet	1393½



South Walnut Street Bridge and approaches, Wilmington.

Surbaban Developments (Soil Surveys)	22
Densities	547
Special Drainage Problems	3
Pit Checks	402
Design Problems	16

RIGHT OF WAY DIVISION

The General Assembly in the past Legislative session directed the State Highway Department through legislation to resurface all dirt roads in the State. The passage of this Bill resulted in the need for considerably more Right of Way activity in the State Highway Department.

Our Right of Way personnel has been increased to handle this additional work and the Right of Way office for Sussex County at Georgetown has been reopened and is now staffed by three Right of Way men, together with a Secretary.

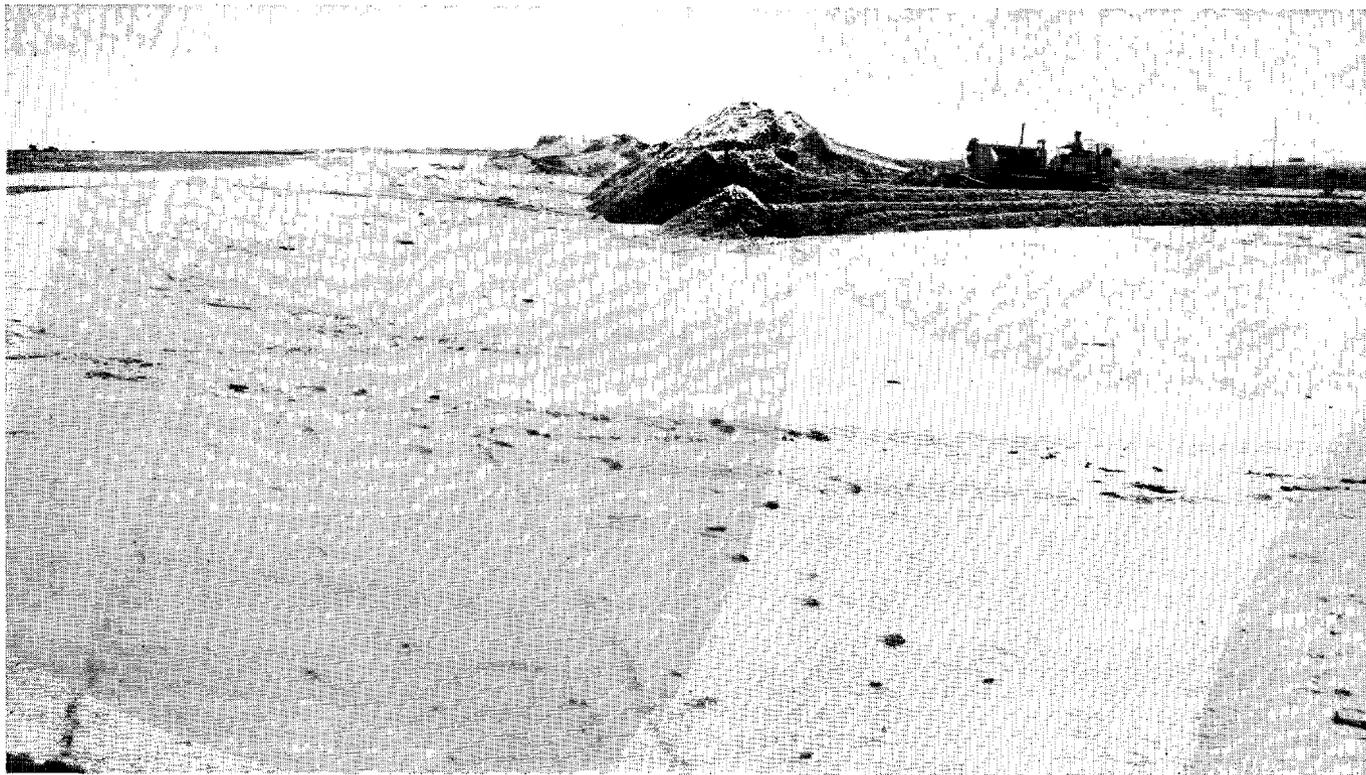
During the last fiscal year the Right of Way Division with particular reference to the Dirt Road Program, acquired rights of way covering 62.57 miles of road, and on the primary system during the year acquired partial rights of way on approximately 29 miles of road.

We have received splendid cooperation from all the abutting property owners on the Dirt Road Program for which each property owner was requested to contribute ten feet of land on each side of the present dirt road and the Department paid the owners for a five foot width on each side of the road to establish a sixty foot right of way, together with damages to lawns, trees, shrubs, buildings, etc.

Again this year we point with pride to the successful negotiations established—only three condemnation cases were brought to trial and finally consummated during the current year and of these three, two were of long standing.

Metropolitan Right of Way Division

This year saw the formation of the Metropolitan Right of Way Division. The duty of this Division is to handle rights of way acquisitions from the Chesapeake and Delaware Canal North to the Pennsylvania State Line. This District embodies one of the most rapidly changing areas in this country. Lands, which up to the present have been considered waste lands, are becoming lands of very high value. Industrial speculation is very keen, and buyers are constantly on the alert.



Replacing sand dunes washed out by hurricane.

The Zoning Commission is constantly considering application for changes in zoning classification. Everything seems to be, for the time at least, in an unsettled state. Owners are ever alert for news of land transactions in their neighborhood, and are always able to quote the highest prices paid.

Probably forty per cent of the contacts made, in this Division, are referred to legal counsel, so that a larger part of our dealings are carried on with attorneys.

Many owners ask advice of real estate agents prior to contracting with the State; others will call in engineers for guidance. All of this tends to cause delay in right of way acquisition, and certainly calls for specialized representatives in the field of right of way endeavor.

Criticism cannot be levelled at the property owners, as they feel, and justly so, that they hold title to something valuable, and they are anxious to protect their holdings.

The adverse decision rendered by the Courts with regard to the taking of excess lands as reported in the last annual report, has reflected badly against the Department on several occasions recently. In dealing with members of the bar, who, by now, are well acquainted with the Court decision, we have been faced with the possibility of further Court proceedings, or making payment in excess of the true worth of the taking. Until this decision has been reversed and a ruling made in favor of the Department, it appears as though sledding will be a bit rough in locations where excess lands are required.

On at least two occasions during the past year, we have had opportunity to conduct mass meetings with all of the owners abutting contracts, and in both cases we were very successful doing in one evening's work that which would ordinarily have taken two to three weeks to complete.

During the past year the Right of Way Division has compiled work as follows:

	Metropolitan Area	South of C & D Canal
Options Obtained	96	521
Grant of Easements	6	329
Misc. Trespass Agreements	34	116
Deed Description Written	177	196
Deeds Executed	142	159
Mortgage Releases Executed	54	32
Judgment Releases Executed	19	24
Condemnation Arguments	2	3
Houses Moved	3	12
Road Closures	1	1
Property Plats	20	35
Borrow Pits Purchases	1	5
Parcels of State Land Sold	3	None
Right of Way Expenditures Excluding Salaries	\$505,537.00	\$316,693.52

SUBURBAN DEVELOPMENT DIVISION

The Suburban Development Division is responsible for performing the duties imposed on the Department by the laws of Delaware concerning the acceptance for maintenance of streets and roads that have been, or are to be, dedicated for public use, outside the corporate limits of cities or towns.

These laws relate to construction of new streets and reconstruction, improvement or additions to existing streets. The Department's duties are covered primarily in the following sections of the 1953 Revised Code of Delaware:

1. Suburban Road Laws: Title 9, Chapter 5, Sections 501 to 534.
2. Bonding Laws: Title 17, Chapter 5, Section 508.
3. Highway Laws: Title 17.

Streets Accepted

A total of 21.724 miles of streets was accepted into the State Highway Department's maintenance system during fiscal year 1955-56. A tabulation by contract and development will be found attached at the end of this report. See Table VII, Appendix.

Suburban Road Laws Projects

During the year the Division has worked on 21 projects having a total mileage of 10.324 miles and the estimated cost being \$668,802.42. Several of the projects listed were tabulated in the 1955 report under design and are still classified as under design. Difficulties were encountered which required drainage easements and vacating of streets occurred which delayed completion of plans.

