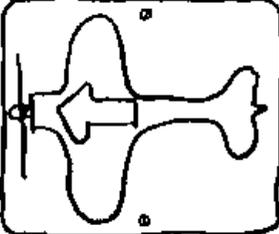


RAILROAD
CROSSING
AHEAD

STOP

195

DELAWARE
AIR PARK



BUS
STOP
10:10 AM DETT
11:00 AM HAWAII
12:00 AM HAWAII

TURNPIKE ↑

DAST

1977

ANNUAL
REPORT →

DELAWARE
DEPARTMENT
OF

TRANSPORTATION



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DEPARTMENT OF TRANSPORTATION

The Department of Transportation is involved in meeting the total transportation needs of the State of Delaware.

As the needs of our State vary in that direction, so do the many functions of the Department in striving to reach that goal. From the very basic concept of a roadway, to rail system rehabilitation, this Department keeps pace with the State's needs to move people and goods vital to the economy of Delaware.

On the administrative level, the Community Liaison Office facilitates community involvement in the transportation process, and informs the public of Departmental affairs. The Project Scheduling Section schedules projects by use of the critical path method network, and monitors each project from date of authorization through all the activities necessary for the project to be available for advertising. Project Scheduling will only have 21 projects available for bids in FY '78 due to the non-passage of the FY '78 Bond Bill. In FY '77, 123 land use plans were reviewed by the Subdivision Administration Section. In addition, the section approved land use plans consisting of 3,031 acres and 4,150 living units.

Under Support, the Bureau of Materials and Research has been conducting tests to determine the effect of de-icing salts on corrosion of bridge deck steel. The Safety Section monitors work area traffic control procedures used in highway projects and is also responsible for the overall safety of personnel in the field, shop, yards or office. The Bureau of Traffic was involved in drafting additions and modifications to the Rules of the Road section of the Delaware Code, in addition to updating special signal detectors, which included experimentation with new traffic control devices. Receipts from the Roadside Control section tripled in FY '77.

The Office of Planning's principal function is the preparation of all the long and intermediate range planning activities. All Departmental maps are prepared by the Mapping Subsection, which also provides clerical and fiscal services to the Office of Planning. Systems Planning develops the long-range departmental needs and coordinates with appropriate councils in all three counties. This year the Planning Survey Section has been given the responsibility for the preparation of the Capital Improvements Program. Safety Planning analyzes accident reports and statistics, locates hazardous areas, and coordinates safety improvement projects.

Under Design, Location Planning has been responsible for major studies, including the Newark Arterial and Delaware Route 7, I-95 to Stanton, in addition to bikeway system responsibilities statewide. Environmental Studies assessed the significance of the environmental impacts on 30 transportation projects. The Review Section is responsible for the supervision and preparation of contract plans and specifications for major highway and bridge projects requiring consultants. The Bridge Section prepared and received bids on 11 contracts. Road Design is responsible for in-house roadway design, and the preparation of complete plans for construction. A total of 77 projects were under design during the past fiscal year. Utilities added 408 additional utility franchises to existing utility lines located within Delaware's rights of way, which totalled 1,516 miles. The Specifications Section prepares special provisions vital to construction contracts.

During FY '77, the Relocation Section gave assistance to 71 families, and 13 businesses, and non-profit organizations.

In Operations, Management Systems is in the process of revising the Highway Maintenance Management Program to render it more responsive to the needs of top and middle management. The Bureau of Maintenance continued to operate as a staff section reporting to the Assistant Chief Engineer for Operations, and providing guidance and direction for the entire maintenance program. Maintenance in all three counties continues to operate with inadequate equipment and shortages of material and manpower. The Construction Section final inspected and accepted over 24 million dollars worth of contracts, and is presently supervising over 97 million dollars worth of active construction.

The Delaware Transportation Authority was created on June 30, 1976, under House Bill 1230. The Transportation Authority replaced the Division of Transportation as an operating division of the State Department of Transportation, and has assumed the added responsibility for the Delaware Turnpike. In Surface Transit, plans were continued with local governments towards a continuing, coordinated, comprehensive planning process. An update of the State Rail Plan was completed. SEPTA commuter rail service for Wilmington, Newark and Claymont continued during FY '77, with no changes other than an increase of fares. The Office of Regulatory Services is responsible for the regulation of private railroads and buses operating in Delaware. The Delaware Authority for Regional Transit had another successful year in terms of passengers transported, carrying a total of 6.1 million riders, an increase of nearly 20,000 over the previous year. The Delaware Authority for Specialized Transportation continues to be the Nation's only statewide provider of elderly and handicapped transportation services, providing nearly 185,000 passenger trips to 40 agencies in Delaware. ConRail has begun a 2 million dollar program to upgrade tracks between New Castle and Milford, from 10 mph operating speeds to one of 40 mph. In Aviation, Federal Aviation Administration grants produced nearly \$300,000 in safety and improvements.

In the Office of Administration, Personnel reported a drop to 1,228 employees, as compared to 1303 in FY '76. Labor relations with locals of the American Federation of Local, County and Municipal employees, AFL-CIO, maintained a high level of success in FY '77. A new policy statement with specific goals concerning the Department's Affirmative Action Program was issued. The Department has also continued to work closely with the federally funded Comprehensive Training Act.

COUNCIL ON TRANSPORTATION

House Bill No. 1230, signed by the Governor on June 30, 1976, established the Council on Transportation. The Council is organized into two subcouncils. The Chairperson of the Council on Transportation is designated by the Governor. The Chairperson, in turn, designates from the Council a Vice Chairperson for Highways and a Vice Chairperson for the Transportation Authority. The Chairperson and the two Vice Chairpersons designate the remaining members to serve on one of the two Subcouncils.

<u>Membership</u>	<u>Term Expires</u>
<u>Chairperson</u>	
Raymond E. Townsend	9/9/79
<u>Subcouncil on Highways</u>	
John W. Fennemore, Jr., Vice Chairperson	8/29/79
Kathryn T. Derrickson	9/8/79
James Elliott, Jr.	10/19/79
John Janosik	11/16/79
John D. Riddle	10/22/79
William P. Short, Jr.	10/6/79
Ernest S. Spence, Jr.	9/8/79
<u>Subcouncil on the Transportation Authority</u>	
Eugene G. Auen, Vice Chairperson	9/8/79
Charles H. West	9/8/79
Paula Lehrer	9/8/79
Hubert Kenney	10/19/79
Kenneth English	9/8/79
Joseph S. Triglia	11/18/79

Subcouncil on Highways

The Subcouncil on Highways serves in an advisory capacity to the Director of Highways, to the Secretary, and to the Governor. The Subcouncil shall have final approval of and to adopt the six year highway improvements program which shall be submitted annually for approval by the Division of Highways. The Subcouncil also has final approval of and responsibility to adopt all corridor route projects in connection with new road alignments. Four meetings were held during FY '77. On March 29, 1977, the Subcouncil on Highways held its first meeting with newly appointed Secretary George Jarvis and Acting Director of Highways, R. D. Bewick, Jr. Members were apprised of the Department's new structure and philosophy, and the specific goals of the Division of Highways.

The Subcouncil approved the Capital Improvements Program request by the Department in the amount of \$12,702,500, on June 7, 1977.

Members were kept informed of all major Division activities during the year, ranging from Maintenance,

Construction, Traffic, Project Status, to fiscal updates. This was accomplished through written reports and oral presentations by various section heads during Subcouncil meetings.

Subcouncil on the Transportation Authority

The first organizational meeting was held on February 1, 1977, at which time Director Wallace appraised the membership of the Department's current activities. A large portion of the State's public transportation is served by the independent Authorities DART & DAST - each is directed by appointed Commissions. Because of these commissions it was determined that the business of the subcouncil was limited.

One additional meeting was held on June 14, 1977. Future meetings will be held every two months at the call of the chair.

DIVISION OF HIGHWAYS

COMMUNITY LIAISON

During FY '77 the Community Liaison Office continued to facilitate community involvement for the Delaware Department of Transportation (DELDOT). The Community Liaison Office was combined with the Public Information Office under the Director of Highways. This reorganization has enabled the department to be more responsive to the citizens of Delaware and has improved the level of services by providing greater coordination of community related activities.

Citizens Participation Advisory Council (CPAC)

CPAC continued to work effectively with the Division of Highways in bringing together the citizens of Delaware and DELDOT. Ms. Paula Lehrer was re-elected to the position of chairperson in January 1977 and she continues to lead the Council in effective community involvement programs throughout the total transportation planning process.

Major accomplishments of CPAC during the year included active participation in public meetings and public hearings, publication of brochures on Delaware Department of Transportation and revision of the Action Plan.

Public Meetings

Coordination and moderation of all public meetings and public hearings associated with highway projects continues to be a major responsibility of the Community Liaison Office. The purpose of these meetings is two fold: 1) to describe planned improvements to the public and 2) to receive input into any fiscal decision made by the Department.

Community Liaison Public Meetings FY '77

CPAC	12
Public Hearings	3
Public Meetings	17
TOTAL	32

In addition, numerous discussions with citizens and inquiries of an informational nature were conducted.

Action Plan

The Action Plan revision process continued through FY '77. A revision task force has formed a draft copy completed. The Revised Action Plan is expected to be signed by September 77.

PUBLIC INFORMATION OFFICE

The Public Information Office continues as the primary element for information dissemination concerning department affairs.

A major portion of the work involves close cooperation and coordination with the news media. News releases provide a sizeable outlet for information. Coupled with responses to citizens queries, news releases provide the Public Information Office with the vital methods needed to keep the public informed.

Items requiring graphic material support are the responsibility of the staff photographer. In addition to external photo functions suitable for media use, the staff photographer processes all internal photo needs including aerial, color and graphics.

Working in close coordination with all needs as viewed by the Community Liaison Office, the Public Information Office continues to provide the mechanics of informing Delawareans.

PROJECT SCHEDULING AND SUPPORT

Federal-Aid Section

The new programming directive from the Federal Highway Administration forced some procedural changes for the Department this past year. The most significant effect was the formulation of one list, at the beginning of the year, showing all projects for which the Department planned to request Federal funds. Due to the change of the Federal fiscal year from July through June to October through September, the Federal Annual Program had to be submitted prior to October 1. With the passage of the State Bond Bill by August 3, ample time was permitted to meet this requirement.

Delaware was apportioned \$6,655,256.00 Federal funds for the transition period of July through September 1977. The Fiscal 1977 yearly apportionments and allocations totalled \$18,442,963.00 in Federal-Aid funds. There were no funds apportioned for Interstate projects although Delaware did receive special funds of \$4,100,000.00 for the Relocation of South Chapel Street Railroad Bridge.

Adding to the vast number of State and Federal laws and directives which must be met by the Department, with the passage of the State Bond Bill, a new level of approval was required for projects using State and Federal funds - the State Clearinghouse Committee. Implementation of projects was further complicated by the creation of the Capital Review Committee and the passage of the Executive Order 6 this Spring. All projects not previously funded require the Governor's approval.

