



Dover, Delaware, circa 1935

planning ...



Bear, New Castle County, to State Road, circa 1923

During 1970, the Department made significant progress in statewide and urban transportation planning. The coming year presents even greater challenges to insure that the travel requirements of the State are recognized and provided for in future years. Greater recognition will be given to the need for planning for mass transportation to provide opportunities for travel other than by automobiles.

In the urban transportation study for New Castle County major emphasis was placed on analysis of traffic volumes from computer comprehensive travel assignments. Socio-economic impact studies, of land development patterns relating to proposed future highway systems, were conducted throughout the greater Wilmington area. Land use and transportation phasing for five year increments was started. This will become the basis for future capital improvement programs.

The Highway Department conducted a transportation study for Kent and Sussex Counties which included computer analysis of present and future traffic volumes. Upon completion of the initial longrange master transportation plan for these counties, the analysis procedure will be combined with the New Castle County study to have a statewide transportation planning program.

Advance Planning

During the year 16 study agreements were in active status. These represent 128.5 miles of highways with an estimated construction cost of \$322,442,500. These include preliminary design, route location and TOPICS (Traffic Operation Program to Increase Capacity and Safety).

Numerous public hearings were held including three major corridor location hearings concerning the Dover Bypass, Naamans Road and Newark Ring Arterial. Over seventy project information meetings were held with various civic organizations.

As the result of alignment studies underway, several major properties were acquired prior to their development as shopping centers. This will result in ultimate savings to the State of several millions of dollars. Close cooperation is being achieved with the New Castle County Department of Planning in reserving future rights of way.

Showing a steady increase, Delaware now has nearly 4400 miles of State maintained highways and streets. A study of obsolete, unused roads started this year, will be completed during the coming year. Evaluation of the existing system is a continuing process to provide selective retention and future development guidance, the objectives being, a safer, more efficient highway system in Delaware providing additional savings in annual maintenance costs.

Planning Survey

During the year, seasonal counts covering traffic volumes were conducted at seventy-five statewide locations. Single count locations numbered 1800 for rural coverage. Vehicle type classification counts were made at all eight weight stations, at all permanent counter stations and 75 additional locations throughout the State. The Interstate Traveled-Way Study, involving the physical progress of the Interstate System, was completed, and the data processed. In response to Federal requirements, twenty annual Highway Statistical Tables were prepared. Work was started on the Federally required, National Highway Functional Classification and Needs Study (1970-1990). This study involves statewide grouping of traffic generators, population and daily vehicle miles of travel summary for year 1990, statewide rural road data summaries, urban area route summaries and establishment of urban connector lengths.

Subdivision Planning

This planning effort is directly involved in future growth of the suburban areas of Delaware. This year 43 Suburban Development Plans were approved, encompassing 765 acres and including 3,857 living units. Forty-six performance bonds representing 12.365 miles of roadwork, and \$165,816.29 representing 10% of estimated construction cost were received and approved. Ten voluntary completion bonds in the amount of \$141,232.20, representing 150% of uncompleted construction cost, were received and approved. Eighteen miles of subdivision streets were accepted into the State maintenance system this year. At present there are 113 active bonds, including those above, representing 36.5 miles of subdivision streets under inspection by the Department for future acceptance into the State system. Total value of outstanding construction is \$3,176,255.30.



Flood damage, Bridgeville, Sussex County, 1935
Research

Two highway related research projects are currently in progress:

- The Economic and Social Impact of Interstate Highways in Delaware Areas Through Which they Pass
- The Investigation and Analysis of Floods from Small Drainage Areas in Delaware

The first project is due for completion during the coming year. The flood data project is a continuing research project by the U.S. Geological Survey office.

Computers in Planning

The rapidly expanding capability for computer forecasting techniques has resulted in substantial planning assistance. A series of programs have been developed for bridge design, resulting in a savings of over 300 engineer hours. A major earthwork system was programmed for use in Delaware this year. Through the use of this program, one project has been initiated for the coming year. It is anticipated that all new projects will utilize this system in earthwork design.

Maps

A new State Highway Map is in progress. The size will be 30" x 55" with a scale of 1" = 2 miles. This will be a two color map, providing road net detail. The demand for many "color-coding" applications will be filled through this map production. For convenience, the current map listing for Delaware is enclosed in the rear cover pocket of this report.

Project Control

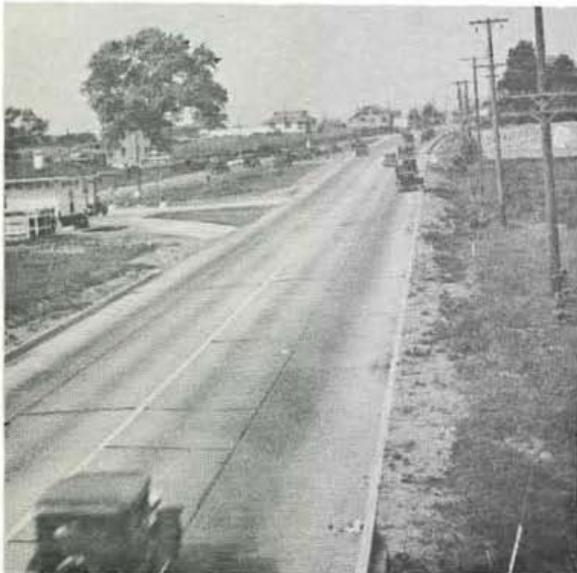
The revision of project control programs into an in-house design program, and the development of a separate consultant design program and a separate advanced planning study program, was accomplished to further meet the Department's need for the systematic project planning. Scheduling and control of all design programs including individual projects are included in this new project control program.