Services of consultants for surveys and design cost approximately \$24,685.00. Delay was experienced in getting the work finished due to lack of sufficient personnel in the consultant engineers' offices. See Table VIII, Appendix.

Bonded Developments

Under the Bonding Law any person, firm or corporation must post a performance bond with the Department in order to construct a new road or street which is to be dedicated for public use and become part of the general highway system of the State.

Since the Bonding Law became effective in 1951 performance bonds have been posted for the following mileage:

Fiscal Year	Mileage Bonded
1951-1952	1.383
1952-1953	19.856
1953-1954	19.024
1954-1955	26.805
1955-1956	22.316
TOTAL	89.384

The above tabulation shows that the amount of work handled in 1955-56 by this Division is about average. As of July 1, 1956, the Suburban Development Division will be placed in direct charge of the Inspection Section in New Castle County, which heretofore had been operating under the New Castle County Division Engineer. This, of course, will entail more work for this section, and accordingly an additional engineer will be added to the staff on or about August 1, 1956.

Attached to this report is a tabulation showing the projects for which a bond was received during the current year. See Table IX, Appendix.

Chart #1 included in this report shows the accumulative record of the value of bonded projects.

Chart #2 shows the monthly value of projects under bond and those constructed under the Suburban Road Laws.

New Castle County Regional Planning Commission

The Suburban Development Division works closely with the Regional Planning Commission of New Castle County and the Suburban Development Engineer has been the State Highway Department voting member of that Commission since April 1956. This Commission reviews and approves or disapproves all new subdivisions in New Castle County submitted by consulting engineers for the various developers.

During the past year plans have been received for 52.064 miles of streets in 34 developments having a total area of 1951.5 acres; an average of 0.0267 miles of street per acre.

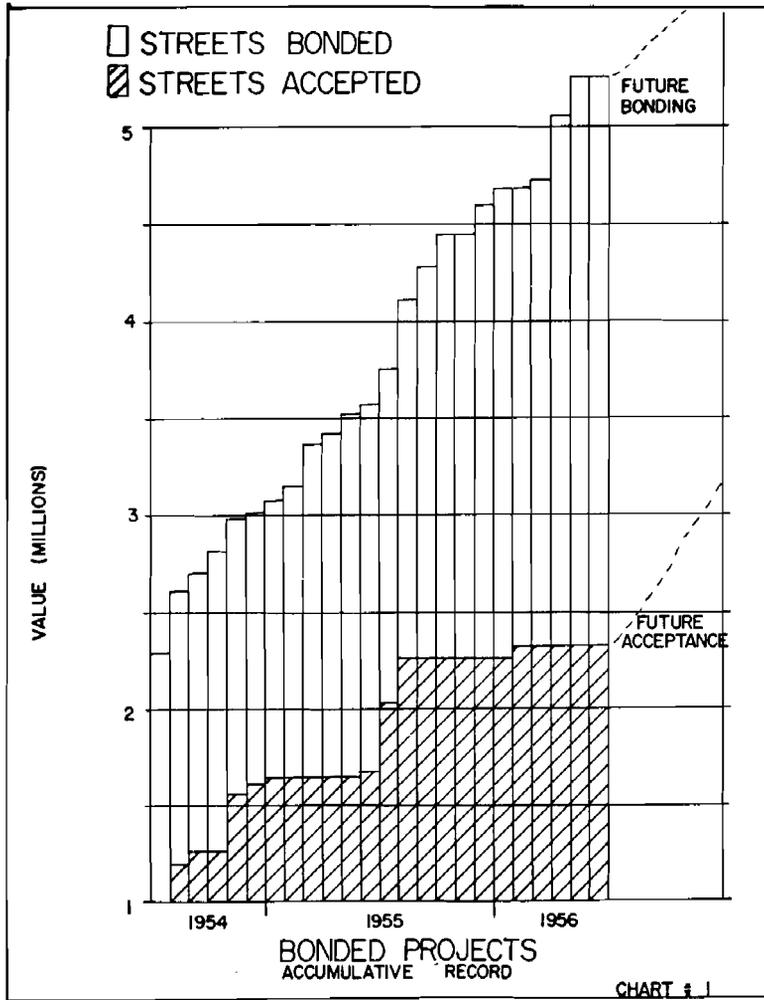
New plans examined this year for proposed subdivisions in all three Counties are shown on a list attached at the end of this report. See Table X, Appendix.

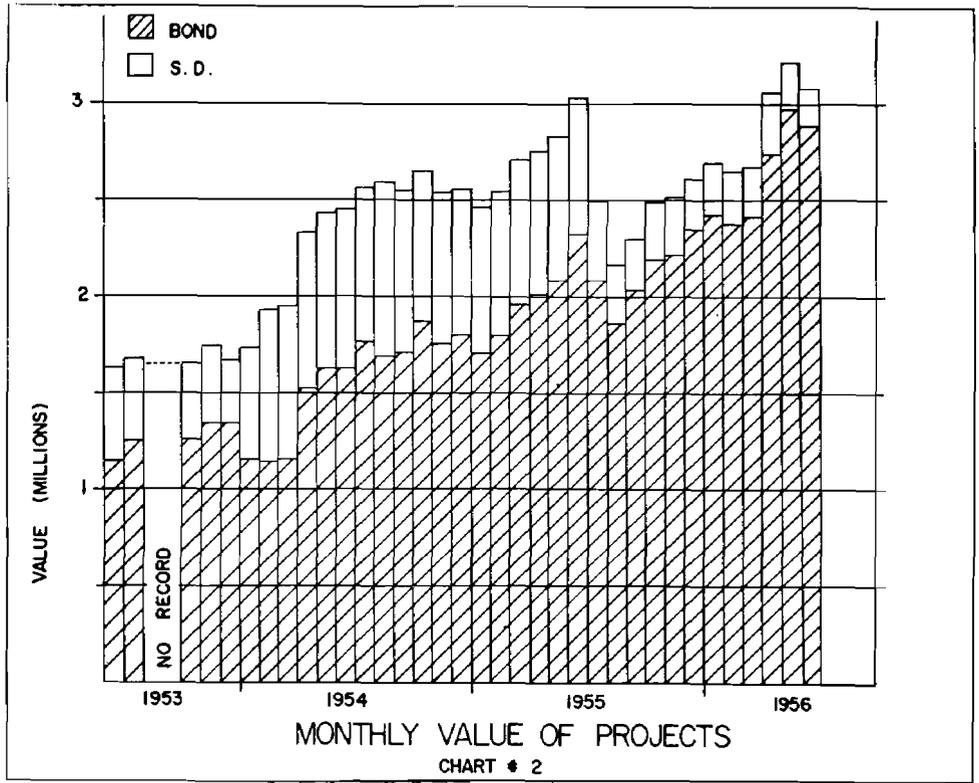
A summary of the streets handled in one form or another during the fiscal year is as follows:

	Miles	Probable Cost
Suburban Road Laws	10.324	\$ 668,802.42
Bonding Law	33.194	\$2,072,489.54
TOTALS	43.518	\$2,741,291.96

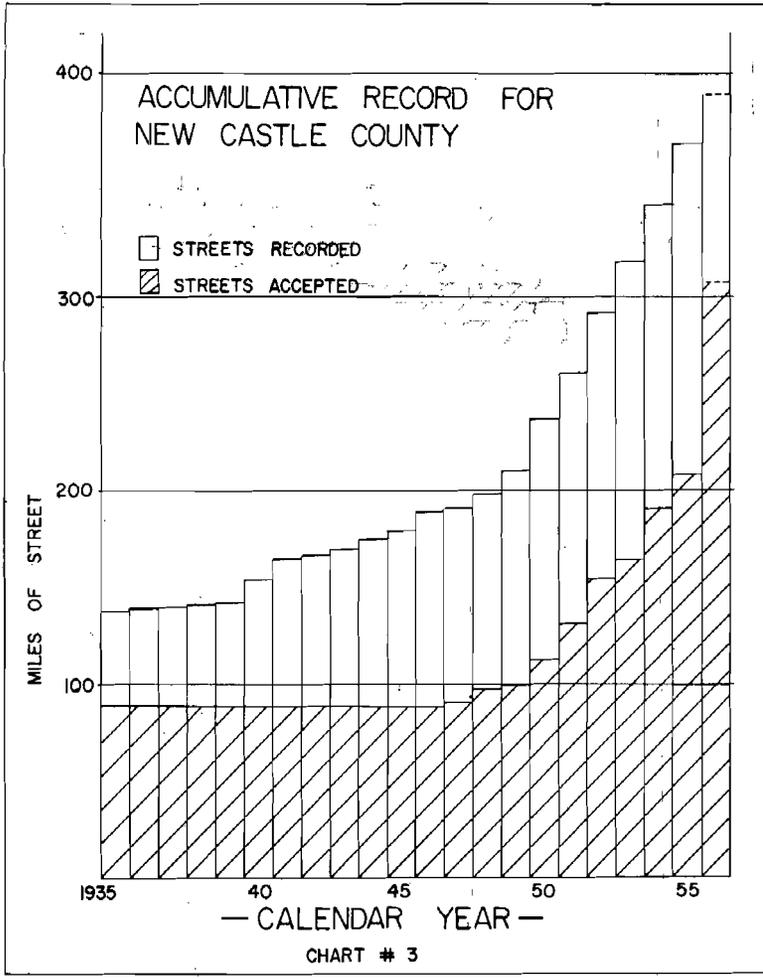
Growth and Acceptance of Streets in New Castle County