In spite of these hurdles, Federal funds were authorized for the following projects:

CONTRACT NO.	DESCRIPTION	FEDERAL FUNDS
76-03-020	C., Wilm. Blvd., I-95, Ramp E & EF	2,680,020
76-03-014	C., Wilm. Blvd., I-95, Modification, Cont. 1, Util.	36,090
76-09-005	P.E., Christina Marsh Interch., Conn. A	36,000
76-05-014	C., Wilm. Blvd., Conts. I & II, Traffic Adj.	70,515
76-07-016	C., I-95, I-295 Interch. Signing	98,550
76-07-017	C., I-495, Signing	693,360
76-09-008	P.E., Wilm. Blvd., I-95 Ramp F	9,000
76-09-009	C., Wilm. Blvd., I-95 Ramp E & EF, Util.	60,300
77-04-004	C., I-95 Interch., Minor Signing	1,413
77-04-003	C., I-495, Minor Signing	18,270
75-11-009	P.E., SR 7, Location Study, I-95 to Stanton	7,000
76-09-015	P.E., Stein Hwy, Tulls Xing to Chapel Br.	56,000
77-03-014	R.W., SR 7, I-95 to SR 4	257,740
77-03-001	P.E., SR 7, I-95 to SR 4	226,800
77-03-002	P.E., SR 7, SR 4 to White Clay Creek	240,000
77-03-013	P.E., SR 7, White Clay Creek to Limestone Rd.	93,800
77-04-001	R.W., SR 7, SR 4 to White Clay Creek Br.	82,810
77-05-006	C., Resurfacing SR 896, Baltimore Pike	85,190
77-05-004	C., Resurfacing SR 2, Kirkwood Highway	31,080
77-05-003	C., Resurfacing U.S. 202	195,090
77-05-002	P.E., SR 273 & SR 2 at SR 72	11,200
77-04-002	R.W., SR 7, White Clay Crk. Br. to Limestone Rd.	332,150
76-09-022	C., U.S. 13 at Conrail Overpass, St. Rd., Util.	52,990
76-04-011	P.E.&C., U.S. 13 & CR 331 Intersec. Improve.	26,250
76-06-001	C., Rehoboth Bypass, Phase II, Utility	4,830
76-01-005	P.E., SR 26, Dagsboro to Bethany	140,000
76-01-006	P.E., U.S. 113, Georgetown to Milford	175,000
77-04-005	P.E. & R.W., U.S. 13, Conrail Approaches, N. of Wrangle Hill	5,670
74-06-002	C., U.S. 13 at Conrail, N. of Wrangle Hill	57,900
75-08-018	R.W. & C., SR 9, Tidewater to Delaware City	391,020
77-05-009	C., Resurfacing SR 9	5,810
77-05-007	C., Resurfacing Old Baltimore Pike	23,380
77-05-005	C., Resurfacing Salem Church Rd.	172,130
77-05-008	C., Resurfacing Possum Park Road	75,110

CONTRACT NO.	DESCRIPTION	FEDERAL FUNDS
76-09-004	C., Kirkwood Highway Crossovers	46,480
76-09-011	P.E. & C., Denney's Road, Phase I	19,320
75-05-006	C., Third St. Bridge, Superstructure	3,837,960
76-03-018	C., Wilm. Blvd., Shipley Street	290,220
76-07-660	P.E., Highway Planning & Research	640,224
76-08-006	C., Traffic Signals, Saulsbury & Walker Rds.	17,500
76-08-008	C., SR 141, Price's Corner, Phase III	3,668,350
74-07-006	C., Conrail at CR 99, North of Dover	20,160
76-09-047	P.E., Conrail at SR 273	1,800
76-09-048	P.E., Conrail at U.S. 301S	2,700
76-09-049	P.E., Conrail at 4 Inter. in Wilmington	2,520
76-09-050	P.E., Conrail at 18th & Market Sts., Wilmington	3,600
76-09-051	P.E., Conrail at U.S. 40, S. of Newark	3,600
76-09-052	P.E., Conrail at 14th St. & N.E. Blvd., Wilm.	2,250
76-09-054	P.E., Conrail at Christiana Avenue	3,600
76-09-055	P.E., Conrail at Pigeon Point, S. of Wilm.	3,600
76-09-056	P.E., Conrail at SR 404, Bridgeville	2,250
76-09-057	P.E., Conrail at SR 18, Georgetown	2,250
76-09-058	P.E., Conrail at CR 268, Lewes	2,520
76-09-059	P.E., Conrail at U.S. 113, Milford	4,050
76-07-001	C., Pav't. Marking, S. of Del.-Chesa. Canal	120,200
76-09-021	P.E., High Hazard Location	13,500
76-09-023	P.E., Elimination of Roadside Obstacles	9,000
76-07-014	R.W. & C., Br. 675 & Br. 439, S.C.	116,370
76-09-017	C., SR 896 at St. Anne's Church	3,600
76-09-027	P.E., U.S. 13, SR 10 to CR 100, Safety Imp.	27,000
76-09-028	P.E., U.S. 202, Augustine Cut-off Safety Imp.	9,000
77-03-006	P.E., Airport Rd., CR 339 to Br. 292	18,000
76-09-026	C., Traffic Adj., 7 High Hazard Locations	88,470
76-09-032	P.E., Safer Off-System Roads	13,500
76-07-015	R.W. & C., Br. 403 on CR 427	60,930
76-03-024	P.E. & R.W., Outdoor Adv. Control	250,000
76-06-010	C., Landscaping, U.S. 13	31,990
76-04-007	C., Vegetative Screening, Primary Rds.	45,500
76-09-053	P.E., Conrail at East St., Harrington	1,800
76-09-060	P.E., Conrail at 14th & Front Sts., Wilm.	2,025
76-03-012	C., Conrail at Ruthby Rd., Util. Adj.	169,470
76-08-007	R.W. & C., S. Chapel St., Reloc., Br. & S. Approach	3,799,755
77-05-001	P.E., S. Chapel St., Reloc., North Approach	27,000
77-04-602	Supportive Services	33,200
		<u>19,867,732</u>

Project Scheduling

This Section is in the process of developing an improved system of scheduling and controlling the Capital Improvements Program. The system will follow and control projects from their creation to completion.

Since there is no F.Y. '78 Bond Bill at this time, only the following major projects carried over from previous authorizations will be available for advertising during F.Y. '78.

CONTRACT NO.	DESCRIPTION	COST ESTIMATE (Construction)
76-03-019	Wilm. Blvd., Jefferson St. - King St.	2,000,000
75-08-026	Christiana Inter., Conn. A	4,200,000
76-03-017	Wilm. Blvd., Orange St. - 4th & Walnut Sts.	2,000,000
75-11-002	Walnut St., Wilmington	800,000
75-06-001	I-95 Widening, Br. 9-1 to S. Wilm. Viaduct	4,450,000
75-08-018	Rt. 9, Rd. 378 - Del. City Line	510,000
77-03-001	Rt. 7, I-95 - Rt. 4	1,000,000

CONTRACT NO.	DESCRIPTION	COST ESTIMATE (Construction)
76-08-006	Saulsbury Rd., Rt. 8 - Walker Rd.	1,611,500
76-09-015	Stein Hwy., Tull's Crossing - City Limits	2,000,000
75-08-012	Limestone Rd. & Arundel Drive	170,000
75-09-011	Rt. 8 & Rd. 104	135,000
75-12-003	Liftwood Drainage, Part II	100,000
76-06-009	Drainage Improvement - Chapelcroft	155,000
76-09-020	Marshall Ave., Cranston Hgts. - Jackson Avenue, Marshallton	200,000
76-04-004	Voshell's Cove	190,000
76-10-005	Milton School Road - Drainage	225,000
77-02-002	Br. 292 (N.C. 340) - Nonesuch Creek	125,000
77-03-004	Marsh Rd., Washington St. Ext. - I-95	140,000
76-09-032	Br. 58 on Rd. 217 - Matson Run at Miller Road	110,000
76-11-003	Fairwind Drainage - Army Creek	107,000
76-04-019	Br. 251 at Concord Pond	150,000

ADMINISTRATIVE ENGINEER

EQUAL EMPLOYMENT OPPORTUNITY

The Administrative Engineer's office supervises the activities of the Equal Opportunity Section (E.E.O.). E.E.O. continuously monitors all types of Federal-aid construction contracts to insure compliance with federal and state laws and regulations regarding the prohibition of discriminatory practices. The section is active in three major areas; guaranteeing that contractors hire, promote, or layoff employees without regard to race, creed, color or sex; overseeing contractors' training programs for minorities including women; and encouraging minority contracting firms to become eligible to bid on construction projects in conformance with FHWA Transmittal 164.

E.E.O. staff attends all pre-construction meetings and disseminates appropriate bulletins and training aids to prospective contractors. The importance of on the job training programs is emphasized as a means of involving minorities in construction activities. On site visits are conducted at active projects and contractors' records are systematically reviewed to assure that minority hiring goals are being attained. Monthly, quarterly and annual reports for each project are forwarded by the contractors. They are scrutinized for accuracy and completeness and sent on to the FHWA. If monthly goals are not being met, the section institutes compliance reviews to find out why and imposes corrective action.

FHWA Transmittal 147 encourages the State to promote "Supportive Services" training. This is training that is not directly related to on the job performance. Rather, it is designed to acclimate minorities to on the job training procedures and to permit contractors to evaluate the effectiveness of their training programs. There are two "Supportive Services" programs currently underway.

The staff participated in numerous meetings and seminars designed to instill a deeper understanding of the E.E.O. philosophy.

A joint program was begun with the State Office of Minority Business Enterprises to distribute bid solicitation to minority contractors. Any assistance the contractors may need in completing the bid forms is available from E.E.O. or O.M.B.E.

SUBDIVISION ADMINISTRATION

This year the Subdivision Administration Section has reviewed 123 land use plans covering 3,031 acres and including 4,150 living units. In addition, this section has approved for recording purposes 125 land use plans consisting of 2,832.96 acres and 5,332 living units. Fifty-seven Performance Bonds, representing 10% of estimated construction costs, were received and approved. These Bonds covered 20.207 miles of roadwork totalling \$345,057.96 which represents the amount held by the Department until the streets have been completed to specifications. There were 42.968 miles of subdivision streets accepted into the state maintenance system, the bulk of this mileage coming as a result of S.B. 313. Numerous meetings were attended coordinating with other governmental agencies, consultants, developers, contractors and the public.

RIGHT OF WAY

Total Right of Way expenditures for the year were \$2,261,942.99. Relocation payments accounted for \$156,123.01 of the total expenditures.

During the year, the Bureau of Right of Way relocated and provided relocation assistance and payments to 71 families, 13 businesses and nonprofit organizations. In keeping with the spirit and intent of the Relocation Law, the living conditions of many relocated persons and families were improved.

The Bureau of Right of Way, through its Property Management Section, received \$86,329.73 from the rentals. In addition, \$110,799.00 was received from the sale of land and improvements. It is the policy of the Bureau of Right of Way to attempt to recoup some of the original Right of Way costs by leasing until the properties are needed for construction.

The acquisition and removal of all nonconforming signs and billboards on Interstate and Primary Routes throughout the State is progressing on schedule, except for certain sign owners who have been reluctant to comply with the Department's four year program. Steps are being taken to overcome this problem.

Relocation services were performed for the Kent County Levy Court and the Department of Natural Resources and Environmental Control.

Road Closure proceedings resulted in the official vacation of three old abandoned roads, thus relieving

the Department of any possible responsibility of further maintenance.

A complete inventory of all State-owned lands under the care, custody and control of the Department of Transportation, has been completed and is kept at the Central Right of Way Office in Dover.

SUPPORT

MATERIALS & RESEARCH

The Bureau of Materials and Research maintains laboratory facilities with complete testing capabilities in Dover at the Administration Center, and a field office for limited testing at Newport Yard. The major function of these facilities is to inspect, sample, and test all engineering materials used in construction of bridges and highways throughout the state. Personnel in Materials and Research are primarily responsible for maintaining quality of materials used in all highway projects constructed through supervision of the Division of Highways.

During the past fiscal year numerous research projects and special studies were also undertaken in addition to a comprehensive sampling, testing, and inspection program. A statewide evaluation of bridge decks for chloride contamination due to application of de-icing salts is underway. Corrosion of bridge deck reinforcing steel by chlorides has developed into a costly maintenance problem in many states. While this problem is not as severe as those in surrounding states, many bridge decks containing excessive chlorides have been located in this study. A concrete mix for bridge decks to protect reinforcing steel from corrosion has been approved for use by the FHWA. This will result in a 50% savings over the protection system now used on new construction projects.

Another area includes research into the cause of spalling and blowups in conventional concrete paving. This is to determine methods to be used in future contracts to eliminate such action as well as improving maintenance techniques on existing pavements. Studies in lime-fly ash have been made exploring the possibility of using low-cost fly ash in highway construction. Different combinations of soil and asphalt materials have been investigated in order to determine the best soil gradation and asphalt type for use in dirt road projects. Evaluation and comparison of CR-1 and crusher run, two widely used base coarse materials in highway construction, is underway.

The use of polyester fibers instead of asbestos in hot mix curbing has been successfully tried. These same fibers are now being tried in hot mix paving to eliminate reflection cracking in overlays where the base is conventional concrete paving with crack control. The use of Typar and Petromat are also being studied as

possible alternatives for the same purpose. Success in controlling reflection cracking could result in considerable savings in future maintenance and reconstruction.