The primary research of the computer programmers will be to determine a working method to allocate personnel to the project program so that scheduling can be completed with consideration for both time and personnel.

The Chart Room, another responsibility of the section, displays graphic presentations showing the status and forecast data relative to active projects, finance and personnel. The present plans are for additional graphs and the use of other methods for displaying data by which operations can be directed, controlled and coordinated effectively.

During the fiscal year 13 public hearings were held for design or location approval. The hearings were arranged and conducted to insure that highway locations and designs reflect and are consistent with Federal, State, and local goals and objectives.

Junction Routes 40 and 13 (State Road) circa 1934 (left) and circa 1946 (right) photographs taken from railroad looking north



An additional project was to have all old road books, compiled by the Counties, and now in the Public Archives, microfilmed. The books were becoming unreadable, and the microfilming was completed to preserve their historical value as a reference source. Aperture cards will be made from the processed film negatives. Transfer of file images onto aperture cards of contract files is a continuing program within the Department. Many requests for retrieval of records were satisfactorily completed and hundreds of prints from the Microprinter were produced for distribution.

Federal Funding

During the report year, a total of \$25,301,000 in Federal funds were made available to the Department for authorization on projects within the Federal Highway System. It was of import during the fourth quarter that beyond the expected release of \$3,250,000, an additional \$11,333,000 was received in unanticipated releases. Through a concerted effort, the Department obligated the entire amount, less \$1.33, by June 30, 1970.

The additional funds provided monies for such projects as I-495 Edgemoor to Claymont, I-495 Christina Bridge and portions of Route 13, Dover bypass safety improvement program.