Chart #3 included in this report indicates the number of miles of streets placed on record and the streets accepted by the Department. This includes about 40 of the 75 miles of streets in suburban developments constructed between July 1, 1935 and July 1, 1951 which were added to the State High-





MONTHLY VALUE OF PROJECTS
CHART # 2



way Maintenance System under Senate Bill #387. This latter number is subject to change as old records unfold additional streets that should be included under this bill, although this Division, with full cooperation of the other Maintenance Divisions and the Traffic and Planning Division, made a full and exhaustive study of all the roads that this bill covers.

As of June 30, 1956 the total placed on record approximates 427 miles, of which 251 miles have been accepted into the Highway Maintenance System.

The Drainage Problem

As was discussed in the previous annual report the drainage problem exists today more than ever. Furthermore, it doesn't seem to get any better and probably won't until enough financial assistance is provided for an agency such as the State Highway Department to take care of the growing needs of an overall storm drainage plan. As each new development is built new drainage problems are thrust on the low elevation developments, which in most cases are already constructed and the developer moved to a new location. Naturally, the people come to the Highway Department, and generally it is the Suburban Development Division that is questioned. Perhaps an overall storm drainage system similar to the Sanitary Sewer System presently being completed in New Castle County would be the answer.

Future Growth of Developments

Along with the Drainage Problem seems to be an increase in the rate of growth of developments. As more and more people want to move away from the busy city life, more and more suburban homes are built. It is apparent that this condition is going to continue and it is noticed that suburban communities are being constructed around the Dover-Camden area and in several sections of Sussex County.

Recommendation

1. Creation of a Regional Planning Commission for Kent and Sussex Counties in order that expansion and growth of subdivisions in these Counties can be carried out in conformance with minimum recognized standards governing streets, sanitation, water and drainage.

MOSQUITO CONTROL DIVISION

The mosquito season of 1955 can be classed as one of the most difficult on record to deal with in recent years from the standpoint of annoyance. The annoyance level was much lower in the resort section of Sussex than in the upper counties, indicating the importance of ditch maintenance supple-

mented by chemical aid as applied by aircraft. In northern Sussex and Kent County the ditch systems are becoming less and less effective, due to the lack of maintenance in recent years, thereby increasing the breeding volume.

During the past summer there were about seven flare-ups in the trap collections at Rehoboth, largely caused by migrations from outside the control band. The collection on the seven nights totaled 2,432 mosquitoes, or nearly half of the total collection for the season. These flare-ups did not last for more than one day or so at a time, while in the upper counties when the collection reached a maximum they remained higher over a longer period of time. This indicates the need for the extension of mosquito control beyond the present range. The ditch systems in Kent County are losing their effectiveness because of insufficient funds to maintain them in recent years.

The huge mosquito population during the past season was brought about by abnormal rainfall at times, along with high tides at critical periods. The lack of rain in early May plus warm weather dried up the marsh surface, then came a flash of high tides that produced an early brood which began to annoy the Rehoboth section on May 23. This same condition also existed in the upper counties. This brood probably was responsible for a good many egg deposits which added to the difficulty of the control program that was to follow later in the season. The trap at Rehoboth reached a high of 87 on May 27, and Delaware City had 335 on May 25. This condition brought about the earliest spraying on record for Rehoboth. Another period which caused heavy production on the marshes was June 1-6 when high tides came, then over six inches of rain came on June 8, 9, and 10. As a result of this high tide cycle mosquitoes began to appear on June 15, and due to the rain of June 8 through June 10 built up the population considerably throughout the State by June 20 and 21. Around June 20 and 21 there was another cycle of high tides coupled with southeast and southwest winds to start another breeding cycle, and this wind encouraged migration to the resort section as well.

The mosquito population at Broadkill and Slaughter Beach was terrific during late June. The Slaughter Beach section was sprayed and it proved effective only a short time, when it was necessary to repeat the operation. After the first application, reports came in that the cottage porches were littered by adult mosquitoes which were knocked out by the spray. This was the first report we recall of such a

success, where the results could be witnessed by actually seeing huge numbers of adults being knocked-out.

In July there was only 1.13 inches of rainfall, however, again tides covered the dry marshes between July 15 and 20 giving maximum production. Around the end of July and early August we had another general flight over the State. The Rehoboth high came on August 2 with a total of 812, the Dover trap reached a high on July 27 and August 1, reaching totals of 2,966 and 3,972 respectively.

The month of August was also a difficult period to deal with due to the two hurricane disturbances. The tidal effects from "Connie" appeared as early as August 5 continuing through August 12 when the storm arrived. This tropical disturbance created enormous tides and almost six inches of rain at Lewes with possibly more at other points. The high tide cycle and winds continued after August 12 until "Diane" arrived on about August 19. Over the hurricane interference period from August 5 to August 20, there was no effective aerial spraying because the winds were too strong for effective control. These factors caused high production on the marshes, and the adult population reached new proportions. The trap collections were high for Dover for the remainder of the month, reaching 856 on August 21 and 781 on August 30. It is also well to note that the Bombay Hook trap collected 5,652 on September 1. The Rehoboth trap collected 449 on August 27 and 413 on August 31, but outside of these two peaks the average was not particularly bad compared to the large collections taken in the Kent County traps, and at Delaware City. The Delaware City trap collected 5,620 on August 21 and 3,320 on August 22.

Airspraying Program

The spray program in lower Sussex was conducted in the usual manner by utilizing the spray to prevent migration, and to treat certain potential breeding spots at the proper interval. In the upper counties the marshes were treated during the breeding cycles, or just after the insect reached the adult stage if time and weather permitted. Due to the conditions that existed, it was not within our power to meet all of these situations; therefore, we met these conditions at the earliest possible moment. We continue to emphasize that it is more economical to eliminate mosquitoes at the source whether they be in the larvae stage or immediately upon reaching the adult stage.

Relief was given to the coastal sections in Sussex, Kent, and New Castle by aerial applications with the number of

treatments varying from seven to nine times. In New Castle County relief was given the Newport area, South Wilmington, New Castle, and Delaware City. In Kent relief was given shore points from Bowers to the Bombay Hook Refuge, the Dover Air Base, and Dover. In addition to our work the Dover Air Base made two aerial applications to the coastal marshes including the Air Base totaling about 18,000 acres. One application was made August 30, and the other on September 22. This aid came rather late in the season; however, this cooperative aid was appreciated, and possibly more assistance can be expected by them next year.

During the fiscal period this Division sprayed a total of 88,873 acres in Sussex, 44,706 in Kent County, and 45,641 in New Castle County. This represented a total of 179,220 acres as compared with 163,479 for the previous fiscal period.

In order to spray this acreage 89,610 gallons of #2 fuel oil, containing 39,000 lbs. BHC (46%) were used. The entire spray program including supervision cost \$67,131.85, or an average of .374 per acre. About 10% of the labor assigned to the mosquito program was used in this operation.

Contracts for aerial spraying and oil were awarded in accordance with Department specifications. The contract rate for 1955 was awarded at .17 per acre and for 1956 it was awarded at .1798 per acre. The fuel oil award was .0296 below posted tank wagon rate in 1955 and .0276 for 1956.