Pavement surfaces throughout the state are continually tested and evaluated with respect to potential skidding areas. This is accomplished by the use of a specially designed, highly instrumented skid test unit which enables detection and monitoring of pavement surfaces which may be deficient in skid resistance, and may pose a safety hazard to the motoring public. One pavement type now in wide usage on Route 13, and other high speed areas successfully as a final overlay, is open graded hot mix. This mix is designed to improve skid resistance, reduce tire splash and night glare, and retard vehicle hydroplaning on the roadway surface.

Evaluation of new products such as epoxy mortars, bonding and coating systems, and paints have necessitated continuing investigations into performance capabilities of these and other products. However, the bulk of personnel effort in Fiscal Year '77 was expanded in the testing of soils, aggregates, bituminous materials, cement, concrete, and paints. Other functions included hot mix and concrete production inspection, and quality control testing on active construction projects. The volume of work output in these areas included the processing of 8,050 soil samples, and 1,790 aggregate samples; the inspection of 66,500 cubic yards of concrete and 292,000 tons of bituminous concrete; 800 tests on bituminous materials; 2,000 tests on portland cement; and 2,210 density tests on bituminous concrete and soils.

The soils engineering staff has continued to provide road and bridge personnel with subsurface data in the form of soil surveys and structural borings essential to project planning and design. This included 1,300 feet of cased boring and 6,300 feet of auger boring work.

ROADSIDE CONTROL

Receipts for Fiscal Year '77 for the Outdoor Advertising Division are as follows:

Outdoor Advertising Permits	\$48,815.00
Junkyard Licenses	<u>630.00</u>
Total	\$49,445.00

SAFETY SECTION

Traffic control discrepancies that are generated in highway maintenance, construction and utility company work areas continue to be the focal point of this section. Some of these problems may be solved by the new Delaware Traffic Control Manual.

An industrial hygienist from the Delaware Department of Labor made an onsite consultation of the Blueprint Room and the Materials and Research Laboratory in Dover. Following the consultation a comprehensive report was submitted listing several discrepancies and recommended corrective measures to be taken. As a result, several of the recommendations have been followed and others will be taken when funds become available.

Severe weather caused two scheduled training classes to be cancelled and diminished attendance in several others. Thirty-seven personnel completed a first aid course, and thirty-five the defensive driving course. Plans have been made to train additional first aid instructors, whose talents will be utilized in future first aid training courses, within the Department.

Accidents, where state equipment is involved, have decreased from 1976 and a further reduction is anticipated during the forthcoming year. Personal injury accidents this past year have resulted in a loss of over 790 man hours.

Three members of this section gave a two hour 35MM slide presentation to Newark Public Works employees. This presentation covered the usage of traffic control devices as specified in the Delaware Traffic Control Manual.

TRAFFIC

Changes to Rules of the Road

As in previous years, the Bureau of Traffic was represented by two members serving on the Rules of the Road Committee.

During the year, the committee met on several occasions devoting a considerable amount of time and effort to the drafting of additions and modifications to the Rules of the Road section of the Delaware Code.

As a result of these endeavors, the General Assembly enacted extensive legislation affecting the Rules of the Road. These changes will go far toward bringing our Rules of the Road in conformance with the national standard set by the Uniform Vehicle Code.

In addition, it was a primary consideration of the committee to modify our Rules of the Road in such a manner that the citizens would have a set of laws governing their activities on the highways which are brief and to the point. It is felt that this goal was accomplished.

Stop and Yield Sign Warrants

In order to standardize the review and evaluation of stop

and yield sign requests in suburban areas, the Department has adopted a standard warrants policy.

Each of the eleven warrants sets forth the requirements which must be met for each specific request.

These warrants will provide for a more equitable evaluation and will reduce the proliferation of stop signs.

Special Detectors

The widespread use of right turn on red has resulted in an apparent misoperation of many traffic signals. Vehicles approaching to turn right on red trip the vehicle detector but do not wait for the green. The signal changes to green for a vehicle that has already departed.

A method of overcoming this problem is necessary because it causes an unnecessary accident hazard and is a substantial waste of energy.

The matter was reviewed with several manufacturers of detectors. A satisfactory unit which is compatible with both solid state and mechanical controllers was developed.

Signal Lamp Test

In an effort to obtain a more uniform performance of lamps to be purchased under contract, the Bureau of Traffic developed a forced testing procedure whereas the lamps of different manufacturers are tested together for an extended period to determine the superior lamp.

The first such test was recently completed and a substantial difference in lamps which carried the same nominal rating was discovered. Purchase of the lamps with the best test rating will result in savings to the Department in both the purchase of the lamps and the reduced cost to replace them in the field.

Pavement Markings

During January, 1977, the large paint machine was put in storage and the pavement markings crew was disbanded. In the summer of 1976, we had seven men on the paint crew. In December we were down to four men which is not a practical number for this type of operation.

We are presently operating a small portable paint machine with a three man paint crew. This crew performs small jobs such as minor detour work, intersection marking and emergency work. They have, on some occasions, been called upon to do some centerline and edgeline work. On these few occasions, it is necessary to borrow one or two men from other sections.

Since the large paint machine is no longer in operation, all of the scheduled edgeline and centerline painting is let out on contract. On previous contracts, the contractor was required to provide paint and glass beads meeting state specifications. The Department is now supplying the contractor with paint and glass beads. Because we must supply an inspector for each paint machine, there are manpower demands in contracting of work.

While large projects are more economical to contract, the lack of a paint machine and crew prevents the painting of new roads or roads where the needs change abruptly in a timely manner. Many roads will have to wait in excess of a year to get on the program after the need for markings is demonstrated.

Service to the public in this area will deteriorate substantially.

Sign Shop

To improve our metal work efficiency, during the spring of 1977, the Bureau of Traffic purchased a Shear and two Punch Presses through federal surplus equipment channels.

The cost of the shear was \$1,500.00. A similar new machine would cost approximately \$58,000.00. The original combined price of both presses (in the early fifty's) was \$6,354.00. Since the purchase price of \$318.25 covered both presses, it will not take long for the machines to pay for themselves.

Experimentation with New Traffic Control Devices

With permission of the National Advisory Committee on Uniform Traffic Control Devices, the Bureau of Traffic is experimenting with a new concept for signalized left turn lane traffic control. We have installed a flashing red light facing the median crossover at Roosevelt Avenue and U.S. 13 in Wilmington Manor. The purpose for the flashing red signal is to allow left turning vehicles from U.S. 13 to stop and then proceed onto Roosevelt Avenue when opposing traffic has a gap. The flashing red signal is visibility limited so that only vehicles in the median see it. Vehicles on Roosevelt see a steady red signal. During side street green time, the median signals also show a green indication. Prior to the inception of the flashing signal, left turning traffic could be held from turning due to a steady red indication. The use of the flashing red indication reduces delay time for the turning vehicles as well as the rear end accident potential for thru traffic.

The Bureau of Traffic is also in the process of obtaining permission from the NAC on UTCD to experiment with symbolized NTOR indications. We feel the best method

to achieve the symbolized NTOR indication is through use of the red arrow. Delaware law already makes the distinction between circular red and red arrows. Turn on circular red is permitted unless signed, but the turn is prohibited at all times while the red arrow is displayed. Although Delaware law specifically defines the red arrow, use of the arrow as a turn prohibition is contrary to the national Uniform Vehicle Code. We therefore, are seeking permission to use the arrow on an experimental basis for national acceptance. We feel the red arrow is a superior method of communicating to the driver, the NTOR message. Use of the red arrow requires the driver to focus his attention solely on the arrow. Under the present system, the driver must search for at least two separate indications, the circular red and the sign prohibiting turn on red. The red arrow is also economical to operate, install, and maintain. It is totally flexible and can easily be designed to hold traffic only when absolutely necessary.

Consultant Study of Dover Signal System

In conjunction with the federal government under the Highway Safety Improvement Program, the Bureau of Traffic is conducting a consultant study of the Dover signal system on both U.S. 13 and U.S. 113. The study encompasses 9.4 miles of U.S. 13, 5.1 miles of U.S. 113 and includes a total of 32 major intersections. Based on the major goal of eliminating high accident locations, the consultant shall provide a report recommending improvements that can be achieved within existing right of way. The improvements can vary from geometric

design changes to full coordination of all traffic signals. The consultant shall also evaluate the impact to the study area of both the dualization of U.S. 113 and the building of the Frederica to Woodside bypass.

Hauling Permits

Several months ago, the Hauling Permit Section was reassigned to the Bureau of Traffic. Since that time a number of changes in the hauling permit operation have been effected.

All accounting activities have been transferred from the permit office to the Bureau of Traffic accounting staff. This enables the permit personnel to devote their time to the issuance of permits exclusively. A special telephone was installed to handle only the validation of block permits. This has served to stimulate the block permit sales and further reduce permit processing time.

As a result of these changes, we have been able to reduce our permit office staff by two persons, a reduction of fifty percent.

Additional modifications to the recordkeeping system have been developed and approved by the State Auditor's Office. These changes will streamline our recordkeeping procedure and significantly reduce the time expended thereon. The implementation of this system has had to be postponed due to the lengthy delay of delivery of the proper calculator to perform this activity.

COUNTY	NO. OF PERMITS	NO. OF BLOCK VALIDATIONS	VALUE	BLOCK RECEIPTS	TOTAL VALUE
New Castle	891	-----	\$ 4,381.51	-----	\$ 4,381.51
Sussex	1,154	-----	8,705.83	-----	8,705.83
Kent	18,131	9,304	68,039.26	\$ 46,900.00	114,939.26
TOTALS	20,176	9,304	\$ 81,126.60	\$ 46,900.00	\$ 128,026.60

SUMMARY OF RECEIPTS

Total Value-----	\$ 128,026.60
Transferred to Accounts Receivable-----	59,219.70
Daily Deposits-----	68,801.90
Received on Account-----	61,967.74
Collected for Returned Checks-----	168.90
TOTAL DEPOSITS-----	\$ 130,938.54

OFFICE OF PLANNING

The Office of Planning's principal function is the preparation of all the long and intermediate range planning activities.

This office prepares transportation needs studies and programs in cooperation with the Division of Highways, and The Transportation Authority. It serves as liaison with federal, state, county, and municipal agencies where planning and department wide operations are involved. One major function is to supply statistics and reports to the federal government and to disseminate technical information to sections in this department.

The Office of Planning is comprised of Administration and Mapping Section, Systems Planning Section, Planning Survey Section, and Safety Planning Section.

ADMINISTRATION AND MAPPING

The primary function of this section is to provide clerical and fiscal services for the Office of Planning. In addition, all maps for the department are prepared by the Mapping Sub-Section.

Mapping and drafting work includes the preparation and revision of the various maps used in the department.

Maps prepared and distributed by the department:

1. County General Highway
2. State Base
3. Official Road Map
4. Supplement Sheets for
 - a. New Castle County
 - b. Kent County
5. Hundred Maps
6. Traffic Map
7. All Incorporated Cities & Towns

A large amount of time was spent on maps, reports, charts, and graphics. Most of these projects were for such sections as Systems Planning, Project Planning, Safety Planning, and the Maintenance Section.

SYSTEMS PLANNING

Systems Planning is responsible for developing, at a systems level, the long range (20-Year) needs, programs and plans for the Wilmington Metropolitan Area Planning Coordinating Council (WILMAPCO) transportation system, in New Castle County, and for the Kent-Sussex Study system in Kent and Sussex Counties.

A technical process has been developed which utilizes state and county land development plans, population

forecasts, socio-economic data and travel characteristics to determine future travel in the state. Future transportation needs are determined and translated into long range programs at the systems level.

1. Systems Planning for New Castle County:

A major land use and transportation plan reevaluation is being conducted for New Castle County. This time consuming process has been necessitated by an appreciable decrease in 20-year forecast population with the accompanying reallocation of development in the New Castle County and City of Wilmington forecast land use plans. Available future construction monies are also a very strong consideration being addressed in this reevaluation.

Federal Law mandates that the Wilmington Metropolitan Area Planning Coordinating Council, representing the Bureau of the Census Wilmington Standard Metropolitan Statistical Area (SMSA), coordinate a continuing and comprehensive land use and transportation planning process if the state is to receive, not only federal matching funds for planning, but also, federal funds for any construction project that would normally be a product of the Wilmington SMSA planning process.

2. Systems Planning for Kent and Sussex Counties:

The Kent-Sussex Study is the regional, comprehensive, continuing, coordinated forecast land use and transportation study for Kent and Sussex Counties. It is being coordinated with the State Planning Office (Office of Management, Budget and Planning) with Kent and Sussex Counties and with certain municipalities therein.