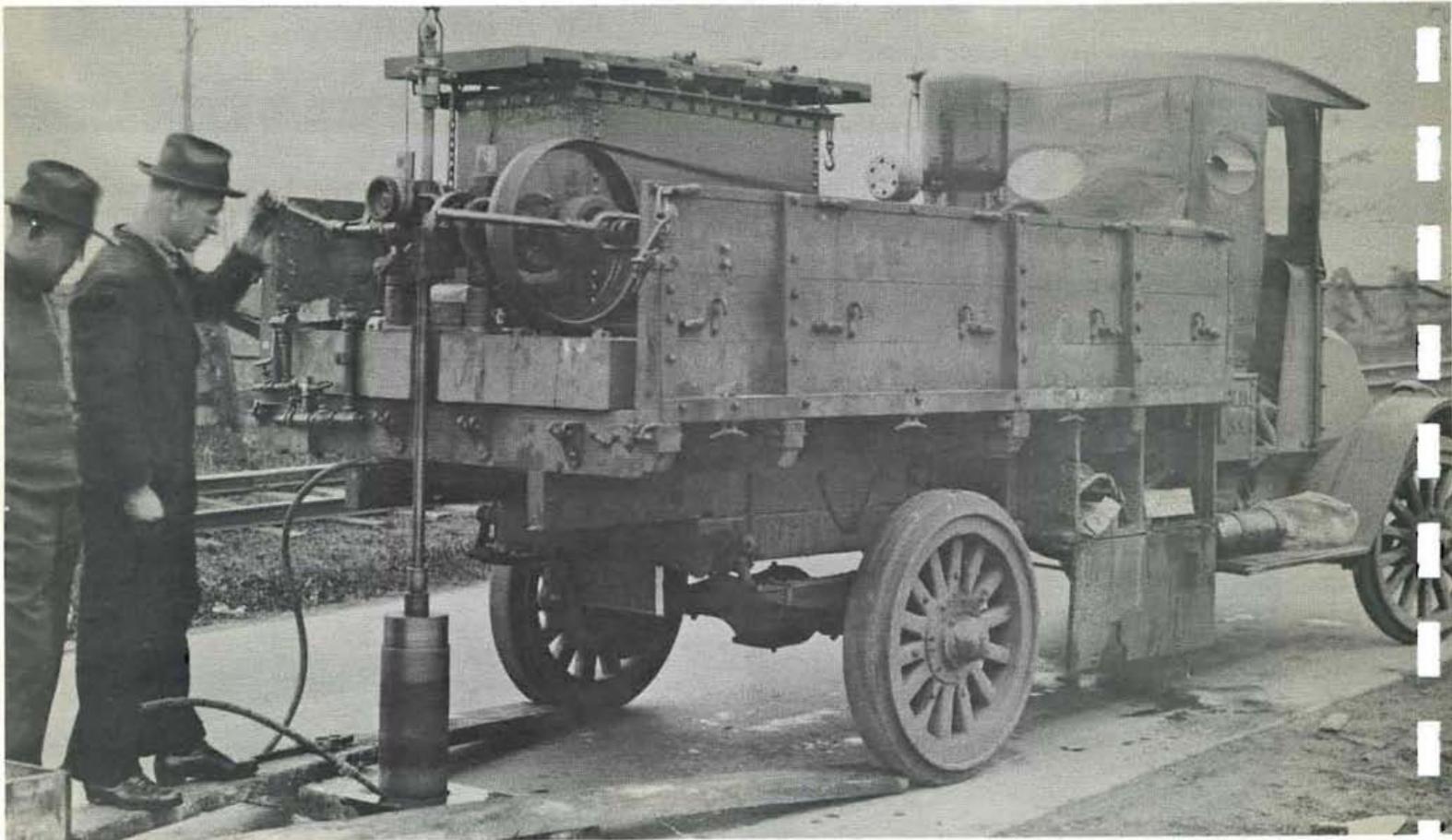


The Materials and Research Section continued a broad program of quality assurance within the Department by Conducting nearly 27 thousand tests this year. Specifications are being written for the acquisition of a highway skid resistance testing device to determine the coefficient of pavement function. The addition of this new equipment will provide test data from which the most skid resistant aggregates and mixes can be determined for greater riding surface safety.

The section continued a testing program involving project sampling, testing and inspection. The use of more efficient construction equipment requires increased efficiency and speed in testing methods. To achieve speed and maintain quality, Federal and State testing laboratories have turned to nuclear devices. These devices achieve the level of sophistication, portability, versatility and test rapidity