The maintenance crew during the fiscal term dug or cleaned 264,124 linear feet of ditch. This required 15,431 man hours of labor, including supervision at an average rate of approximately 17 feet per man hour. The labor including supervision cost an average of .072 per linear foot and represented 49% of a total of 33,624 man hours devoted to mosquito control during the fiscal year.

Construction and maintenance of structures represented about 18% of the labor charge. This involved the repair of two outlets near Kitts Hummock in Kent County, and the repair of tide gates and outlet boxes in Sussex County. The material and labor for the projects totaled \$7,024.00.

About 14 of the labor expenditure was chargeable to the miscellaneous category, which included sloping of ditches 525 cubic feet, brushing by disk 306,550, clearing or brushing 717,277 square feet, and 8,008 cubic feet of dyking by machine. Service to equipment required about 9% of the total labor assigned to the project.

This Division contributed \$6,500 from its budget toward research including trap collection identification. We also contributed approximately \$1,585.34 additional to the University for a special project in Miller's Neck and our force contributed an additional \$983.64 for labor, supervision and construction materials.

The operations account was increased by \$25,000 over the previous fiscal period, but salaries and wages were decreased by about \$15,000. The allotment for the two fiscal periods ending July 1957 was \$126,000 per year.

PERSONNEL

The past year has witnessed little change in the personnel strength of the engineering forces. As of June 30, 1956 we had a total of 881 employees whereas at the end of the preceding fiscal year 865 persons were employed in this branch. The net change of 16 employees resulted from a combination of changes within both the construction and maintenance forces of the Department. The construction forces experienced an increase in strength from 213 at the end of June, 1955 to 261 at the end of the past fiscal year. Conversely, statistics on the maintenance forces reflect a reduction in strength from 652 in 1955 to 620 as of June 30, 1956, the major portion of this reduction occurred among those persons employed on a bi-weekly basis where the strength dropped from 544 to 507 during the year.

The Mosquito Control Division, the strength of which is not included in the above figures, was cut from a force of 22 persons at the beginning of the year to a strength of five at the end of June. Lack of sufficient funds in the Salaries and Wages Account of this Division dictated the lay-off of personnel during the last quarter of the year.

During the latter part of the year a reorganization of the Engineering Branch was effected. This action was marked by the appointment of a Deputy Chief Engineer and by the transfer and reassignment of several persons at the Division Head level. It is felt that the reorganization has produced a sound and well rounded staff through which the operations of the Department can be effectively administered.

The past year was also marked by the approval of a Personnel Policy Manual for the Engineering Branch. The action of the Department in approving this manual fulfilled a long standing need since it established a single set of policies

upon which our personnel administration may be based. In addition, it provided a revised and more realistic classification schedule for all categories of employees and more clearly defined certain policies relative to annual leave, sick leave, military service, etc.

In reviewing the status of our organization it is felt that attention should be invited to one of our basic problems; namely, the inability to procure the services of qualified engineers in adequate numbers. This problem, which has been noted in previous reports has continued to exist during the past year. Competition in the engineering fields continues to increase steadily and with such competition the salary inducements offered to prospective employees become increasingly greater. It is realized that we cannot compete at the level established by some engineering agencies, but we do feel that our salary scales, especially the starting salaries for young engineers, should be reviewed in an effort to make our offers more interesting to personnel desirous of engineering careers in the highway field.

One additional item, security of employment, is deemed worthy of note. Under existing conditions it is impossible to offer prospective employees any real degree of security. If a permanent and stable organization is to be obtained, action to rectify this condition should be initiated.

Within the limits of available funds we have endeavored to build a capable and efficient organization and we shall continue to make every effort to maintain an organization geared to provide maximum service to the public.

PUBLIC WORKS

As in previous years, the past year has been marked by participation in a number of projects which must be classified as Public Works activities. In some instances the work was done in compliance with Legislation designating this Department as the agency responsible for the accomplishment of specific projects; in other cases the Department served in the capacity of a consultant in furnishing engineering assistance to other State agencies in the completion of projects under their cognizance.

It was noted in last years report that plans had been made for the construction of a reinforced concrete spillway with adjacent earth embankments and off-road parking areas at Beck's Pond, near Newark. During the past year this project

was placed under contract and has progressed on schedule. It is estimated that this contract will be completed by October 1, 1956.

During the current session of the General Assembly funds were provided in House Bill 224 for the repair and maintenance of certain Public Works installations in New Castle and Sussex Counties. Under the provisions of this bill \$45,000.00 was provided for repairs at Dobbinsville Dikes, Red Lion Dike, and Sluice Gate in New Castle County, and at Blair's Pond and Williams Pond in Sussex County. In addition, sums of \$20,000.00 were provided for each fiscal year of the biennium for maintenance at the above sites and at New Castle Dikes, 1,000 Acre Marsh Dike and Sluice Gate, Port Penn Dikes, Augustine Sluiceway in New Castle County, and at Broadkill Dikes in Sussex County. Repair work has been started at the Dobbinsville Dikes and studies are being conducted at the other locations to determine the extent of work necessary.

Under House Bill 56 this Department was directed to remove the sluice gate near Slaughter Beach, restore banks of canal to the condition which existed prior to the installation of the gate and to build a parking area on each side of the canal. This project was placed under contract and was completed during the latter part of 1955.

A sum of \$35,000.00 was appropriated for the construction of a dam and sluiceway at Horsey's Pond near Laurel. This project has been placed under contract and it is anticipated that it will be completed during the first half of fiscal year 1957.

The construction of a spill dam at Ingram's Pond was directed and \$10,000.00 was provided for its completion. At the present time this project is under study and plans should be completed in the near future.

A total of \$20,000.00 was provided as a supplemental appropriation for repair, replacement, and additions to the boardwalk at Rehoboth Beach. The preliminary studies outlined in the appropriating bill have been completed and it is anticipated that this project will be completed prior to the opening of the summer season in 1957.

By a supplemental appropriation act, funds were appropriated for the purpose of providing beach protection at certain selected locations. The sum of 35,000.00 was provided for Lewes, \$12,500.00 was provided for Kitts Hummock,

\$10,000.00 for Slaughter Beach, \$2,500.00 for Woodland Beach, and \$2,500.00 for Pickering Beach. As of the end of this report period studies are underway to determine the most feasible method to correct the existing conditions at each of the sites noted above.

The Department performed engineering services in the development of Brandywine Springs State Park. This project, which was under the cognizance of the State Park Commission, was completed in the early months of this past fiscal year. Similarly such services were rendered to the State Building and Grounds Commission in connection with the construction of sidewalks and street lights on State lands in Dover.

STATE LANDS

Recommendation in the 1954-55 Annual Report included improved supervision and enlargement of facilities in the tenting and recreation areas. The Highway Commissioners took action on this recommendation with the result the full-time supervision of these areas by State employed personnel was undertaken.

Other improvements completed prior to the camping season by our Maintenance and Maintenance Construction crews were: regrading of tenting areas; establishment of individual lots; relocating of original toilets and construction of four new toilets. During the season replacement of obsolete equipment and renovating tool sheds and wash houses was completed. For nighttime protection of personal property in automobiles flood lights were installed over the north and south Inlet public parking areas.

We recommend permanent sanitary toilets and shower facilities at these locations: Key Box Road—ocean side of highway; Cotton Patch Road—ocean side of highway; South of Indian River Inlet—ocean side of highway; North side of Inlet—bay side of highway. Additionally, drinking water facilities should be provided at each of the four major areas listed above.

Also, it is suggested that the tenting area be moved from the west side of the highway to the east side of the highway, just below the Inlet. The camping area be enlarged by constructing a road behind the dunes from Key Box to Tower Road. This would enable the usage by the public of nearly a mile of new camp sites.

Rehoboth Bay facilities having been neglected in past years should be improved, as should those in Indian River Bay, south of Indian River Inlet. This should be completed before next summer by the addition of two roads from Route #14 to Rehoboth Bay and improving the road opposite Cotton Patch. Adequate beach clearing at the end of each of these roads for family usage should be undertaken simultaneously.