Because of a major reduction in 20-year forecast population, with resulting changes in land use allocations, a major transportation review and update is being conducted. The State Planning Office (Office of Management, Budget and Planning) has been, and is, providing the population and employment data necessary to simulate present and forecast travel predictions. Surveillance of new development trends and of traffic volume patterns has been maintained.

There has been a heavy demand for the Kent-Sussex Study, Volume I, "Findings" report prepared by planning technicians for planning technicians. Upon final acceptance of the "Level 2 Review", it is intended to release a final report containing forecast planning data and recommendations in a manner more suitable for public consumption and evaluation.

3. Proposed Development Impact Studies:

Approximately 18 full impact studies were conducted to evaluate the impact of proposed development on the existing and forecast transportation systems.

Recommendations were then forwarded to the Subdivision Administration Section.

Approximately 230 entrance-exit designs were reviewed, and where appropriate, traffic comments were forwarded.

Approximately 65 support facility documents were also received and traffic analysis of same defined. These reports, also, were returned to Subdivision Administration.

PLANNING SURVEY

Priority Planning and Programming are initiated in the Planning Survey Section to comply with law establishing the Department of Transportation in 1972. Priority Planning and Programming is a process where existing roads and needs are examined based on road sufficiency, volume, capacity, continuity of project, social, commercial and industrial needs, economic impact, and environmental results. This program is planned to be greatly expanded over the next few years.

This year Planning Survey Section has been given the responsibility for the preparation of the Capital Improvement Program (C.I.P.).

The major objective of this program is to provide a six-year funding plan indicating those projects which the department intends to construct or participate. The first year of this program is considered for fiscal budgeting while the remaining five years are for fiscal projections.

Another function the Planning Survey Section has been given this year is the A-95 Review Process established by Federal mandate requires the Department to present all those projects for which Federal funds are to be expended to a Statewide Clearinghouse Committee for review and comments. The review process must take into account whether the proposed project is consistent with the long-range development and goals of the state. Additionally, all projects located within the Wilmington Urban Metropolitan Area must be reviewed by the Wilmington Metropolitan Area Planning Coordinating Council (WILMAPCO).

One major responsibility this year was the monitoring of the 55 MPH Speed Limit in Delaware. Twelve stations were located where the actual speed of vehicle is recorded. Other locations will be added during the next fiscal year. Over-size and over-weight vehicles are also monitored.

There are 18 permanent counter locations which record the number of vehicles crossing the location 24 hours per day, 365 days per year. This provides hourly and seasonal factors for utilization in design, traffic and maintenance activities.

Portable counters are placed, on a fixed schedule, throughout the state to determine traffic volumes on all roads and to indicate variations in traffic patterns.

The Road Inventory Section periodically verifies changes in condition, safety and service. This information is also utilized in sufficiency studies which are used for determining priorities for maintenance and construction activities.

Federal Aid Systems are determined based upon federal requirements. This establishes which routes are eligible for federal aid construction funds.

Traffic origin and destination surveys are performed with assistance from Division of Highways personnel. This provides required information for project location studies.

Truck weight surveys are done to determine axle weights by class of vehicle. This is needed by design for pavement thickness analysis.

The municipal aid allocation to all municipalities is developed by this section based upon population and miles of municipal maintained streets in each municipality.

Photologging activities consist of filming suburban development streets which were added to the state maintenance system last year, and the updating of roads which have been improved.

SAFETY PLANNING

Safety Planning is responsible for: Maintaining accident records, analysis of accident reports and statistics, development of a Traffic Records System, safety projects identification, coordination of safety improvement projects, preparation of annual safety improvements program, preparation of the Department's Highway Safety Plan (3+ standards), and evaluation of completed safety improvements.

Accident Records: During calendar year 1976, the section received, from State Police, copies of 13,342 individual accidents. Coders analyzed each report, extracted 35 items necessary for accident studies, and coded them for input to a computer file.

Desirous of eliminating coding responsibility from the Department, Safety Planning initiated a program to train State Police Troopers and local Police Agencies in the mile post/road number method of location identification. On January 1, 1977, State Police took over full responsibility for coding all items needed by Safety Planning. This resulted in a savings to the section of \$30,400 representing salaries of two coders who have now been trained in higher level safety studies.

Traffic Records System: Last year's proposal encountered difficulties with Central Data Processing Division who objected to the setting up of separate hardware for the section's EDP requirements. The office of the Governor's Representative, Highway Safety, has contracted a consulting firm to establish an easy-retrieval system using existing hardware, to which this section would have access. The establishment of DART (Data Analysis and Retrieval Technique) will provide on-line capabilities. In order to make this a possibility, peripheral equipment will be purchased for \$15,000.

Manpower Training: So far, one design engineer, and two traffic engineers have attended seminars at the Northwestern University in Chicago, Illinois. Five other department personnel have attended meetings and/or courses to upgrade their expertise.

Attendance at the Transportation Research Board Annual Meeting enabled participating personnel to gain an insight into recent developments in their respective fields.

Highway Safety Plan: Delaware is one of nine pilot states in the nation participating in a program of drafting the annual Safety Program (18 standards) under recently developed guidelines. Safety Planning prepared its submission for the 3+ standards in accordance with the new plan.

Implementation of Standard 9, "Identification of Hazardous Locations" afforded Safety Planning Section the basis for formulating the Department's FY 77 Safety Improvement Program under Categorical Grants Program.

Also, evaluation activities were encompassed by the 3+ standard tasks.

Categorical Grants: The Safety Planning Section programmed activities under this program involving improvements at 58 statewide locations costing a total of over \$2 million. Funding was generally 90% federal participating to 10% state matching funds. In accordance with new federal guidelines, monies were allocated to on-system and off-system roads.

Section 203: Highway/Railroad Grade Crossings: On the federal aid system, \$599,976 was programmed; while \$359,987 went to off-system locations. Out of a total of 23 crossings, 5 were in the City of Wilmington. Most projects included crossing surface improvements and installation of protective devices.

Section 205: Pavement Marking Demonstrations: This program continued, maintaining previously marked roads. It is expected to terminate this year.

Section 209 and 210: High Hazard Locations and Eliminating of Roadside Obstacles: Under new guidelines these two sections were combined into one funding activity. Fourteen (14) locations were identified and programmed under 209, and eight (8) were funded under 210. Section 210 involved installation of guardrails or replacement of the structure. Section 209 dealt in improving signs, signals, pavement delineations, and geometrics revisions. All locations are in the federal aid system. Total cost: \$678,820.00.

Section 230: Safer Roads Demonstration: This consists of the same type projects as 209 and 210, but on roads not on the federal aid system; a total of 13 projects were programmed, three of which called for replacement of the structure. The rest involved removal of headwalls and extending the culverts, and installing guardrails. Total Cost: \$459,000.

Impact Attenuators: The successful performance of crash attenuators has been recognized by highway agencies all over the country. Consequently, to alleviate financial hardships for states unable to replace impacted units, the federal government allowed purchase of replacement units using safety monies. The Department acquired a stock pile of 64 barrels for \$8,565.00.

Evaluation: As accident experience keeps adding up, an acceptable evaluation of completed safety improvements can be conducted. In FY 76, conclusive studies were completed for eleven locations. Invariably, a decrease in severity index resulted at every location. A net savings in life, injuries and property damage, due to the improvements, have been calculated as \$447,000.00 per year.

The pavement marking demonstration program has also been evaluated. Of the 115 locations where pavement markings were installed, 52 showed positive safety benefits. This simply means that at the other 63 locations, the problem might have not been in lack of delineations, but in other geometric deficiencies.

DESIGN

LOCATION PLANNING

Location Planning has been involved in the following studies in the past year.

Del. Route 7 - I-95 to Stanton - Location Approval from the Federal Highway Administration was received in March 1977. The project has been turned over to Design for preparation of contract plan.

Christiana Bypass (Del. Route 273) - Location Approval

will be received in July and the project will be turned over to Design.

Newark Arterial (Del. Route 4) - Update previous studies to qualify project for Federal participation. A Location Public Hearing is scheduled for September 1977.

Christiana Mall - Location Planning has continued as Departmental Liaison with the developer of this proposed regional shopping facility. The mall began construction in late Spring.

Action Plan - The staff worked on the latest rewrite of this document mandated by the Federal Government to insure that proper steps are taken in project development considering social, economic and environmental concerns.

Plus Miscellaneous Investigative Projects.

Bikeways - The Location Planning Section continues in its function of serving as the Department's liaison to the Bicycle Task Force. Several projects initiated last year advanced closer to reality in 1977. These projects were the Seaford Bikeway System, Lewes to Rehoboth Bikeway, Kentmere Bikeway, and the Dover Bikeway System. The Kentmere Bikeway was not selected for the Federal Bikeway Demonstration Program but was ruled eligible for Federal BOR Land and Water Conservation Funds as was the Lewes to Rehoboth Bikeway Project. Negotiations with the railroad companies for acquisition of their rights of way are now in progress for both projects.

In other areas the Department established a review system to assure bicycle and pedestrian consideration in all highway projects prior to advertisement. On June 12, 1977 the Department sponsored a "Bike Day" on I-495 prior to its official opening to traffic. The Bicycle Task Force was again involved in developing legislation for Motor Vehicle Law changes pertaining to bicycles.

ENVIRONMENTAL STUDIES

Some 30 projects were assessed to determine the significance of environmental impact. During Fiscal 1977, eight of these projects were determined to be so significant that a Major Action classification was warranted, and a Negative Declaration of Environmental Impact Statement was required.

A Draft and Final Negative Declaration was prepared for Prices Corner Interchange Phase III and Kennett Pike Interchange in New Castle County. Two projects were determined to be Major projects but not developed to the Draft Report stage: these were the Kentmere Bikeway in Wilmington and Ruthar Drive from Del. Route 273 to Red Mill Road. Three other projects

determined to be Major actions were never completed to a Draft Report stage. These were carry overs from the previous year and are now inactive. They are the Bridgeville Bypass, the Middletown Bypass and the Delaware Route 26 Project. The Final Negative Declarations were completed for Del. Route 273, the Christiana Bypass; Del. Route 7, Stanton to I-95; and Del. Route 10 Dualization, U.S. Route 113 to U.S. Route 13.

The project known as the Newark Beltway from Del. Route 896 to Del. Route 2 at Newark was delayed because of the U.S. Corp of Engineers permit process. During that period of delay, the Department decided to extend the bridge to avoid rechanneling the stream referred to as the upper Christiana River. Due to this action the Corps permit was no longer required; however, because of the State's financial situation it was decided that this project should utilize Federal funds (70-30 participation) if at all possible. To become eligible for these funds the project was reviewed to establish logical study termini for a location study and to determine the type of action under the Federal environmental impact procedures. The project now being studied in Location Planning is known as Del. Route 4 from Del. Route 2 to Del. Route 7. It was determined to be a Major Action and a Draft Environmental Impact Statement is now being prepared.

The project for U.S. Route 113 from the Dover Air Force Base to Little Heaven continues in Review Section. It was determined that the project would be a Major Action. Although originally envisioned as a Negative Declaration, the project development and cognizant environmental impacts warrant a Draft Environmental Impact Statement. There have been meetings among various agencies to discuss the project impacts and acceptable mitigation. It is envisioned that the project will be developed at least to the Draft EIS/Public Hearing Stage this year.

The miscellaneous items involved preparation of permit data for State projects, and the yearly Consistency Report for Systems Planning and WILMAPCO to establish compatibility of the highway system in New Castle County with the State Implementation Plan for air quality. In conjunction with this office, a seminar concerning the environmental impact statement was presented to department personnel by the National Highway Institute under the auspices of the Federal Highway Administration. There were Noise Reports and/or Project Reassessments prepared for some previously prepared projects such as South Chapel Street, the Concord Pike Safety Improvement, Wilmington Boulevard (Shipley Street Outfall, Historical Ashbury Methodist Church) and the Third Street Bridge, Phase II. Noise impact reviews were made for Subdivision Planning, and where needed, noise contours were provided.

REVIEW

Projects selected by the department for consultant design are assigned to the Review Section for the administration of consultant agreements and the supervision of design. In selecting these projects the department evaluates its present and future work load and the complexity of the project. If the department determines that the project cannot be completed with its own forces in the required time **frame**, a consultant engineering firm is selected through the department's consultant selection process.