so necessary in this age. Major construction projects such as the Milford Bypass, Delaware Route 141 and the Interstate System have resulted in the drafting of specifications to acquire certain of these instruments for field use.

materials & research. . .

Pavement testing with A.P. Calyx Drill, circa 1929



design & construction...



Route 13 entering Wilmington, circa 1920 looking north toward Market Street

Roads

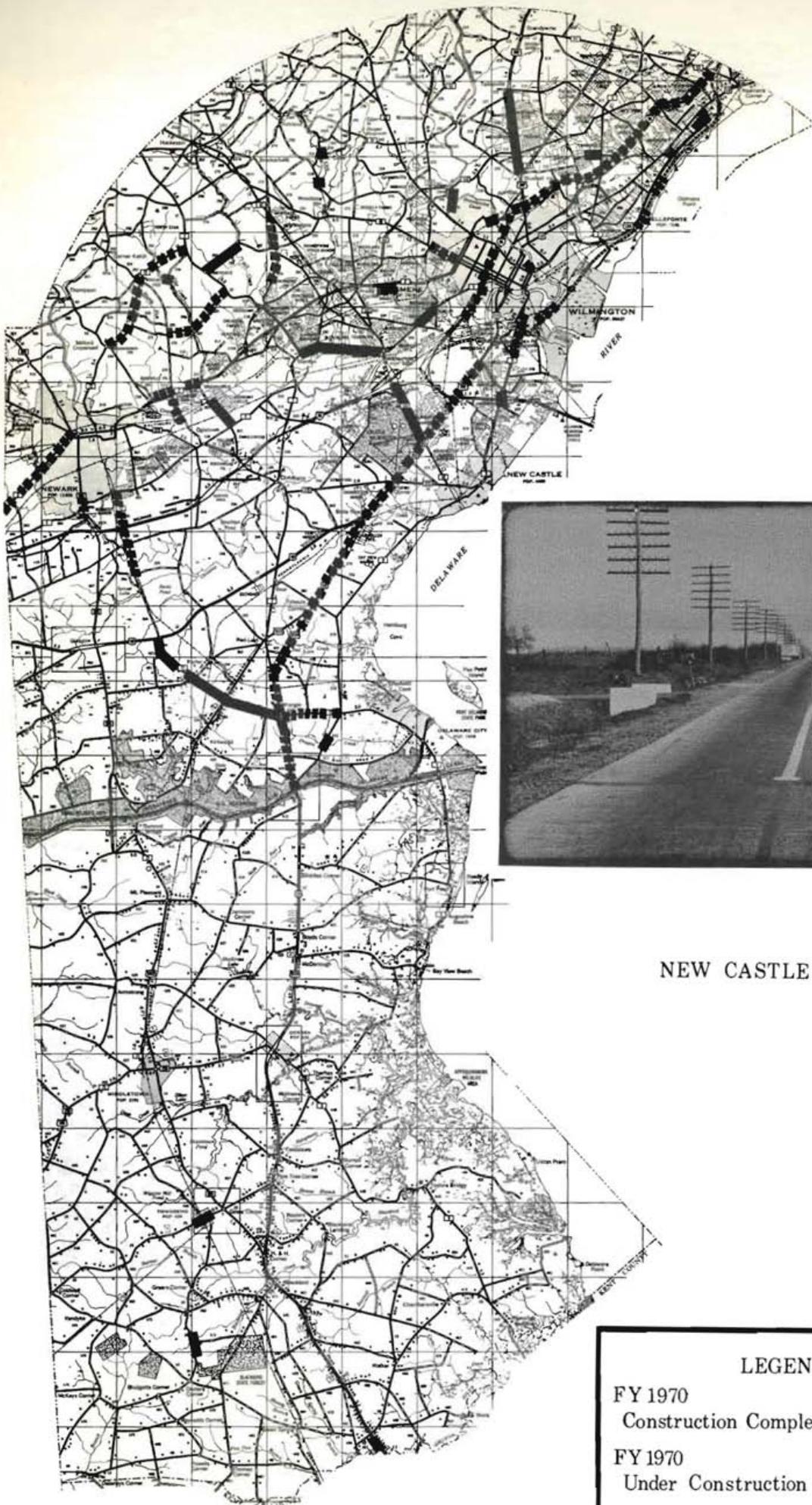
Design on 23 projects, with an estimated construction cost of \$6,290,555.59, was completed by the Road Design Section this year. During the year, 43 projects were under active design. The personnel expansion program has increased the professional capability of the Design Section well toward a stated goal of designing eighty percent of Delaware's highways. The 20 projects still under design, represent an estimated construction cost of \$9,009,000.