Electric lines should be installed to service twenty-six additional trailer spaces constructed last year as an increase in the traileed park. Restaurant and/or Snack Bar facilities should be included with the recommended buildings at Key Box Road and Cotton Patch Road. A long term improvement is the needed renovation of the present Inlet Restaurant building. This would include modernizing and enlargement sewage facilities.

APPENDIX

Table I

New Castle County

CONTRACTS ACTIVE AS OF JULY 1, 1955 AND ACCEPTED DURING FISCAL YEAR 1955-56
CONTRACTS AWARDED AND ACCEPTED FISCAL YEAR 1955-56

Contract No.	Description	Miles	Award Date	Contractor	Contract Value	Value Work			Starting Date	Completion Date	Date Accepted
						Incomplete July '55	Final Estimates				
1191	Warwick Connection	1.211	3-13-55	George & Lyach	\$148,748.00	\$113,748.41	\$144,376.41	4-28-55	9-15-55	9-10-55	
1192	Holloway Terrace	1.130	8-25-54	Greggo & Ferrara, Inc.	140,244.50	30,113.48	147,252.62	9-8-54	6-8-55	7-22-55	
1197	Harvey Road Bridge & Approaches	0.407	11-10-53	Henry C. Eastburn & Son	243,550.61	1,967.34	239,068.16	11-19-53	8-3-55	8-3-55	
1224-2	Walnut St. Ext.; P.R.R. Underpass	—	5-25-54	Empire Construction Co.	663,540.21	241,905.31	654,039.43	7-6-54	10-31-55	3-16-56	
1224-5	Walnut St. Ext.; Marsh Stabilization	0.565	9-30-54	James Julian, Inc.	725,098.90	50,276.82	717,220.79	10-11-54	10-1-55	9-27-55	
1235	Murphy-Wilson Rd; Conco d o Marsh	2.423	12-15-54	James Julian, Inc.	383,516.30	338,708.95	467,812.55	1-10-55	6-15-56	6-15-56	
1269	Churchman's Rd; Ch istiana River to Rd. 336	1.177	8-23-55	James Julian, Inc.	114,363.70	119,987.37	119,987.37	9-19-55	6-5-56	6-5-56	
1288	Minquadale to Rogers Corner	0.085	1-20-55	Olivere Paving & Constr.	129,195.75	96,699.88	128,209.75	2-16-55	10-10-55	10-21-55	
1390	Center Road	2.770	6-11-54	Olivere Paving & Constr.	633,450.00	140,585.50	629,599.61	6-21-54	11-4-55	11-4-55	
1391	Gov. Printz Blvd.-Wilm. 11th to 30th	1.103	4-25-55	George & Lynch, Inc.	324,805.60	313,805.75	322,697.04	5-3-55	10-27-55	11-21-55	
1302	Delaware Ave., Newark	—	6-20-55	James Julian, Inc.	257,155.00	249,215.35	258,756.90	6-23-55	6-5-56	6-5-56	
1304	Port Penn Dyke & Tide Gates	—	3-4-54	George & Lynch, Inc.	162,470.00	14,198.87	159,902.02	4-5-54	2-1-55	9-1-55	
1318	Basin Corner Interchange	0.724	9-15-54	James Julian, Inc.	1,039,309.00	716,835.14	1,077,671.98	9-27-54	5-31-56	5-23-56	
1333	Harvey Road (Phila. Pike to Harvey Bridge Road)	0.764	3-14-55	Interstate Amiesite Corp.	154,697.25	134,146.95	168,645.34	4-5-55	12-2-55	4-27-56	
1374-A	Smith's Bridge	—	4-15-55	Conn Welding & Machine	43,125.00	44,974.09	44,974.09	5-23-55	8-13-55	11-18-55	
1375	Brandywine Spruces State Park	—	1-26-55	E. Earle Downing, Inc.	9,911.00	7,038.03	10,419.28	3-23-55	8-2-55	8-2-55	
1388	E. Cleveland Ave. Intersection (Newark)	0.081	4-16-55	E. Earle Downing, Inc.	23,288.00	29,897.56	29,897.56	8-15-55	5-16-56	5-16-56	
1389	Deerhurst Gutters	—	5-26-55	T. Paul Dabson	8,448.25	9,198.53	9,198.53	6-10-55	8-3-55	8-3-55	
1394	Bridge on Rd. 362 (Bridge 278-Blvd.)	—	5-26-55	E. Earle Downing, Inc.	8,467.00	7,667.46	7,667.46	6-21-55	7-15-55	7-15-55	
1400	Incidental Construction, N. C. County	—	10-17-55	Cities Service Bit. Co.	18,897.00	18,478.76	18,478.76	12-29-55	5-23-56	5-23-56	
1404	Intersection Alterations, N. C. Co.	—	10-21-55	Olivere Paving & Constr.	23,158.50	22,809.62	22,809.62	10-25-55	1-1-56	12-12-55	
1418	Hot Mix Asphaltic Concrete Patching	—	8-11-55	Johnson-Dunn Const. Co.	19,167.22	18,703.19	18,703.19	8-29-55	6-30-56	11-1-55	
1448	Corbitt-Tybouts Corner S.B. U.S. 113	—	10-14-55	Stand. Bitulithic Co.	19,401.63	32,743.24	32,743.24	10-26-55	12-15-55	12-15-55	
1457	Dobbinsville Dikes Repair H.B. 224	0.4	12-22-55	Pleasanton & Edgell, Inc.	12,288.00	13,588.07	13,588.07	2-9-56	6-5-56	6-27-56	

Table 1

Kent County

CONTRACTS ACTIVE AS OF JULY 1, 1955 AND ACCEPTED DURING FISCAL YEAR 1955-56
 CONTRACTS AWARDED AND ACCEPTED FISCAL YEAR 1955-56

Contract No.	Description	Miles	Award Date	Contractor	Contract Value	Value Work		Starting Date	Completion Date	Date Accepted
						Incomplete July '55	Final Estimates			
1264	Twin Willows to Whitehall Crossroads	—	5-26-55	Burger Building Corp.	\$38,359.00	\$41,694.41	\$41,694.41	6-20-55	10-15-55	10-24-55
1298	Viola R.R. Crossing Relocation	0.181	6-22-55	J. Ward Hurley & Son	7,867.75	8,111.95	8,111.95	8-9-55	10-15-55	2-24-56
1343	Ford's Corner to Pearson's Grove	4.70	12-15-54	Pleasanton & Edgell	63,000.00	35,811.04	52,894.84	2-16-55	7-15-55	9-15-55
1372	Burrsville Relocation	0.650	4-15-55	George & Lynch, Inc.	67,082.00	52,579.93	63,636.93	4-26-55	9-1-55	8-31-55
1376	Barker's Landing, Bridge Reflooring	—	9-28-55	High Welding Co.	19,100.00	13,700.00	19,100.00	11-29-55	6-30-56	6-25-56
1382	Muddy Branch Bridge at Squagum	—	4-28-55	Pleasanton & Edgell	33,300.00	34,459.68	34,609.68	5-23-55	11-23-55	11-29-55
1419	Hot Mix Asphaltic Concrete Patching	—	8-5-55	Standard Bithulithic Co.	38,764.20	38,757.01	38,757.01	8-23-55	6-30-56	11-10-55
1425	Patching Concrete Pavement	—	9-19-55	Pleasanton & Edgell	29,940.50	39,022.29	—	11-2-55	6-15-56	5-16-56
1431	Resurfacing Portions of Rt. 14 Burrsville to Rt. 37	7.936	1-3-56	George & Lynch, Inc.	108,882.60	111,167.41	111,167.41	4-4-56	6-15-56	5-14-56
1460	Thru Smyrna (Rd. 12 to Smyrna River)	1.635	1-3-56	Standard Bithulithic Co.	71,983.80	70,798.25	—	4-21-56	5-25-56	5-18-56

Table I

Sussex County

CONTRACTS ACTIVE AS OF JULY 1, 1955 AND ACCEPTED DURING FISCAL YEAR 1955-56
 CONTRACTS AWARDED AND ACCEPTED FISCAL YEAR 1955-56