During the past fiscal year fourteen (14) consulting firms have been actively involved in the design of thirty four (34) projects with an estimated construction cost of 86 million dollars. Ten (10) of these projects with a construction cost of 13 million dollars were advertised for construction. A summary of projects is as follows:

Projects Advertised

Wilmington Boulevard, Ramps E & EF	\$ 2,051,025.22
Wilmington Blvd., Shipley St. Outfall	\$ 376,996.00
Rte. 141, Prices Corner, Phase III	\$ 4,642,513.23
Third St. Bridge, Superstructure	\$ 4,690,000.00
Brookland Terrace, Phase I Sub. Dev. Sts.	\$ 382,316.89
Silverside Hgts., Sub. Dev. Sts.	\$ 257,570.70
Claymont Addition, Sub. Dev. Sts.	\$ 344,400.90
Riverside Addition, Sub. Dev. Sts.	\$ 170,264.00
Augustine Bridge, Borings	\$ 64,946.00
Rt. 113, Little Heaven to Dover Air Force Base, Borings	\$ 15,140.00
TOTAL	\$ 12,995,172.94

Projects Under Design

Rt. 141, Montchanin Rd. to Brandywine Ck.	\$ 6,100,000.00
Rt. 141, Reading RR to Montchanin Rd.	\$ 2,600,000.00
Rt. 141, Lancaster Pike to Reading RR	\$ 3,800,000.00
Rt. 141, Brandywine Ck. Br., Substructure	\$ 2,500,000.00
Rt. 141, Brandywine Ck. Br., Superstructure	\$ 6,000,000.00
Rt. 141, Brandywine Ck. to Rockland Rd.	\$ 3,000,000.00
Rt. 4, Rt. 2 to Rt. 896	\$ 8,930,000.00
Rt. 4, Rt. 896 to Rt. 72	\$ 2,700,000.00
Rt. 4, Rt. 72 to Augusta Drive	\$ 5,750,000.00
Rt. 4, Augusta Drive to Ogetown	\$ 3,000,000.00
Rehoboth Bypass, Northbound Bridge and Approaches	\$ 4,400,000.00
Savannah Rd. Bridge and Approaches	\$ 3,000,000.00
Relocated DuPont Road	\$ 5,000,000.00
Brookland Terrace, Phase II, Suburban Development Sts.	\$ 360,000.00
Gwinhurst Sub. Devel. Sts.	\$ 1,160,000.00
Augustine Bridge	\$ 4,000,000.00
Christina Interchange, Connection A	\$ 4,200,000.00
I-95 Viaduct Widening	\$ 9,500,000.00
Rt. 113, Little Heaven to Dover Air Force Base	\$ 10,000,000.00
Wilmington Boulevard, Ramp F	\$ 1,400,000.00
Wilmington Boulevard, Modifications to I-95 Signing & Lighting	\$ 600,000.00
Wilmington Boulevard, Jefferson St. to Walnut St.	\$ 4,200,000.00
I-95, I-295, I-495 Lighting	\$ 700,000.00
Third Street Bridge Demolition	\$ 500,000.00
TOTAL	\$ 93,400,000.00

UTILITIES

Annually hundreds of miles of utility lines - gas, water, telephone, sewer and electric are added to the thousands

of miles of existing utility lines that are located within Delaware highway's rights-of-way. This year 408 additional utility franchises added 1,516 miles.

Coordinating the relocation and adjustments of those lines is a function of the Utility Section. This coordination is not only with the utility companies but on an inter-departmental basis as well.

The Utility Section also reviews and approves all changes, prepares costs figures, processes preliminary and final estimates and arranges for payments in cases where the Department is financially responsible. During the report year over \$450,000.00 was processed for payment to utility companies for adjustments to their facilities on highway construction projects.

The Utility Section is continuing its program for improvements to various railroad crossings. At the present time, there are 23 crossings being designed on 19 contracts for the installation of automatic flashing lights, protection or improvements to the crossing surface. Railroad has been authorized to proceed with physical improvements at seven grade crossings. In addition, it is proposed that all railroad crossings are to be up-graded with protective devices to meet the state and federal standards.

Major utility installations and relocations are being made on road construction projects currently under construction. The cost of the utility work is approximately \$2,400,000.00. The utility companies are responsible for a large percentage of this cost since their facilities are located on our existing highways and governed by franchise regulations.

ROAD DESIGN

Road Design is responsible for in-house roadway design in the preparation of complete plans for construction. Final details are prepared on roadway width, alignment and grade drainage, erosion control measures, detour schemes, methods of disposing of waste materials, construction sequences, and other items necessary for contract plans.

A total of seventy-seven (77) projects were under design during the past fiscal year. These projects are distributed statewide and vary in complexity.

Safety and safety related projects have accounted for more than thirty percent (30%) of all projects under design. Safety continues to be a prominent factor in developing plans for Delaware highways.

Projects Under Design

Marshall Avenue, Cranston Heights, Jackson Avenue, Marshallton - New Castle County
Milton School Road Drainage - Sussex County
Impact Attenuator - U.S. 13 at Naamans Road - New Castle County
Intersection Imp. - Greenbank Rd. & Rt. 41 - New Castle Co.

Front Street, Lewes - Sussex County
 Briarwood Manor - Sussex County
 Route 7, Christiana to I-95 - New Castle County
 Railroad Crossing U.S. 13 Corbitts - New Castle County
 Miscellaneous Railroad Crossings - Statewide
 Liftwood Drainage, Part II - New Castle County
 Railroad Avenue Drainage, Bridgeville - Sussex County
 Woodside Drainage Improvement - Kent County
 Walnut Street, Wilmington - New Castle County
 I-95 & Route 273 Interchange Ramp L. Operations Study -
 N.C.C.

Voshell's Cove - Kent County
 Arundel Drive & Limestone Road - New Castle County
 Concord Pike - New Castle County
 Bridge 292, Nonesuch Creek on Airport Road
 Marsh Road (Washington St. Ext. to I-95) - New Castle County
 Columbia Avenue Drainage - New Castle County
 Drainage Improvements - Chapelcroft - New Castle County
 Zebley Road Northwest Drainage
 Route 7, I-95 to Route 4 - New Castle County
 Route 7, Conrail Overpass - New Castle County
 Route 7, White Clay Creek to Limestone Road - New Castle
 County
 S. Chapel Street Relocation, Contract 2 - New Castle County
 S. Chapel Street, Contract 3 - New Castle County
 Route 9 - Road 378 to Delaware City (Dragon Run) - New
 Castle County
 Shipley Road Improvement at Philadelphia Pike - New Castle
 County
 Wilson Road Drainage
 Delaware Rte. 8 & Road 104 Intersection Improvements
 I-95 Widening - Christiana Interchange to S. Wilm. Viaduct
 Intersection Improvements, Cleveland Avenue & N. Chapel
 Street
 Polly Drummond Hill Meeting House Hills Drainage
 White Oak Road (Penny Hill)
 Stein Highway
 Landscaping - Brandywine Bridge to Pennsylvania Line
 Saulsbury Road - Kent County
 Intersection Improvements U.S. Route 40 and Glendale
 Road 88 - Kent County
 Turnpike Drainage Improvements II - New Castle County
 Turnpike Replacement of Bridge Approaches
 Turnpike Emergency Crossovers
 U.S. 113 - Georgetown to Milford - Intersecting Roads Only
 Airport Road (Road 340) - New Castle County
 New Castle Road 381
 Sussex County Road 376
 U.S. 13 at Sussex 40 - Bridgeville
 Kent Road 190 - New Burton Road

Projects Advertised

Route 10 - U.S. 13 to U.S. 113 - Kent County
 King St., Wilmington (4th to 8th Sts.) - New Castle County
 Intersection Improvements, Road 300 & Road 237 - New Castle
 County
 Intersection Improvements, Del. 273 & Del. 141 - New Castle
 County
 Road 62 (Road 309 to U.S. 13) - Kent County
 Route 896 & Old Baltimore Pike - 1976 S.I.P. - New Castle
 County
 Section 210-230 - 1976 Safety Improvement Program - New
 Castle County
 Miscellaneous Drainage - Kent County
 I-95 Off Ramp N at Basin Road - New Castle County
 1976 S.I.P., Section 210, 230 - Kent County
 1976 S.I.P., Section 210, 230 - Sussex County
 Intersection Improvements - East Cleveland Avenue and N.
 Chapel Street - New Castle County
 Rt. 4 - West Chestnut Hill Road - New Castle County
 Colonial Heights - New Castle County
 Highpoint Street Improvements - New Castle County
 Faulkland Road & Newport Gap Pike - New Castle County
 Haines Avenue - Beechwood Ave. to Gov. Printz Boulevard, New
 Castle County
 Cedar Street - Lewes - Sussex County
 Mill Creek Road (Sight Distance Improvements)
 East Street - Harrington - Kent County
 Denneys Road and C.R. No. 331 - Kent County
 Glendale Intersection Improvement - New Castle County
 Dirt Road Nos. 258, 279A, 422, 451, 517A, 576 & 603 - Sussex
 County

3-R Program - Concord Pike - New Castle County
 3-R Program - North District I - New Castle County
 South Chapel Street Relocation - New Castle County
 1977 Safety Improvement Program - New Castle County
 Kirkwood Highway - Pike Creek Road to N.C.C. Engineering
 Bldg.
 1977 Safety Improvement Program - Sussex County
 Lennox Road - New Castle County
 Miscellaneous Drainage Improvements - Contract I - Delaware
 Turnpike

BRIDGE

The Bridge Section prepared and received bids on eleven (11) contracts (five of them are combined with road design) for bridges and other structures between July 1, 1976 and June 30, 1977. The total construction cost is \$5,217,839.90. The contracts are listed as follows:

CONTRACT	DESCRIPTION	COST
<u>New Castle County</u>		
72-02-004*	Ruthby Road Overpass	\$ 534,143.64
73-10-011*	Ruthby Road Underpass	\$ 467,685.82
73-05-006*	I-95 Off-Ramp N	\$ 90,863.00
76-01-010	Bridge No. 663-State Road	\$ 1,290,838.45
76-07-016 &		
76-07-017	Signing I-95, I-295, & I-495	\$ 557,949.50
76-08-007*	South Chapel St. Relocation	\$ 1,197,066.50
	New Castle Co. TOTAL	\$ 4,138,546.91
<u>Kent County</u>		
74-12-008	Replacement of Br. No. 195A on Road 195	\$ 66,300.00
75-04-013*	Lebanon Road	\$ 653,285.29
75-08-005	Woodland Beach Causeway	\$ 304,415.70
76-07-010	Replacement of Bulkhead at Bridge 17A	\$ 55,292.00
	Kent County TOTAL	\$ 1,079,292.99

Sussex County---None

*Denotes the project in conjunction with design, the amount listed is for structural cost only.

In addition, the Bridge Section designed a pedestrian/bicycle bridge over St. Jones River at Lebanon. The bridge was built by U.S. Army. The structures designed by consultants are reviewed and approved in the Bridge Section.

The following were the projects under design:

Widening of Bridges 9-1, 9-2 and 9-3 on I-95, New Castle Co.
 Christina Mall-Rt. 7, New Castle Co.
 Kingston Drive, New Castle Co.
 Bridge 58 on Miller Rd., New Castle Co.
 Bridge 443 on Rd. 376, Sussex Co.
 Bridge 357 on Rd. 48, New Castle Co.
 Bridge 260 on Rd. 346, New Castle Co.
 Bridge 2A on Rockland Rd., New Castle Co.
 Bridge 91A on Rd. 91, Kent Co.
 Bridge 64A on Rd. 76, Kent Co.
 Fairwinds Drainage-Army Creek, New Castle Co.
 Bridge 224 on Rd. 546, Sussex Co.
 Bridge 240 on Rd. 46, Sussex Co.
 Bridge 251 at Concord Pond, Sussex Co.
 Bridge 404 on Rd. 427, New Castle Co.

The Bridge Section continued bridge inspections and updated reports for structures over twenty (20) feet on

the Federal Aid System. This inspection is required by the Federal Highway Administration, U.S. Department of Transportation.

In addition, a program was continued to inspect all structures over twenty (20) feet on tertiary roads and small drainage structures on all roads.