Bridge

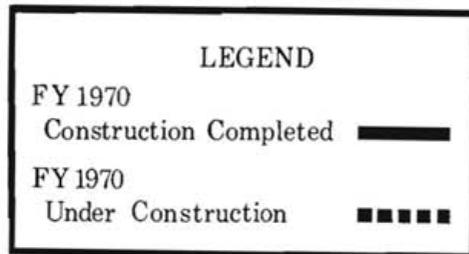
Bridge Section designs were included in twenty-four projects for which bids were received this year. Construction value of this work was \$3,890,906, with forty percent of the design work accomplished entirely by the Bridge Section. The largest single project was the Milford Bypass. This effort involved 5 bridges, two of them providing this section's first encounter with curved girders. Bridge design work continues on Delaware Route 141 and Interstate 495. The Small Bridge Replacement Program included 7 projects for which bids were received this year. The personnel expansion program now in progress will allow this section to assume a greater portion of Delaware's bridge design effort.

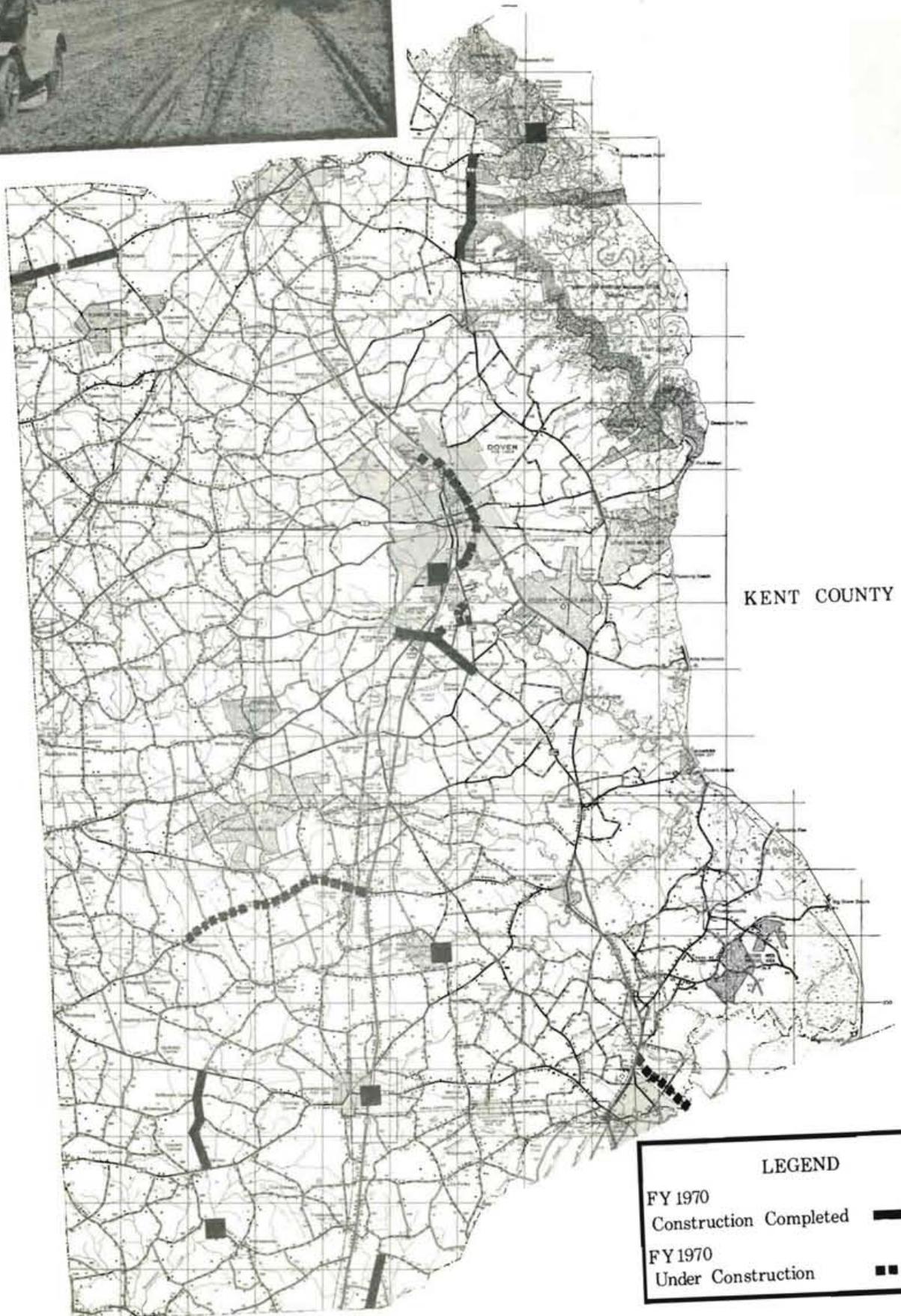
South Market Street bridge, circa 1920

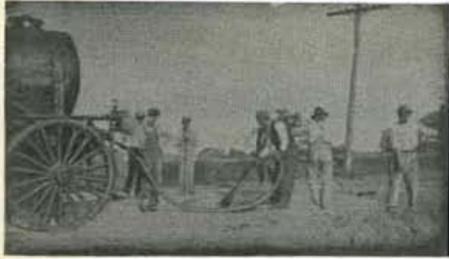




NEW CASTLE COUNTY





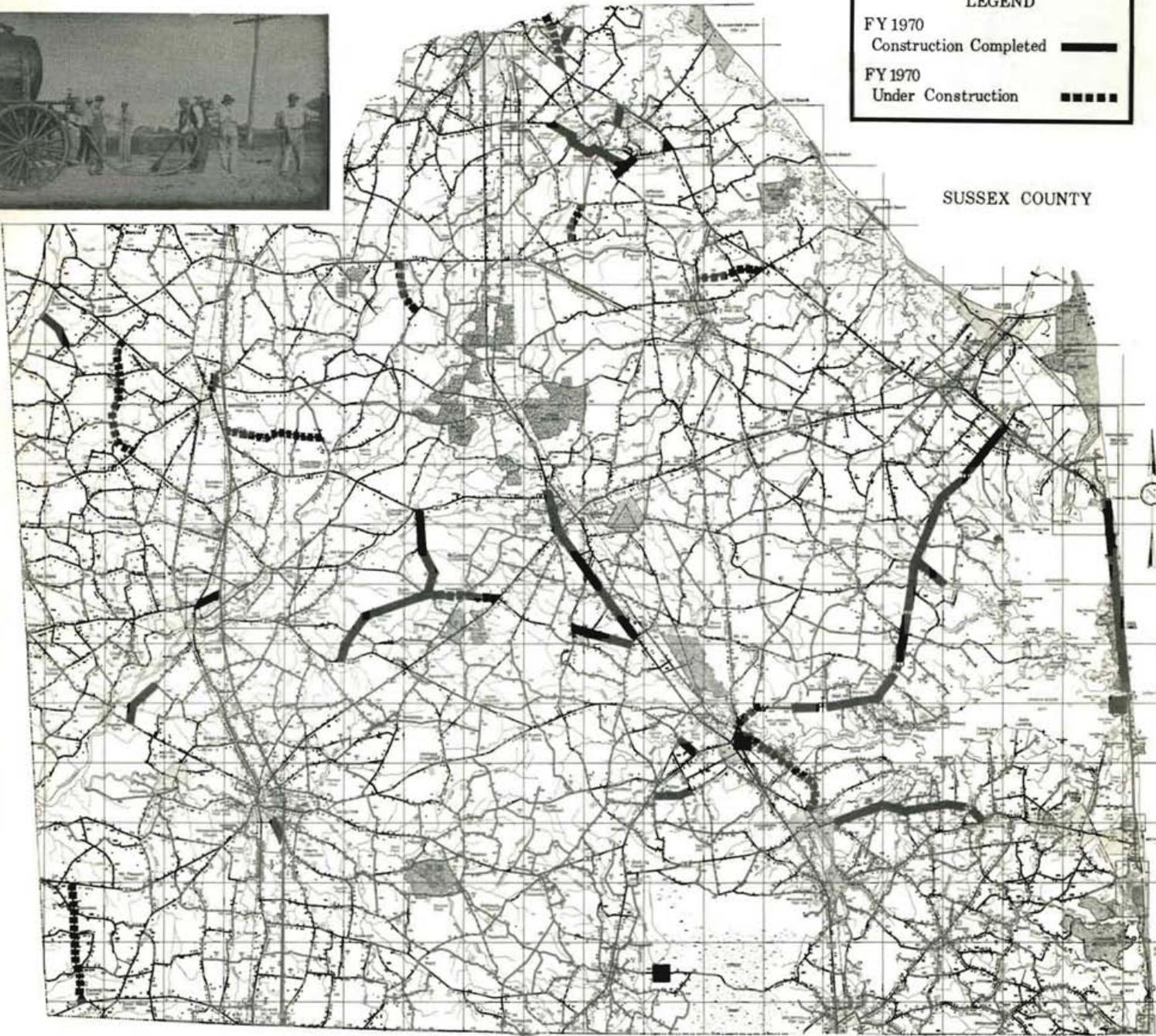


LEGEND

FY 1970
Construction Completed **————**

FY 1970
Under Construction **■■■■■**

SUSSEX COUNTY



CONTRACTS COMPLETED AND ACCEPTED, JULY 1, 1969 - JUNE 30, 1970

2150	N	N.C. Division Office Building	Atlantic States	623,000.00
64-01-023	S	Road 382	M. L. Joseph	327,642.97
64-01-026	K	Stein Highway Extension	W. B. Mitten & Sons	320,332.80
64-01-073	N	Stanton to Newport	Greggo & Ferrara	1,626,160.70
64-04-021	F	Brandywine River Bridge to Marsh Road	James Julian	5,919,686.12
64-05-006	K	North Street & Saulsbury Road Ext.	George & Lynch, Inc.	439,269.91
64-12-003	K	Camden-Wyoming	J. T. Ward & Son	410,675.19
65-02-004	F	Marsh, Silverside & Harvey Rds.	James Julian	2,787,893.87
65-05-001	F	Delaware Avenue, Wilmington	Olivere Paving & Const.	338,720.25
65-06-001	F	Concord Pike Interchange	Wilson Contracting Co.	2,211,576.88
65-07-012	S	Rt. 113, Rd. 432 to Georgetown	Henry C. Eastburn	1,474,794.84
65-10-004	K	Camden to Rising Sun	Warren Brothers Co.	445,191.88
65-10-005	S	Rt. 26, Dagsboro to Clarksville	George & Lynch	531,398.13
65-11-002	N	Road 283	R. C. Peoples	199,700.50
66-01-009	N	Basin Road	John Julian	456,032.95
66-03-004	F	Shipley & Talley Roads	James Julian	2,394,407.78