Contract No.	Description	Miles	Award Date	Contractor	Contract Value	Value Work			Starting Date	Completion Date	Date Accepted
						Incomplete July '55	Final Estimates				
704	Tull's Crossing to Ross	1.899	6-21-55	Standard Bitulithic Co.	\$40,548.20	\$37,896.53	\$37,896.53	7-5-55	10-11-55	9-29-55	
1320	Co. Rd. 380 (Rd. 60 to U.S. 113)	2.338	7-14-54	Melvin L. Joseph Const.	47,795.80	3,601.70	60,299.56	8-2-54	7-16-55	7-16-55	
1321-B	Bethany Beach Shore Protection	—	5-26-55	Melvin L. Joseph Const.	4,437.50	7,773.85	7,773.85	6-15-55	6-30-55	8-8-55	
1369	Gravel Hill to Co. Rd. 249	1.528	3-7-55	Melvin L. Joseph Const.	21,788.17	16,601.91	20,669.55	4-4-55	8-10-55	8-10-55	
1371	Co. Rd. 370 (Rt. 17 to Rd. 382)	1.347	4-16-55	Walter Roach & Sons	30,276.90	29,761.36	33,841.36	4-27-55	9-1-55	11-25-55	
1391	Clarksville to Millers Neck (Co. Rd. 365)	4.744	9-19-55	Melvin L. Joseph Const.	81,275.60	73,597.57		10-19-55	6-15-56	6-20-56	
1392	Rd. 213; Rd. 207 to Milford Limits	1.646	6-3-55	George & Lynch, Inc.	37,828.10	39,385.67	39,385.67	6-6-55	8-15-55	9-16-55	
1319	High St., Seaford	0.984	1-25-55	George & Lynch, Inc.	240,515.60	212,315.49		3-22-55	1-15-56	3-16-56	
1396	Rd. 571 (Rt. 404 to Md. Line)	1.963	7-8-55	Melvin L. Joseph	35,606.17	23,792.13	38,068.86	7-28-55	11-1-55	6-28-56	
1397	Rd. 390 (Bunting to Rd. 389) (Rd. 389—Johnson to Rd. 58)	2.743	8-23-55	Scott & Wimbrow	38,955.25	36,978.83		9-6-55	11-1-55	6-8-56	
1420	Hot Mix Asphaltic Concrete Patching	—	8-5-55	Standard Bitulithic Co.	53,808.80	58,401.60	58,401.60	9-26-55	6-30-56	11-10-55	
1426	Patching Concrete Pavement	—	9-19-55	James Julian, Inc.	84,175.00	99,571.86	99,571.86	10-3-55	6-1-56	12-7-55	
1428	Slaughter Beach Sluice Gate Removal	—	10-17-55	Sussex Contractors	3,690.00	6,490.00	6,490.00	10-27-55	12-7-55	12-7-55	

TABLE II
NEW CASTLE COUNTY
INCOMPLETED CONTRACTS AWARDED
FISCAL YEAR 1955-56

Contract No.	Description	Miles	Award Date	Contractor	Contract Value	Value Work Incomplete July '55	Final Estimates	Starting Date	Completion Date	Date Accepted
1224-3	Walnut St. Bridge Substructure	---	7-20-54	A. S. Wikstrom, Inc.	\$820,455.00	\$563,798.78		9-1-54	3-27-56	
1224-4	Walnut St. Bridge Superstructure	---	9-15-54	A. S. Wikstrom, Inc.	1,251,781.00	622,277.43		7-29-55	6-30-56	
1258	New Castle Avenue	1.87	4-6-56	John Julian Constr. Co.	572,439.00	99,472.57		4-30-56	7-15-57	
1315	Naamans Road Underpass	---		A. S. Wikstrom, Inc.	306,250.00					
1329	Gap Road (Rt. 48 to Sanatomin)	---	7-13-55	Wilson Contracting Co.	263,459.50	254,524.46		7-26-55	7-1-56	
1336	North Star Road (Rd. 296 to Rd. 13)	0.568	12-22-55	George & Lynch, Inc.	48,546.00	37,859.82		1-26-56	6-1-56	
1348	Hot-Mix Asphaltic Concrete Resurfacing (Walnut-Front/4th)	0.186	8-2-56	T. Paul Dabson	23,829.00					11-1-56
1377	Phila. Pike (Bellevue to Claymont)	---	2-14-56	Oliveri Paving & Constr.	645,072.50	107,618.54		2-23-56	1-1-57	
1385	Yeale Road, New Castle County	0.971	9-19-55	George & Lynch	42,446.00			4-16-56	10-1-56	
1384	Becks Pond Dam (Dam & Spillway)	---	- -	George & Lynch	168,620.50	111,686.65		11-7-55	7-1-56	
1398	Bellevue Road (Phila. Pike to Governor Printz Blvd.)	0.54	3-14-56	T. Paul Dabson	78,491.00	36,682.53		3-22-56	10-15-56	
1424	Patching Concrete Pavement	---	9-19-55	E. E. Downing, Inc.	59,876.00	31,032.44		11-7-55	5-15-56	
1437	Road 312 Appleton Rd.									
	Road 463 (Rd. 36 to Rd. 462)	2.629	2-14-56	Cities Service Bituminous	45,961.30	15,810.57		2-21-56	9-1-56	
1463	Motor Vehicle Testing Lane, N. C. (Alterations to Wilm.)	---	6-8-56	DiSabatino & Raniere	7,400.00					(40 days from date of award)
1470	1956-57 Misc. Asphaltic Concrete Resurfacing	---	2-3-56	George & Lynch, Inc.	133,752.12	73,959.10		5-8-56	7-1-56	
1495	Bridge Painting, N.C. Co.	---	6-8-56	Quaker Painting Co.	3,555.00			7-5-56	11-1-56	
1506	Bridge Repairs & Replacement	---	6-22-56	Edgell Construction Co.	15,990.00			7-25-56	9-15-56	

83

TABLE II
KENT COUNTY
INCOMPLETED CONTRACTS AWARDED
FISCAL YEAR 1955-56

Contract No.	Description	Miles	Award Date	Contractor	Contract Value	Value Work Incomplete July '55	Final Estimates	Starting Date	Completion Date	Date Accepted
916	Farmington thru Harrington	4.716	1-5-56	Henry C. Eastburn	\$669,673.80	\$171,355.11		1-16-56	12-15-56	
1146	Commerce St., Smyrna	1.108	6-19-56	George & Lynch, Inc.	348,903.75			7-5-56		
1405	Intersection Alterations	—	10-17-55	Standard Bitulithic Co.	56,439.59	117,410.37		1-31-55	7-1-56	
1436	Rd. 193 (Rd. 3 to Rd. 195)	9.960	2-15-56	Edgell Construction Co.	149,775.70	47,971.10		3-21-56	10-15-56	
	Rd. 241 (Rd. 240 to Rd. 57)									
	Rd. 170 (Rd. 41 to Rd. 49)									
	Rd. 129 (Rd. 39 to N. C. Line)									
1439	Rd. 243 (Rd. 241 to Rd. 57)	5.56	2-3-56	Edgell Construction Co.	103,879.33	60,637.55		2-20-56	10-15-56	
	Rd. 245 (Rd. 243 to Rd. 57)									
	Rd. 281 (Rd. 58 to Rd. 57)									
	Rd. 393 (Rd. 397 to Rd. 384)									
	Rd. 372 (Rd. 7 to Rd. 18)									
	Rd. 349 (Pickering Beach)									
1441	Kent Co. Dirt Roads	5.294	6-22-56	Edgell Construction Co.	79,340.80			7-23-56	6-15-57	
	Rd. 137 (Rd. 41 to Rd. 39)									
	Rd. 134 (Rd. 65 to Clayton Ice Plant)									
	Rd. 168 (Rd. 45 to Rd. 170)									
	Rd. 162 (Rd. 51 to Rd. 158)									
	Rd. 198 (Rd. 51 to Rd. 162)									
1456	Sidewalks, State Bldgs. Dover	—	1-5-56	Edgell Construction Co.	37,994.30	17,777.59		2-21-56	6-1-56	
1462	Additions to Motor V Lane Dover/Georgetown	—	6-8-56	John L. Briggs	21,850.00					(90 days after date of award)
1169	Court St. Bridge	0.379	6-8-56	James Julian Constr. Co.	796,952.54			6-25-56	10-1-57	