SPECIFICATIONS

The Specifications Section prepared special provisions for construction contracts involving highway and bridge construction, drainage, repairs, demolition, materials, etc. The functions of the section are allied to the design sections, and require direct contact with squad leaders of bridge and road design, and with review section engineers, to insure that items of work on tract plans are covered with respect to description, construction methods, type of materials, and payment for required work.

Contract operations must be performed within the framework of the Standard Specifications. Where new or special construction methods may be required, or where the use of new or up-dated materials need clarification, the information is directed to the contractor through the contract documents relevant to each contract.

Specifications include the contractual requirements under which the contractor shall perform the work, and contain the detailed requirements for the work to be accomplished. They complement the plans which delineate the extent and nature of the work to be done.

OPERATIONS

MANAGEMENT SYSTEMS

Management Systems has completed the implementation of the Computerized Fuel Billing System initiated during Fiscal Year '76. Monthly bills to other agencies for fuel and oil dispensed are now ready by the fifteenth of the following month, rather than one-and-a-half or two months later.

The Highway Maintenance Management Program is being revised to make it more responsive to the needs of top and middle management. To accomplish this objective the number of function codes, which categorize maintenance operations, is being further reduced in an attempt to increase the accuracy of the information received from the field.

The development of an Annual Work Program based on the Maintenance Features Inventory and tailored to the available manpower in the field has been started. This will enable the field to plan and schedule its work to meet established maintenance levels.

The Traffic Management System has completed its first full year and will be reviewed by the Bureau of Traffic in conjunction with this section to determine whether or not it is fulfilling the total needs of the various levels of management. This includes the pavement marking and signing crews, thus leaving only the signal maintenance forces to be brought into the system at a future date.

The Equipment Management System is being reactivated with the semi-annual report for the period of July 1, 1976 through December 31, 1976, recently received, and the January 1, 1977 through June 30, 1977 report due in July. Much work needs to be done with this program to purge it of inaccurate data in the area of equipment mileage and/or hours of operation. Once this is accomplished and the report frequency established on a quarterly schedule, the need for manually maintained equipment records should be greatly reduced. Development has started on an equipment breakdown report to indicate units having excessive down time. This affects over-age heavy equipment primarily and will aid in the determination of what equipment should be "red-lined" and/or replaced.

The Management Systems Section continues to maintain and monitor all active systems, implementing refinements from time to time to meet the Department's needs.

BUREAU OF MAINTENANCE

During FY '77, the Bureau of Maintenance continued to operate as a staff section, reporting to the Assistant Chief Engineer for Operations, providing guidance and direction for the entire maintenance program.

In addition to the everyday tasks associated with roadway and equipment maintenance, this bureau continued its leadership role in contract preparation. With only a three-member staff directly involved in contract preparation and control, the bureau planned, wrote and assisted in the administration of 13 equipment contracts, 34 materials contracts and 24 maintenance/repair contracts. As indicated by the limited number of equipment contracts, the funds necessary to continue a reasonably effective equipment replacement program were not available during FY '77.

The program designed to monitor appropriated fund expenditures which was started in FY '76 was expanded to monitor expenditures by all districts and sections with the exception of the Director's office. This program involves the review and posting of each purchase order, the consolidation, posting and distribution of refund data and through monitoring of selected items provides an additional management tool for expenditure control.

As in previous years, the major problem areas were lack of manpower and funds. These problem areas will not be eliminated in FY '78, however, it is hoped that their

effect on the overall program will be diminished through planned management programs.

NORTH DISTRICT - MAINTENANCE

In July 1976, maintenance personnel in the North District numbered 176; by the close of the Fiscal Year forces totaled 160. This loss of 16 persons equals an eleven percent cut in manpower. During FY '75 our forces were reduced by six percent. This mandated reduction in personnel caused the District to be unable to place approximately \$50,000 worth of materials which could have been used for highway repairs. These monies were, however, utilized in a resurfacing contract.

Reductions in manpower have seriously restricted the capability of the district to supply services to the public to the extent previously experienced, and to which the public has become accustomed. All the complaints received could not be handled expediently and some, of course, could not be performed at all. Effort was made to establish priorities for the work performed with safety to the traveling public as the main determining factor.

Some noteworthy exceptions to normal maintenance functions which were performed by the District are as follows:

- Thirty-three of our dump trucks were prepared and painted prior to the winter season. This represented a cost of approximately \$100 per truck and is considered to have been a sound investment in preventive maintenance and increased body life for the trucks. Having taken this initial step, it is hoped that we can continue the program by painting a smaller number of trucks each year.

- Smiths Bridge, a historical wooden bridge, was in dire need of repair. It was completely stripped down to the four steel girders spanning the Brandywine Creek and rebuilt using treated timber to duplicate the original structure, without the covered portion which was destroyed by fire years ago and never replaced. When this bridge was rebuilt in similar manner after the fire, it was done under contract and took approximately eight months. Maintenance forces performed the work in two months at an approximate cost of \$20,000.

- A concerted effort was made in the preparation of I-495 for its opening in June. While the amount of mowing, trimming, and dressing was quite monumental, the results were gratifying and a beautiful section of highway was opened to the public.

CENTRAL DISTRICT - MAINTENANCE

During the past fiscal year maintenance activities have become more routine and complaint oriented due to the lack of personnel to pursue a preventative maintenance program as should be done.

The winter months of 1976-77 are recorded as the most severe in history. December and January produced approximately 15" of snowfall. Total expenditures exceeded \$144,000. During the month of January maintenance forces responded to snow emergencies for twenty-two calendar days that varied from plowing snow to applying abrasives. Snow related services ranging from preparation of chemicals and abrasives to pushing snow accounted for approximately 13,732 manhours at a total cost of \$134,500.

In addition to the costly snow removal operations, the prolonged freezing spell caused considerable damage to the network of roads in the Central District. As the early spring thaw progressed, it was evident that an emergency type program was necessary to repair approximately 200 miles of roads that were damaged. Damage varied from small potholes to long stretches of roadways that had complete base failures. Temporary repairs consisted of placing select borrow or crusher run material on sections of roadways to maintain traffic.

During the spring months, permanent type repairs included scarifying the base failures or replacing same and surface treating. Cold mix patching aided in the repairs to small sections of failures. Total expenditures to complete repairs is unknown at this time since repairs continue into the new fiscal year.

Approximately \$200,000 was spent to complete the necessary repairs that included 15,000 tons of select borrow and 1400 tons of cold mix.

The Float Crew Surface Treatment Section completed work on approximately twenty-eight roads and one suburban development (Meadowbrook Acres). Proposed projects include retreatment and initial treatment of shoulders on Federal Aid Primary and Federal Aid Secondary roads in the Central District next fiscal year with federal funds. Before this can be started there are about twenty secondary roads in each of the four maintenance areas in need of retreatment. Many roads at the present time have been patched and therefore need the protection of the additional cover.

The Hot Mix Resurfacing Program during the past year improved critical segments of the primary road system. Projects completed included U.S. 13 north and southbound (Cheswold to Smyrna), an access road on the Dover Bypass, a section of South Governors Avenue

in Dover, and N.E. 10th Street in Milford. Proposed projects next fiscal year include U.S. 13 southbound from the Camden light to Canterbury, Route 8 from Dover to Pearsons Corner, Route 10 from Camden to Willow Grove, and Road 15 from Mt. Pleasant to Boyds Corner in New Castle County. Several minor projects are also included pending sufficient funding.

Small timber bridge replacements again were below the projected program due to lack of manpower. Six locations were completed this year, and approximately six locations are scheduled to be replaced during the next fiscal year.

Several Safety Improvements were completed on primary roads in the district that included the following:

1. Left turn lane and relocation of a crossover at Lawndale on U.S. 13.
2. Crossover widening at the intersection of County Road 102 and U.S. 13.
3. Two left turn lanes north and southbound U.S. 13 (Roads 239 and 371).
4. One right turn lane at U.S. 113A and Road 366.
5. Approximately 900 L.F. of guardrail and cable placed on Road 380 at Andrews Lake on both sides of sharp curve to protect traffic from steep embankment slopes.

Three additional locations for left turn lanes are proposed in the near future.

The projected workload for the new fiscal year includes a rather limited mowing schedule. Each area initially used three mowers each for roadside mowing, making only one pass on each side of the road rather than mowing slopes, etc. This will reduce the overall cost for mowing operations.

The Equipment Replacement Program was severely curtailed due to budget restrictions. New equipment received during the fiscal year included eighteen new pickup trucks, three snow plows, one air conditioner, ten step ladders, and miscellaneous items for the area shops.

Training sessions for maintenance personnel included Level III of the Maintenance Management Training Programs for top level supervisory personnel. Certificates of Achievement were awarded to eleven maintenance supervisors in February 1977.

The Central District, in conjunction with a statewide Construction Inspector Training Program that included selected personnel from maintenance, conducted monthly examinations relating to construction inspection.

First Aid Courses were also completed by seven employees representing all areas in January. An

additional training course in Defensive Driving was cancelled due to inclement weather.

SOUTH DISTRICT - MAINTENANCE

All resources available to the South District Maintenance Section have been utilized toward achieving a level of maintenance, consistent with good judgment and sound management practices.

Due to a restricted budget, reduction of manpower, inflationary costs, and other factors, our forces have concentrated on priority-type projects whenever possible.

The most challenging obstacle encountered was the abnormally severe winter of 1976-77. Our forces were successful in coping with the problem.

A total of 47 roads were severely affected in addition to minor damages on practically all roads in the district.

The following eight timber bridges were replaced with large diameter pipe:

#1 Bridge 552	#5 Bridge 532
#2 Bridge 367	#6 Bridge 373
#3 Bridge 368	#7 Bridge 344
#4 Bridge 322	#8 Bridge 628

All area supervisors in the district have done a reasonably good job of performing all types of routine maintenance.

The utility section has processed and performed field inspection on 727 utility permits, in addition to providing inspection on 12 incorporated town projects.

Two hundred eight-nine (289) residential permits and one hundred twenty-eight (128) commercial permits were processed.

Working in conjunction with the Sussex County Agriculture Agent, the South District has participated in a Johnson Grass Control Program which has been successful in controlling the growth on state right of way.

The acquisition of the following new equipment has been instrumental in helping to improve the overall efficiency of maintenance operations in the South District: 14 pickup trucks, and three dump trucks.