66-03-005	N	Intersection Improvements	Olivere Paving & Const.	120,953.52
66-09-004	S	Indian River Inlet to Dewey Beach	Henry C. Eastburn	1,030,091.00
66-09-009	F	Paving, Concord Pike to Glenrock Drive	Wilson Contracting Co.	1,924,746.48
67-01-001	N	Concord Pike, Foulk Road to Silverside Road	Material Transit	219,031.30
67-04-001	K	Marsh Ditching	Paul Haas	22,320.00
67-06-009	F	Relocated Governor Printz Blvd.	Eastern States Const.	1,178,830.71
67-07-004	N	Stanton Underpass, Drainage	Kuhn Construction Co.	52,244.00
67-10-001	S	Two Radio Repair Shops	Facciolo Const. Co.	106,900.00
67-10-024	K	Rt. 9, Rd. 12 to Rt. 6	Warren Brothers Co.	146,706.01
67-12-007	K	Little Creek Pumping Station	Burger Const. Corp.	88,815.00
67-12-010	S	Swain Acres	Interstate Amiesite	17,959.00
68-02-003	N	Bridge 41 on Road 206	Burger Const. Corp.	70,956.00
68-03-003	N	Bridge 275 on Road 312	Burger Const. Corp.	32,631.50
68-05-007	N	Hot Mix Patching	Material Transit	436,448.00
68-05-008	N	Concrete Patching	Fontana Brothers	44,342.50
68-05-009	K	Hot Mix Patching	Warren Brothers	275,954.00
68-05-012	S	Hot Mix Patching	Interstate Amiesite	216,985.00
68-05-013	S	REsurfacing Program	Asphalt Service	221,607.50
68-05-014	S	Concrete Patching	W. B. Mitten & Sons	38,894.00
68-06-002	S	Rehoboth Beach Groins Ext.	Olav Fagerheim	127,050.00
68-07-002	K	Rt 14, Milford Bypass Borings	Herbert-Lucy	9,667.50
68-09-004	K	Dirt Roads	M. L. Joseph	199,749.49
68-09-005	S	Dirt Roads	Asphalt Service	197,748.00
68-09-006	S	Dirt Roads	M. L. Joseph	271,964.00
68-09-009	N	Brodge 309 on Road 378	Burger Const. Corp.	82,630.48
68-09-012	N	Bridge 249 on Road 336	John Julian Const.	14,397.50
68-09-014	N	Bridge 202 on Road 298	Kuhn Const. Co.	56,545.67
68-09-017	K	Bridge 304C on Road 304	Brandywine Const. Co.	51,130.00
68-09-020	N	Bridge Painting, Statewide	H. S. Rau	35,985.00
68-10-003	N	Motor Vehicle Inspec. Facilit.	J. S. Fortunato	194,550.00
68-10-011	S	Road 494	M. L. Joseph	57,375.25
68-10-013	K	Maryland Line to Blackiston	George & Lynch	101,551.60
68-12-005	F	Drainage, Ramp "H"	Olivere Paving & Const.	35,767.00
68-12-010	N	Penn Rose	Francis Kelly	107,889.40