TABLE II
SUSSEX COUNTY
INCOMPLETED CONTRACTS AWARDED—(Continued)
FISCAL YEAR 1955-56

Contract No.	Description	Miles	Award Date	Contractor	Contract Value	Value Work		Starting Date	Completion Date	Date Accepted
						Incomplete July '55	Final Estimates			
1440A	Road 211 (Rd. 225 to Rd. 207)		5-28-56	Walter Roach & Sons, Inc.	71,071.00			6-12-56	11-15-56	
1440A	Road 206 (Rd. 211 to Rd. 207)			Walter Roach & Sons, Inc.				6-12-56	11-15-56	
1440A	Road 225 (Rd. 224 North)			Walter Roach & Sons, Inc.				6-13-56	11-15-56	
1440A	Road 224 (Rd. 225 to Rd. 213)			Walter Roach & Sons, Inc.						
1440	Road 224 (Rt. 42 to Rd. 629)		5-28-56	Burger Construction Co.	63,919.50			6-13-56	11-1-56	
1442	Dirt Roads—Sussex	4.526	5-28-56	James Julian, Inc.	97,347.75			6-25-56	10-15-56	
	Road 334A (Rt. 113 to Road 339)									
	Road 326 (Rd. 328 to Rd. 20 "A" Line)									
	Road 326 & Rd. 318 (Rd. 318 to Rd. 328)									
	(South to Rd. 326 "B" Line)									
	Road 82 (Rd. 326 to Route 113)									
	Road 328 (Rd. 20 to Rt. 113)									
	(Rt. 113 to Rd. 326)									
1442, cont.	(Dirt Roads—Sussex)									
	Road 318 (Rd. 48 South)									
	Road 317 (Rd. 48 to Rd. 318)									
1443	Dirt Roads—Sussex	3.949	5-28-56	George & Lynch, Inc.	\$ 76,260.50				11-1-56	
	Road 279 (Rd. 24 to Rd. 277)									
	Road 276 (Rd. 269 to Rd. 275)									
	Road 277 (Rd. 24 to Rd. 279)									
1458	Five Points to Rehoboth Drainage		2-3-56	Edgell Construction Co.	54,976.65	30,270.10		3-17-56	8-1-56	
1459	Horsey's Pond Dam & Sluiceway		6-8-56	James Julian Contracting Co.	34,722.40				11-15-56	
1462	Motor Vehicle Lane Dover/Georgetown)			John L. Briggs	(Entered Under Kent)				(90 days after date of award)	
1493	Collins Pond Dam		6-22-56	Edgell Construction Co.	8,800.00				9-15-56	

TABLE II
SUSSEX COUNTY
INCOMPLETED CONTRACTS AWARDED
FISCAL YEAR 1955-56

Contract No.	Description	Miles	Award Date	Contractor	Contract Value	Value Work Incomplete July '55	Final Estimates	Starting Date	Completion Date	Date Accepted
925	1 Mi. So. of Greenwood to Farmington	5.573	10-17-55	Henry C. Eastburn & Sons	770,011.60	316,337.97		10-25-55	11-15-56	
1344	Laurel to Sharptown	7.930	3-21-56	James Julian, Inc.	249,223.65	150,239.05		3-26-56	9-15-56	
1393	Road 582 (Rd. 404 to Rd. 583)	3.068	9-19-55	High Welding Co.	23,800.00	19,900.00		12-13-55	1-28-56	
1381	Road 583 (Rd. 34 to U.S. 13)	—	9-28-55	George & Lynch, Inc.	60,362.40	36,216.98		19-30-55	6-15-56	
1395	Rehoboth Bridge	—	9-19-55	Melvin L. Joseph	78,562.80	7,502.50		11-8-55	7-15-56	
	(Rd. 275 to Rd. 24 via Conley Chapel)	5.356								
1421	Five Points to Lewes	2.640	1-3-56	George & Lynch, Inc	252,091.20	210,850.47		1-16-56	10-15-56	
1427	Lewes Bridge (Electrical Work)	—	10-17-55	Miller Electric Co.	8,890.00			2-16-56		
										(Within 4 months after date of award)
1438	Road 589A (Rt. 13 to Rd. 589)	14.512	3-14-56	James Julian, Inc.	238,201.30	7,665.46		6-28-56	11-15-56	
	Road 594 (Rd. 40 to Rd. 16)									
	Road 536 (RR to Rd. 78)									
	Road 536A (Woodland Ferry)							4-16-56		
	Road 465 (Rd. 466 to Rd. 74)							7-2-56		
	Road 465A (Rd. 465 to Rd. 24)							6-14-56		
	Road 505 (Rd. 24 to Rd. 76)							6-14-56		
	Road 507 (Md. Line to Md. Line)							5-15-56	12-15-56	
	Road 462 (Rd. 70 to Rt. 13)							5-15-56		
	Road 591 (Rd. 594)									

98

TABLE III
TRAFFIC AND PLANNING DIVISION
MILEAGE OF STREETS & HIGHWAYS BY
SURFACE TYPE BY COUNTY

JUNE 30, 1956

Surface Type	Kent	New Castle	Sussex	Totals
Belgian Block	—	.40	—	.40
Brick68	4.27	—	4.95
Concrete	196.06	145.90	243.53	585.49
Bituminous Concrete	68.51	202.83	126.86	398.20
Bituminous Penetration61	306.65	49.95	357.21
TOTAL PAVED	265.86	660.05	420.34	1346.25
Other Low Type Bituminous	28.85	27.26	101.43	157.54
Bituminous Surface Treated	241.01	176.67	404.06	821.74
Soil Surfaced	433.99	99.39	353.91	887.29
TOTAL SURFACED	703.85	303.32	859.40	1866.57
Graded and Drained Earth	65.56	4.96	555.40	625.92
Unimproved	1.17	7.45	8.95	17.57
Primitive	1.40	.12	—	1.52
TOTAL UNSURFACED	68.13	12.53	564.35	645.01
TOTAL TWO AND FOUR LANE HIGHWAYS	1037.84	975.90	1844.09	3857.83

DIVIDED HIGHWAYS

Concrete	20.76	23.20	22.35	66.31
Bituminous Concrete	7.96	42.54	7.24	57.74
Low Type Bituminous	—	.11	—	.11
Bituminous Surface Treated	—	.28	.68	.96
Soil Surfaced	—	—	.12	.12
TOTAL DIVIDED HIGHWAYS	28.72	66.13	30.39	125.24
TOTAL ALL TYPES	1066.56	1042.03	1874.48	3983.07

TABLE IV
 TRAFFIC AND PLANNING DIVISION
 MILEAGE OF STREETS AND HIGHWAYS BY
 SYSTEM CLASSIFICATION BY COUNTY

Urban (Over 5,000 Population) ..	10.13	30.63	2.56	43.32
Primary	120.52	146.99	221.99	489.50
Secondary	377.82	341.99	698.18	1417.99
Tertiary	558.09	522.42	951.75	2032.26
TOTAL	1066.56	1042.03	1874.48	3983.07

TABLE V
TRAFFIC AND PLANNING DIVISION
HAULING PERMITS

68

	July 1, 1954 to June 30, 1955		July 1, 1955 to June 30, 1956		Per Cent Change	
	Number	Dollars	Number	Dollars	Number	Dollars
Heavy Hauling Permits	5,906	\$24,683.11	7,335	\$30,176.54	+24	+22
30 Day Piling Permits	293	3,662.50	342	4,275.00	+16	+17
Trip Piling Permits	179	447.50	152	380.00	-15	-15
House Moving Permits	454	1,138.60	327	939.16	-28	-17
Free Permits	328	—	355	—	+ 8	—
Totals	7,160	\$29,931.71	8,511	\$35,770.70	+19	+20

TABLE VI
 TRAFFIC AND PLANNING DIVISION
 TRAFFIC VOLUMES AT FOUR AUTOMATIC
 COUNTER STATIONS BY YEAR, BY MONTH
 WITH RELATED PERCENTAGES