CONSTRUCTION

CONTRACTS COMPLETED AND ACCEPTED - JULY 1976 THRU JUNE 30, 1977

<u>Contract No.</u>	<u>Description</u>	<u>Final Cost</u>
<u>New Castle Co.</u>		
65-11-003	Swanwyck Connection	623,330.84*
67-12-001	Rt. 896 Md. Line to Newark	1,694,602.42
68-08-002	Borings, Relocated DuPont Road, Elsmere	5,040.73
71-09-005	Kennett Pike Relocation	3,013,158.43*
72-08-001	U.S. 13 Safety Improvements, Llangollen	684,212.80
73-10-013	I-495 Structures over Sanitary Sewer	563,579.68
74-01-004	Elsmere Reconstruction	157,164.36
74-01-005	Liftwood Drainage	146,990.75
74-03-007	Holly Oak Streets	271,420.34
74-04-008	Wilmington Manor Gardens, Drainage	27,408.72
74-09-005	Bridge 564 on Jay Drive & Bridge 551 on Louise Road	111,333.43
74-10-001	I-495 Drainage, Terminal Avenue to Christiana River	347,022.98
74-12-006	Replacement of Bridge No. 59 on Coachman Road	116,591.71*
75-04-006	Replacement of Bridge 274 on Road 312	79,741.00
75-04-007	I-495 Westbound Widening Bridge 6-9 to 6-10	553,785.90
75-04-011	Bridge 6-10 over P.C.T. Co. Widening Westbound & Eastbound I-495	436,220.17
75-05-003	Safety Improvement Program N.C.	238,485.43
75-05-007	Stockdale Streets	367,588.80*
75-06-018	Varlano & Jamica Drive Drainage	34,421.95
75-06-020	Old Newark Road Pedestrian Sidewalk	43,286.66
75-07-003	Delaware Avenue & Jackson Street Safety Improvements	22,003.87
75-08-008	Intersection Improvements, Foulk Road, Windsor Hills	73,602.67*
75-08-013	Clayton Street Drainage	30,545.98
75-09-021	Concrete Patching Program North District 1975-1976	76,839.84
75-09-022	Repairs to Third Street Bridge	10,905.78
75-09-025	Inter. Improvements Route 72 and Road 295	33,811.48
75-09-026	Inter. Improvements Roads 300 and 237	47,218.08
75-09-028	Inter. Improvements Route 273 and 141	26,303.15*
75-10-003	Hot Mix Resurfacing Program North District 1975-76	202,171.46
75-12-007	Bikeway - Brandywine Hundred	36,494.35*
76-01-007/008	Class II Bikeway Route 72 Penn Central Railroad to Road 336	40,068.70
76-02-007	Dead or Diseased Tree Removal	7,515.00
76-02-008	Traffic Painting Upper N.C.C.	53,606.98
76-03-008	Suburban Development Improvements #1 North District	321,332.12
76-04-008	Tree Removal U.S. 13 Boyds Corner to St. Georges	3,089.08
76-04-017	Hot Mix Bit. Concrete Rehabilitation Program North District #2	424,711.36*
76-04-018	Hot Mix Concrete Rehabilitation Route 273 North District	94,234.81
76-07-003	Dead or Diseased Tree Removal N.C.C. #3	11,340.26*
76-08-003	Repair & Replacement of Curb & Sidewalk Maryland Avenue	67,304.93*
<u>Kent County</u>		
72-04-001	Intersection Improvements, Kent County	294,015.63
73-12-003	Port Mahon Stabilization	687,294.39
74-03-001	Replace Bridge 225A on Road 225	85,240.56
74-09-001	Replace Bridge 186A on Road 186	48,779.18
74-12-008	Bridge 195A on Road 195	59,172.83*
75-08-015	Replacement of Bridge 16B on Route 8	53,517.36
75-09-009	Subsurface Investigation Dualization of U.S. 113	14,495.83
75-09-014	Kent County Dirt Roads	359,939.11
76-01-012	Hot Mix Rehabilitation Program Central District #2	189,345.65
76-01-013	Hot Mix Rehabilitation Program Central District #1	201,140.86
76-02-005	Replacement of Bridge 284A on Road 284	84,149.89*
76-03-001	Hot Mix Bit. Conc. Rehabilitation Program Central District #3	134,893.39
76-03-003	Miscellaneous Drainage - Kent County	54,260.01
76-03-010	Bridge 207A on Road 207 Mudmill Pond	243,832.42*
76-03-016	Relocation for Delaware's Liberty Bell (Replica)	8,109.19
76-05-002	Hot Mix Resurfacing U.S. 13 from Route 42 to Road 12 Kent County	291,671.89*

*Estimated Final Cost

<u>Contract No.</u>	<u>Description</u>	<u>Final Cost</u>
<u>Sussex County</u>		
67-10-015	Route 14, Rehoboth Bypass	1,034,652.91
68-03-001	Delaware Rt. 16 & 14 to Milford Bypass	5,045,994.50*
72-09-006	Cedar Neck Road Drainage	56,438.66
73-04-005	Bridge 924 on Road 224	136,146.28
74-03-014	Bridge 503 over Mispillion River on Maple Avenue	88,126.85
74-04-003	Indian River Inlet Southbound Lane	2,383,997.70
75-09-004	6th Street over Rossakatum Branch - Laurel	44,291.54
75-09-007	Intersection Improvements, Blades	24,156.21
75-09-015	Sussex Dirt Roads	420,884.60
75-09-018	Hot Mix Bit. Concrete Rehabilitation Program South District #2	235,804.94
75-09-019	Hot Mix Bit. Concrete Rehabilitation Program South District #1	128,565.46
75-09-023	North Second Street, Delmar	91,566.69
76-05-012	Tulls Crossing Bridge	39,900.75
76-07-007	Route 17 Hot Mix Resurfacing	294,112.16
<u>Statewide</u>		
75-05-004	Safety Improvement Work Statewide	<u>197,587.69</u>
TOTAL COST OF ALL COMPLETED & ACCEPTED CONTRACTS		\$24,128,572.13

*Estimated Final Cost

ACTIVE CONSTRUCTION CONTRACTS AS OF JUNE 30, 1977

<u>Contract No.</u>	<u>Description</u>	<u>% Complete</u>	<u>Bid Price</u>
<u>New Castle Co.</u>			
65-01-004	I-495 From Penn Central Railroad to New Castle Avenue	98	16,876,227.81
66-09-009	Paving, Concord Pike to Glenrock Drive	98	1,924,746.48
70-06-003	Interstate I-495 Grading, Stabilization & Drainage	98	11,934,361.25
71-02-008	Relocated Route 141 Thru Newport, Superstructure	75	10,768,346.25
71-02-009	Relocated Route 141 Thru Newport	76	6,034,890.79
71-10-001	Third Street Bridge	68	2,831,670.00
71-11-006	Otts Chapel Road, Elkton Road to I-95	98	3,786,902.44
72-02-004	Ruthby Road - Ruthar Drive	33	2,554,352.54
72-10-009	Moores Lane Connection	98	749,725.00
72-11-001	Wilmington Topics Improvements	98	397,952.50
73-05-002	Inter, Imp. East Cleveland Avenue & N. Chapel Street	50	27,505.90
73-05-006	Off Ramp N at Basin Road	2	615,283.57
73-09-001	I-495 over Edgemoor Road & P.C.T. Co. Railroad Mainline	98	6,039,784.40
73-10-014	I-495 Structures at 12th Street	98	2,112,649.80
74-03-008	Bridge 645 on Marrows Road	98	1,326,231.10
74-05-001	Critical Area Treatment	98	81,276.30
74-12-010	I-495 Grading and Paving	86	3,589,484.88
75-06-019	U.S. 13 Safety Improvements Odessa to Tybouts Corner	55	1,957,041.57
75-08-004	King Street, 4th to 8th Streets	73	274,629.10
75-08-009	Faulk Road & Newport Gap Pike	12	225,887.74
75-08-010	Woodward Avenue Connector	98	59,292.50
75-08-027	Colonial Height	89	72,358.70
75-09-020	Hot Mix Bit. Conc. Rehabilitation Program North District #1 1975-76	98	328,720.00
75-09-031	Louisa Avenue, Eastburn Heights	98	72,292.50
75-10-002	U.S. 13 Drainage & Misc. Improvements, Biddles Corner	98	168,364.52
75-11-008	Route 4, West Chestnut Hill Road	40	269,613.20
75-12-010	Riverside Addition	23	170,264.00
75-12-011	Brookland Terrace	33	382,316.89
76-01-010	Bridge 663 - State Road	6	1,290,838.45
76-01-011	Bikeway Connectors - Brookside, Scottfield, Sandalwood, Sherwood	98	8,079.40
76-01-015	Wilmington Boulevard I-95 Modifications	32	2,358,942.53

<u>Contract No.</u>	<u>Description</u>	<u>% Complete</u>	<u>Bid Price</u>
<u>New Castle Co. (cont.)</u>			
76-03-005	Road 62 from 309 to U.S. 13	98	247,446.75
76-03-007	Suburban Development Improvements North #2	98	513,965.50
76-03-018	Wilmington Boulevard Shipley Street Outfall	25	376,996.00
76-03-020	Wilmington Boulevard Ramps E & EF Viaducts	22	2,051,025.22
76-03-022	Highpoint Street Improvements	63	167,821.09
76-04-006	Landscaping U.S. 13 Boyds Corner to St. Georges Bridge	98	8,248.50
76-04-013	Safety Program Route 896 & Old Baltimore Pike	49	287,000.92
76-05-003/004	Safety Program Section 210 to 230	98	90,530.60
76-06-006	Haines Avenue, Beechwood Avenue to Gov. Printz Blvd.	98	92,123.25
76-06-007	Improvements to Air Conditioning System North District	90	51,428.00
76-07-016/017	Signing I-95, I-295 and I-495	43	557,949.50
76-08-001	Mill Creek Road (Sight Distance Improvements)	98	12,347.30
76-08-008	Relocated Delaware Route 141 Prices Corner Interchange Phase III	2	4,642,513.23
77-01-002	1977 Pavement Marking Program Upper New Castle County	10	49,382.28
77-01-007	Dead or Diseased Tree Removal	10	6,918.00
<u>Kent County</u>			
71-05-004	U.S. 113 Frederica to Little Heaven	98	1,669,361.51
75-04-013	Route 10, U.S. 13 to U.S. 113	38	1,989,290.77
75-08-005	Woodland Beach Causeway	50	304,415.70
75-08-006	Dover High School Entrance Road, Drainage	98	80,173.60
76-05-005/006	Safety Improvement Program Kent County	92	76,306.50
76-06-011	Denneys Road & C.R. #331	37	503,221.30
<u>Sussex County</u>			
73-07-003	Cedar Creek Bridge Mechanization	98	173,600.00
74-01-001	Replacement of Bridge 812 on Route 16 at Broadkill	98	509,976.70
75-10-006	Cedar Street, Lewes	85	199,589.80
75-12-006	Route 14, Rehoboth Bypass Phase II	33	2,266,304.83
76-04-005	Landscaping SR-1 Rehoboth to Milford	98	49,569.00
76-05-007/008	Safety Improvement Program Sussex County	98	70,556.50
76-08-004	Dirt Roads, Sussex	2	449,802.01
<u>Statewide</u>			
76-04-007	Vegetative Headlight Screen and Crash Barriers	94	49,907.00
76-07-001	Applied White & Yellow Traffic Paint	42	109,273.21
77-01-001	1977 Pavement Marking Program Lower N.C., Kent & Sussex Counties	5	54,702.49
77-01-004	Dead or Diseased Tree Removal	98	8,858.00
TOTAL BID PRICE OF ALL CONSTRUCTION CONTRACTS			\$ 97,010,637.17

DELAWARE TRANSPORTATION AUTHORITY

The Delaware Transportation Authority (DTA) was created on June 30, 1976, when the Governor signed HB 1230, as amended, of the 128th General Assembly. On that date DTA replaced the Division of Transportation as an operating division of the State Department of Transportation. In addition DTA assumed responsibility for the Delaware Turnpike.

I. Funding

The DTA was created as a funding mechanism for public transportation - relieving the state general fund of this burden. The enabling legislation mandated refinancing the turnpike to allow excess revenues to be spent on other transportation needs of the state. Refinancing was required because the existing Bond Agreement did not allow any turnpike revenues to be diverted from the project.

No state general funds were appropriated for the authority for FY '77, but a \$700,000 loan for operations was provided until refinancing could be completed on September 30, 1976 with the issuance of \$14,850,000 of revenue refunding bonds. These funds, together with funds which had been collected in the various turnpike accounts, allowed DTA to place \$44,013,385 in escrow with the Trustee (Bank of Delaware) for recall of the 1962 (Series A), 1963 (Series B), and the 1970 (Series C) bonds allowing defeasance of the 1962 Trust Agreement.

The new bonds will be redeemed, according to an established schedule, by 1981.

Excess turnpike funds provided during the year were sufficient to meet all demands of the DTA - including repayment of the \$700,000 state loan.

II. Delaware Turnpike

A separate annual report covering the Delaware Turnpike operations and finances is prepared in accordance with the Delaware Code. Interested readers are directed to this document. The FY 1977 report has not yet been published because (1) the annual CPA report at June 30, 1977 has not been completed and (2) the turnpike, during this period, is being changed from a calendar fiscal year to the state fiscal year.

III. Surface Transit

A. Planning

The staff continued to plan with local governments to produce the documents required for a continuing, coordinated, comprehensive planning process. In New Castle County, the DTA works

within the WILMAPCO coordinating forum to produce the required Long Range Plans and Short Range Transportation Improvement Program. The DTA planning effort is included in the WILMAPCO Unified Work Program.

DTA prepares an analysis for New Castle County of the impact on public transportation each significant land development proposal would have. This report is used by New Castle County in their land decision process.

Planning for public transportation in Kent and Sussex Counties is currently limited to two areas: 1) Railroads; and, 2) Specialized transportation for the elderly and handicapped.

An update of the State Rail Plan was completed by staff during the year and at the end of the fiscal year a major update by the consultant firm of Peat, Marwick, Mitchell and Company was nearing completion.

A statewide DAST Development Plan update is scheduled for FY '78. During 1977 the firm of Simpson & Curtin was selected for this effort and negotiations were underway to finalize the work contract.