68-12-013	N	Painting, Bridge 587	H. S. Rau	12,897.00
69-01-005	S	Rt. 24, Bridge 516 to Rt. 14	Interstate Amiesite	401,330.00
69-01-006	K	Dune Restoration, Kent Beaches	Edgell Const. Co.	48,240.00
69-02-006	N	Concrete Patching	Fontana Brothers	51,000.00
69-02-007	K	Resurfacing Program	Edgell Const. Co.	122,185.00
69-02-901	S	Airplane Spraying	J. R. Hudson	130,991.00
69-04-001	N	Wooddale Bridge Rehabilitation	Kershaw Excavating Co.	17,927.50
69-04-003	K	Taylor Estates, Drainage	Teal Const. Co.	9,933.50
69-04-005	N	New Castle Hundred Impr't	Material Transit	102,855.00
69-04-006	N	Brandywine Hundred Impr't	Material Transit	194,585.00
69-04-007	N	White Clay, Mill Creek & Christiana Hundreds Impr't	Material Transit	100,785.00
69-05-001	F	Demolition, Governor Printz Blvd.	Wright Const. Co.	5,320.00
69-07-002	S	Indian River Inlet Feeder Beach Fill, Borings	Jersey Drilling & Boring	4,275.00
69-07-009	F	Demolition	Wright Const. Co.	6,900.00
69-08-002	N	Rt 355, Roadway & Structure Test Borings	Walton Corp.	6,926.00
69-08-003	N	South Wilmington Viaduct, Bridge Repairs	First State Enterprises	9,688.00
69-09-001	K	Bituminous Concrete Patching	George & Lynch	49,950.00
				\$29,572,689.18

*In Charge of Day by Day Operations

S = Sussex Division
 F = Freeways Division
 K = Kent Division
 N = New Castle Division

*Construction of State Road, location and date
 unknown*





Route 13 between Dover and Smyrna, circa 1919, looking north

Highway Contracts

During the report year, completed contracts numbered sixty-seven, valued at \$29,572,689.18 for projects totaling 90.870 miles. The County breakdown reflects New Castle enjoyed 25 completed, Kent 16 and Sussex 16. The remaining 10 contracts were for additional construction on the Interstate System.

Kent Division

During the fiscal year, this Division completed and accepted contracts for a total cost of \$5,776,184.80. Eleven of these contracts were started during the previous fiscal year. Thirteen contracts remain active representing an estimated final cost of \$8,907,217.50.

New Castle Division

A total of fifty-four active construction projects were under supervision by this Division. The coming year's schedule indicates forty-five contracts will be under construction or proposed, representing in excess of 10 million dollars. The Division approved payments amounting to \$4,453,299.83 this year. Twenty-three contracts were completed.

Sussex Division

During the year construction contracts were completed to include construction of 10.5 miles of dual highway at a cost of \$1,921,294.88, 9.1 miles of other highway at a cost of \$853,522.95 and 23 miles of dirt road were surfaced at a cost of \$543,724.68.

Contract Management

The public advertisement, required by State Law for the purchase of materials, equipment, supplies and for the performance of work, is prepared and mailed to a list of prospective bidders and other interested parties and also published in the newspapers.

The Federal-Aid Highway Act of 1968 requires, as a condition to obtaining approval from the Secretary of Transportation for any program, that the States give assurance that employment in connection with all proposed Federal-Aid projects be provided without regard to race, color, creed or national origin. An Equal Opportunity Coordinator has been appointed to work under the supervision of the Department Office Manager.

BELOW IS A SUMMARY OF THE CONTRACTS ADVERTISED THIS FISCAL YEAR:

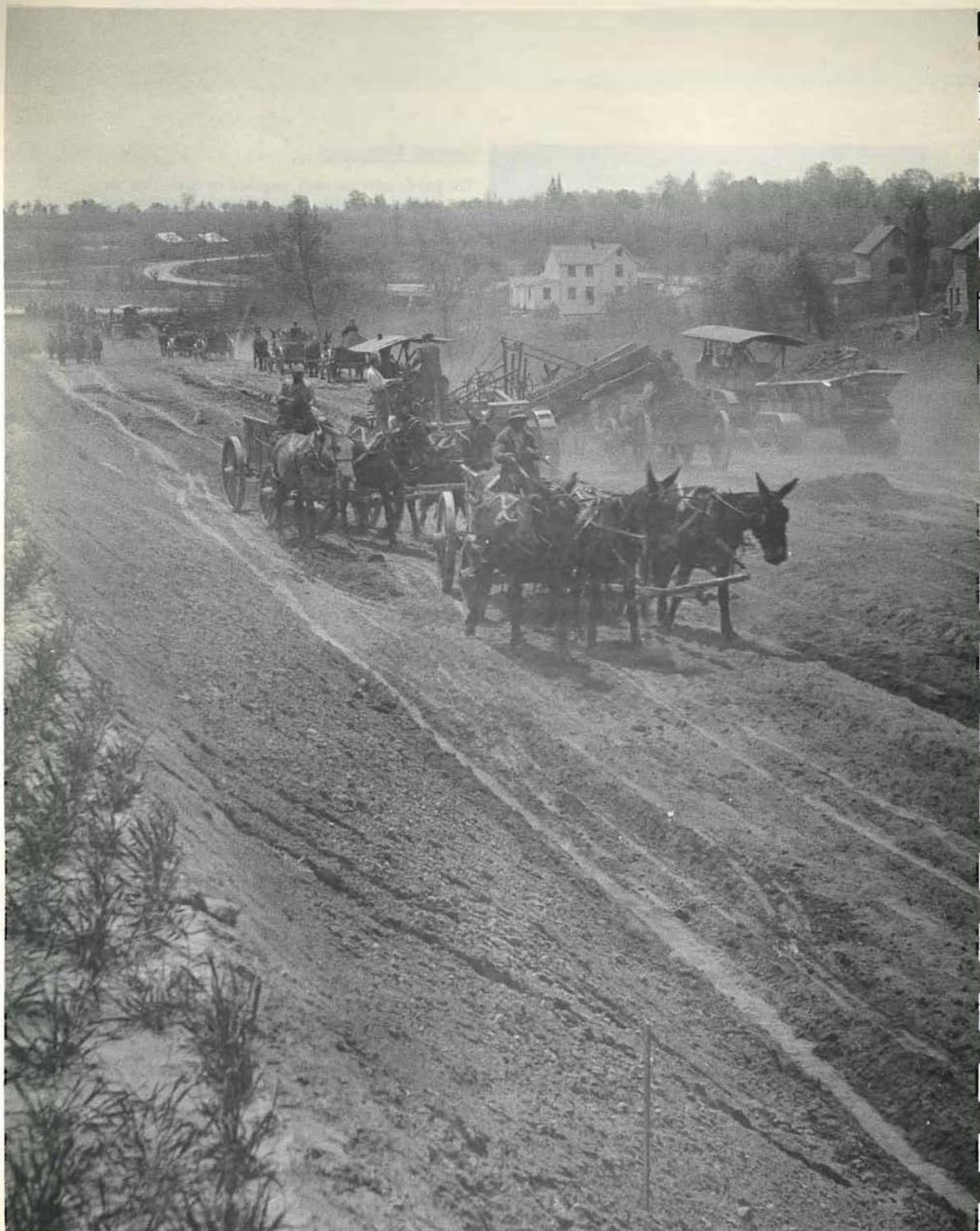
TYPE	NUMBER	CONTRACT AMOUNT
<u>Construction</u>		
Federal Participating	17	\$ 28,198,931.71
Delaware Turnpike	6	7,445,104.00
100% State	62	8,288,380.98
Total Construction	85	\$ 43,932,416.69
<u>Materials & Supplies</u>		
Equipment	59	\$ 1,091,168.63
Mosquito Control Spraying	12	\$ 812,342.32
	4	\$ 196,975.50
TOTAL	160	\$ 46,032,903.14