Month	1941	1954	1955	Percentage Change	
	1942	1955	1956	1955-1956 1941-1942	1955-1956 1954-1955
July	22,721	41,650	46,753	+ 105.77	+ 12.25
August	22,328	40,508	42,832	+ 91.83	+ 5.74
September	19,902	41,720	42,630	+ 114.20	+ 2.18
October	17,491	35,481	39,624	+ 126.54	+ 11.68
November	17,056	32,300	35,821	+ 110.02	+ 10.90
December	16,174	32,029	33,798	+ 108.97	+ 5.52
January	13,421	29,426	30,420	+ 126.66	+ 3.38
February	13,736	30,882	34,037	+ 147.79	+ 10.22
March	14,065	33,631	34,290	+ 143.80	+ 1.96
April	15,583	36,983	37,401	+ 140.01	+ 1.13
May	14,744	38,999	39,491	+ 167.84	+ 1.26
June	13,810	42,624	44,141	+ 219.63	+ 3.56
Totals	201,031	436,233	461,238	+ 129.44	+ 5.73

TABLE VII
SUBURBAN DEVELOPMENT DIVISION
MILEAGE OF SUBURBAN STREETS ACCEPTED
1955-1956

Contract	Development	Mileage
Developer	Ashbourne Hills, Section 3	1.011
SD-60	Bellemoor Heights	0.293
Developer	Brookside Park, M-2 East	1.726
Developer	Capitol Green, Sec. 2A (Kent)	0.463
Developer	Capitol Park	1.970
Developer	Clearfield	0.376
SD-76	Concord Manor	0.281
Developer	Concord Manor Addition	0.657
SD-63	Dover Heights	0.657
Developer	Dunlinden Acres	2.699
Developer	Dunlinden Acres, Section 6	0.313
Developer	Garfield Park, Section 2	0.623
Developer	Greenmeadow	0.453
Developer	Harmony Hills, Section 1	0.759
Developer	Holly Hill	0.185
Developer	Kent Acres (Kent)	1.228
Developer	Kiamensi Gardens Addition	0.466
Developer	Klair Estates	0.708
Developer	Milford Meadows	0.107
Developer	Oak Lane Manor, Section 1	0.817
Developer	Redmont	0.275
SD 71	Rogers Manor	0.184
Developer	Sherwood Park, Section 1	0.835
Developer	Shipley Heights	0.720
Developer	Stonehaven	0.323
SD-15C	Swanwyck	0.677
SD-75	Westfield	0.111
Developer	Westview	0.287
Developer	Windsor Hills	0.459
Developer	Windybush	0.240
Developer	Woodcrest	0.118
Developer	Woodland	1.989
Total Street Accepted		21.724

TABLE VIII
SUBURBAN DEVELOPMENT DIVISION
S.D. PROJECTS 1955-56

1. S.D. Projects Accepted:

Contract	Development	Mileage	Cost
SD-15C	Swanwyck	0.677	\$ 60,124.86
SD-60	Bellemoor Heights	0.293	6,743.07
SD-63	Dover Heights	0.371	21,862.24
SD-71	Rogers Manor	0.184	15,064.09
SD-75	Westfield	0.111	8,615.83
SD-76	Concord Manor	0.281	18,595.03
		1.917	\$131,005.12

2. S.D. Projects Under Construction:

Contract	Development	Mileage	Bid Price
SD-66	Newport Heights	0.576	\$ 41,726.95
SD-72	Mayview Manor	0.538	39,193.10
SD-73	Elmhurst	0.213	15,477.25
		1.327	\$ 96,397.30

3. S.D. Projects Rejected by Vote of Freeholders:

Contract	Development	Mileage	Probable Cost
SD-59	Addicks Estates	1.510	\$100,000.00
SD-62	Delaire	0.493	31,000.00
SD-64	Collins Park, Sec. 2	1.532	96,000.00
SD-68	Wilmington Manor, Sec. D	0.584	31,000.00
SD-69	Collins Park, Section 1	0.871	54,000.00
SD-74	North Hills	0.270	14,900.00
		5.260	\$326,900.00

4. S.D. Projects Under Design:

Contract	Development	Mileage	Probable Cost
SD70A	Woodside Hills—Gwinhurst	0.228	\$ 12,000.00
SD-77	Westwood	0.354	21,300.00
SD-78	Keystone	0.238	14,200.00
SD 79	Woodwards Add. to Roselle	0.345	20,700.00
SD-80	Concord Manor	0.013	7,800.00
SD-81	Taylor Estate (Kent)	0.642	38,500.00
		1.820	\$114,500.00

5. S.D. Projects Rejected, Petition Illegal.

None

	Projects	Miles	Probable Cost
GRAND TOTAL	21	10.324	\$668,802.42
Average Cost Per Mile	\$64,781.33.		

TABLE IX
SUBURBAN DEVELOPMENT DIVISION
PROJECTS FOR WHICH BOND WAS RECEIVED
1955-1956

Subdivision	Mileage	Cost of Constr.
Blue Rock Manor	0.429	\$ 30,621.00
Brookside Park, Sec. M-2, West	2.107	107,050.00
Carrcroft, Section C	0.170	8,456.00
Castle Hills, Section 6	0.710	37,500.00
Chestnut Hills Estates	1.127	40,000.00
Georgian Terrace	0.246	17,410.00
Glen Berne Estates Addition	0.259	13,000.00
Glenville	1.375	99,757.50
Graylyn Crest, Section 2	1.127	77,484.00
Green Acres	0.795	60,827.60
Hilton	0.180	12,612.50
Holly Oak Terrace	0.067	4,000.00
Hyde Park	0.094	6,086.05
Hyde Park, Section 2	0.884	44,950.84
Kirkwood Gardens	1.744	137,688.00
Klair Estates, Section B.	0.205	10,800.00
Klair Estates, Section C.	0.222	11,700.00
Liftwood Estates, Section A.	0.574	26,425.00
Liftwood Estates, Section A.	0.168	10,809.80
Llangollen Estates, Section E.	0.945	72,139.90
Newkirk Estates, Section 3	0.285	12,657.70
Oak Hill, Section 2	1.042	53,335.70
Penn Acres, Section 1	0.420	18,200.00
Radnor Green, Section 1	0.354	22,477.40
Radnor Green, Section 2	0.655	50,285.40
Pennrock, Section 2	0.561	41,394.30
Rockwood Hills	0.388	23,920.50
Shellburne	0.284	13,500.00
Sherwood Park, Section 3	0.514	26,640.20
Swanwyck Estates	3.050	200,000.00
Windermere	0.672	50,475.00
Windsor Hills	0.259	18,879.30
Windybush	0.095	15,250.00
Windybush	0.309	13,500.00
TOTALS	22.316	\$1,389,833.69
29 Developments		
Average Cost Per Mile		\$ 62,279.69

TABLE X
SUBURBAN DEVELOPMENT DIVISION
PLANS EXAMINED FOR NEW SUBDIVISIONS
JULY 1955 to JUNE 1956

Subdivision	Acreage	Miles	of Street
Ashbourne Hills, Section 5	24.7		0.578
Ashley Heights	18.1		0.629
Birchwood Park	125.1		3.836
Brandywine Estates	115.2		3.348
Briar Park	56.2		1.238
Buckingham Heights Extension	9.8		0.213
Canterbury Acres, Kent	10.2		0.239
Catalina Gardens	32.7		0.909
Claymont Heights	27.8		1.170
Claymont Village	8.0		0.239
Del Park Manor	53.0		1.580
Faulkland Heights	92.2		2.992
Foulkside	15.0		0.499
Foulk Woods	77.8		1.545
Garfield Park, Section 3	7.0		0.154
Glenville	86.0		1.402
Graylyn Crest, Section 2	40.7		1.136
Graylyn Crest, Section 3	180.7		5.189
Hillside Heights	149.3		4.612
Hilltop Manor Addition	2.1		0.189
Holton	18.8		0.530
Kiamensi Heights	13.8		0.388
Limestone Gardens	107.0		1.771
Llangollen Estates, Section E.	46.7		1.621
Middleboro Manor	14.5		0.398
Newkirk Estates	59.0		0.999
Oak Lane Manor Addition	17.5		0.568
Oakwood Hills, Part 1	18.2		0.227
Parkwood	20.2		0.436
Penn Acres	243.4		7.064
Sycamore Gardens	53.4		1.780
Whitehall	61.3		1.922
Willard Lane	4.1		0.074
Windy Hills	105.8		3.134
Woodland Park	36.2		0.857
Total	1,951.5 Acres		52.064 Miles
34 Developments			