RECEIPTS

Contract Proposals and Plans Sales	\$ 14,725.36
Map Sales	2,158.93
Books and Miscellaneous Sales	460.00
Outdoor Advertising Sign Permits	11,012.00
Junkyard Licenses	690.00
Hauling Permits	108,397.53
Sign Production (other State & Municipal Agencies)	36,630.46
Sign and Signal Damage Collection	11,420.09
Building and Parcel Sale or Auction	30,250.00
Rental Income (excess land)	26,390.00
	<u>\$ 242,134.37</u>



Spreading amiesite on Silverside Road, New Castle County, 1919



Highway construction, State Road, Odessa, looking south, circa 1922

Freeways Division

Because of Federal Aid cutbacks, the Freeways Division entered the 1969-70 Fiscal Year with the prospect of considerable delay in placing new projects under contract. Although twenty-three construction contracts were considered as being active during this report period, only 3.5 million dollars of contract work was completed.

Concentrated efforts have been exerted toward the completion of "carry-over" projects and miscellaneous new contracts such as fencing, drainage and safety modifications, landscaping, lighting and signing throughout Interstate 95. With the exception of additional landscaping and safety modifications, this Interstate Route is now considered completed.

Activity on I-495, east of Wilmington, was limited to the relocation of Governor Printz Boulevard, bridges over Stoney Creek with adjacent stabilization, plus miscellaneous demolition of existing buildings.

Work on Interstate 295 was confined to providing roadway lighting and guardrail at the Farnhurst Interchange.

A total of twenty Interstate contracts with composite bid value in excess of 24.5 million dollars were active and, for the most part, in the final stages of construction at the close of the fiscal year.

Supplementing Interstate work, the Freeways Division was also assigned the supervision of the 1.1 million dollar contract for the reconstruction of New Castle Avenue and the 1.6 million dollar Linden Hill Road project.

With the release of Federal funds at the close of this fiscal year it is the forecast that an extensive increase in Interstate construction will be realized in the immediate future. Programs include landscaping for I-95, a \$12,000,000 grading and paving contract for I-495, safety modifications for 9.2 miles of I-95 and the Christina River Bridge Substructure for I-495.

It is anticipated that these new projects plus those carried over from this fiscal year coupled with "Claims Studies", "Utility contracts", "Special Assignments" and normal operating functions will tax the Freeways Division beyond its present staffing abilities. An increase in qualified personnel, the procurement and utilization of up-dated survey and office equipment, and the availability of improved Division Office facilities are several of the areas requiring immediate attention.

Initial progress has been made with the relocation of the Freeways Division to new quarters in the New Castle Division Office. Department approval has been obtained and specifications are being prepared for the purchase of an Electronic Measuring Device, and interviews are scheduled during the first quarter fiscal 1971 for Engineering Aides and Civil Engineering Technicians I.

With the assistance and guidance of the Department staff, it is the 1970-71 goal of this Division to provide a construction management and inspection force with the capabilities to efficiently administer any major project assigned.



Governor Printz Boulevard, (Industrial Highway) looking north, circa 1934