B. UMTA Grant Program Under Paragraph 16(b)(2)

DTA completed it's screening of private nonprofit applications for this federal program to provide assistance for elderly and handicapped transportation. Submission of the statewide grant was made to UMTA. UMTA turned down all applications (except for radios to the Red Cross) and advised that private non-profit organizations could better provide their services through DAST.

C. Commuter Rail

SEPTA commuter rail service for Newark, Wilmington and Claymont oriented to the Philadelphia hub continued during FY '77. There was no change in service provided but fares were increased effective April 1, 1977. The increase was an across the board 30% for interstate travel and 25% for intrastate. Despite these increases the annual May statistics indicated a 6.3% increase in usage for the year.

The weekday average was 2,109 trips in May 1977.

ConRail continues to operate the service for SEPTA under an operating subsidy agreement. The Delaware service subsidy is currently provided by a Federal Section 17 continuation grant. A one year 90% federal aid period began March 27, 1977.

The 10% match is being provided by the fare increase. Actual local government contributions are anticipated to begin to flow to the service continuation during fiscal '78.

Plans were underway to improve the Claymont station by providing a pedestrian overpass of I-495 and an improved parking lot.

D. Northeast Corridor Rail Improvement Program

Final designs were initiated for this federally mandated program during fiscal '77. The program is planned to improve intercity (AMTRAK) train passenger service along the established Washington-Boston corridor. The program will also provide for fencing and other safety improvements as well as improvements that benefit commuter rail, buses, etc. (termed "non-operational improvements").

The Wilmington station will be completely reconstructed and is the project's top priority. The work, hopefully, will include provisions for intercity buses, local buses and taxis, and major parking improvements.

The total project estimate within Delaware is 92.6 million dollars. Local contribution within Delaware has been requested for the fencing and non-operational improvements. The estimated cost of the local contribution request was set at 11.8 million dollars. The Federal Railroad Administration has been advised that the state of Delaware will be unable to fund a project of this magnitude. Relief is expected.

Designs are being prepared by consultants employed directly by the federal government.

E. Regulatory Services

The Office of Regulatory Services is responsible for regulation of private railroads and buses operating within Delaware. Regulation is accomplished in accordance with Delaware Code and adopted departmental procedures. Under these procedures the Regulatory Services Office accomplished the following:

- (1) Conducted 206 semi-annual safety inspections of charter coaches and school buses.
- (2) Issued Certificates of Public Convenience and Necessity to three (3) charter operators.
- (3) Approved suspension of commuter bus

service between Dover & Wilmington due to lack of patronage.

(4) Approved several Greyhound and Trailways schedule revisions and fare adjustments.

(5) Granted temporary operating rights for bus service between the duPont Hotel and the Wilmington station by Diamond Cab - Yellow Cab.

F. DART & DAST Operations

The DTA provides state operating subsidy, state Capital Grants, and planning assistance to the Delaware Authority for Regional Transit (DART) and the Delaware Authority for Specialized Transportation (DAST).

During the year a comprehensive planning study was completed for DTA by the consulting firm of Harland Bartholomew and Associates. This study presents a short range general development program for DART covering the next several years.

(1) DART - DART had another successful year in terms of passengers transported. Two fare increases failed to deter the passengers and the buses carried 6.1 million riders, 19,000 more in FY 1977 than in FY 1976. Revenues reached an all time high of \$1.9 million, an increase of 11 per cent. Unaudited financial statements for DART's fiscal year show that the authority posted a net operating loss of \$2,733,629, which will be paid off with subsidies from the federal, state and local governments. This represents an increase over the loss of approximately \$2,400,000 from the preceding year.

Analysis of operating statistics reveals a cost of 76 cents per passenger against a revenue of 32 cents, or a loss of 44 cents per passenger transported. Another analysis reveals an operating cost of \$1.94 per bus mile, a revenue of 80 cents, or a loss of \$1.14 a bus mile.

During this fiscal year DART became firmly settled in their new facility. The combination of the new facility and new buses assisted them in putting higher quality equipment on their routes, thereby contributing to a much lower breakdown rate of buses in service.

Also during the fiscal year a remote security system, office furniture and fixtures and numerous items of equipment (mono-rail hoist

and equipment, hydraulic press, parts washer, steam cleaner, industrial sweeper, etc.) for the garage were received and installed. All of this was accomplished through federal/state grants.

(2) DAST - DAST, the nation's only statewide provider of elderly and handicapped transportation services, provided some 184,886 passenger trips under contract to 40 agencies in Delaware this past fiscal year. The service was generated by a fleet of 37 vehicles covering the entire three county area with dispatching offices located in Wilmington, Dover and Georgetown.

In November 1976 DAST moved its New Castle County administrative and dispatch office from the old State Armory on DuPont Street to their newly renovated operations center on the DuPont Highway at the intersection with U. S. Route 40 in New Castle. A similar move in March, 1977 allowed the Kent County dispatcher's office to move from the Kent County Court House to a joint office/dispatch center in the new City of Dover maintenance facility. The move within Kent County has facilitated better coordination and cooperation with the existing Dover Senior Surrey operation.

DAST is currently awaiting receipt of 32 new vehicles purchased under an Urban Mass Transportation Administration grant. The new additions to the fleet include 17 raised roof vans and 15 small buses. These vehicles are all wheelchair lift equipped and will provide much needed specialized equipment capability to DAST's operations fleet. Recently completed radio specifications will allow for the purchase of radios for each of the DAST vehicles thereby enabling DAST's dispatch capabilities to achieve added efficiency. These radios are also being funded at an 80/20 match ratio under the same federal grant.

Since DAST was created in December 1974, there have been two major items of significant change to their operating format. First is the continuation of taxi involvement in the provision of service. DAST contracts with a private taxi company in the Wilmington area to supply transportation service to an increasing proportion of its ambulatory ridership. This arrangement, also one of the first of its kind in the nation, allows DAST to better utilize its current limited number of wheelchair vehicles as well as to provide more cost effective service. A contingency in the federal grant for new wheelchair lift vehicles

requires that DAST continue to contract for taxi service where cost effective. The second major item involves the passage during this fiscal year of enabling legislation dealing with the transportation of individuals. Previously individual users had to be referred by and paid for by a contracting agency. This new legislation allows a qualified individual to call DAST directly for service.

G. Rail Freight

Delaware's entire 291 mile railroad network is currently in a state of flux. Rehabilitation of the Northeast Corridor represents only a portion of the revitalization underway in Delaware. ConRail has begun a 2 million dollar program to upgrade the tracks between New Castle and Milford from current 10 mph operations to 40 mph capability. This program will be expanded next year to include the stretch from Newark to Porter and to continue from Milford south to Dagsboro.

Further rehabilitation work has begun on the branch lines in the state under the Federal Title IV Rail Continuation Assistance Program. This year the program has provided some 2 million dollars in funds at a 90/10 matching ratio for rehabilitation, operational and lease expenses involved in continuing rail service on branch lines subject to potential abandonment. The Georgetown to Lewes Beach branch line and the Elsmere to Chadds Ford, Pennsylvania branch line are being upgraded and operated by the state under this program. Maryland and Delaware both are funding the restoration and operation of the three interstate branch lines which originate in Delaware and terminate on Maryland's Eastern Shore.

An extension of this cooperative effort among the Delmarva states has allowed the state to transfer a portion of its excess federal entitlement funds to the State of Virginia. The money is to be used to rehabilitate the float system. Maryland is also involved in the transferral of funds to Virginia. The continued operation of the float is vital to all three states in terms of both guaranteed access from the south and as a safety valve to prevent the states from being landlocked by a potential accident at the Summit Railroad Bridge.

Several branch lines in the state were abandoned as a result of the reorganization process. These abandonments did not cause a loss of service to any Delaware shippers. Three of the four branches; Lewes to Rehoboth, Rockland and Kentmere, have had their rails removed by the property owners and are available for purchase. The Division of Highways is currently investigating their potential

for bikeways. The fourth line, Clayton to Smyrna, is being studied for a potential reopening by the state. Interest has been expressed by a grain firm to renovate an existing facility and begin shipping by rail. This line would then be added to the Rail Continuation Assistance Program.

IV. Aeronautics

A. Planning

The two major airports, Greater Wilmington and Sussex County, through their planning agencies applied for funding from the Federal Aviation Administration for improvements under the Airport and Airway Development Act of 1970.

The Greater Wilmington Airport was allocated \$86,400 to accomplish much needed work on the primary instrument landing runway. This project will entail grooving and marking with a completion date of late summer 1977.

State ADAP Apportionment funds amounting to \$202,438 was utilized by Sussex County Airport to provide updated runway lighting, approach aids and modernization of electrical wiring systems. In addition, access roads, terminal parking spaces and acquisition of land in runway clear zones is in the planning stage.

B. Joint-Use Facility

Although the Kent County Levy Court and the State Transportation Authority agreed that utilization of a Joint-Use facility at Dover Air Force Base was in the best interest of the Kent County citizens to provide air service to the capitol, a special referendum was held in November 1976 at which time the proponents for an airport in Kent County lost by a narrow margin. This action by the voters of Kent County will curtail any airport construction plans in the foreseeable future.

C. Commuter Air Carriers

Commuter Air Carriers serving the three (3) counties in the State stabilized their operations during FY '77 and are providing the citizens with adequate air transportation to the hub airports.

June 1977 saw the termination of flights to Philadelphia by Baltimore Airways commuter due to a poor gate position and lack of an interline agreement with the major airlines. The Transportation Authority and the New Castle County airport management negotiated an agreement with Baltimore Airways to service Greater Wilmington with four (4) round trips per day on the Dover to Baltimore-Washington route.

This scheduling provides early morning flights to the Baltimore-Washington area and late evening arrivals back at Wilmington and Dover.

The county governments and the Transportation Authority actively worked with the Commuter Air Carriers to acquire gate and slot positions at Washington National Airport, and in addition, upgrade facilities and scheduling.

D. Safety and Accident Investigations

All public use airports were inspected in October 1976 by the Aeronautics Section with a representative from the Federal Aviation Airports District Office at Harrisburg, Pennsylvania. While no major discrepancies were found, there were areas of concern regarding power lines and trees affecting safe flight at some of the airports. Airport manager-owner at Selbyville agreed to cut a clear zone to the most active runway.

Meetings with Delmarva Power officials regarding power line hazards resulted in an agreement with the owner of Jenkins Airport at Wyoming, to equally share the costs of burying power lines on the approach end of the active runway, thereby greatly enhancing flight safety at this particular airport where thirty-five (35) aircraft are normally based. Two (2) other airports which have power lines near runway ends have been tabbed for removal.

Airport directional signs were installed on highways and roads leading to all public use airports in the three (3) counties by the Division of Highways. The installation of these signs provide easier access to the airports, especially those served by Commuter Air Carriers.

The Aeronautics Section investigated a total of six (6) aircraft accidents during FY 1977. Three (3) were considered major with no fatalities and three (3) were classed as minor since no injuries were sustained. The occupants in the major accidents suffered critical injuries, however, all survived. While the accident rate increased to six (6) in FY 1977 from four (4) in FY 1976, the period covered in this report is the first year since 1973 to be fatality free.

The Aeronautics Section and the Federal Aviation Administration investigate all aircraft accidents in the state. However, where loss of life is a factor the National Transportation Safety Board makes an additional investigation to determine cause.

The State Fire School agreed to teach aircraft crash and rescue procedures to all volunteer fire companies' personnel in the State especially those

units in close proximity to airports where Commuter Air Carriers operate.

With the assistance of the Aeronautics Section, Del Castle Tech School at Wilmington received four (4) jet aircraft engines and numerous aircraft parts to assure FAA certification of an engine and airframe course which will train high school graduates for jobs in the aviation industry.

The Section made forty (40) visits to airports both by air and ground, expending a total of fifty-three (53) flying hours observing beach recreation areas and airport flight operations.

OFFICE OF ADMINISTRATION

PERSONNEL

EMPLOYMENT AND RECRUITING

A total of 1,228 employees were on the active permanent payroll on June 30, 1977 as opposed to 1,303 on July 1, 1976. The decreased manning complement resulted from budget cuts and a resultant hiring freeze. The cutbacks were attained through normal attrition. The hardest hit area was among highway maintenance personnel who are involved in the day to day upkeep of the state's road system. Employment was continued only in critical areas that directly affect the public's safety (such as traffic-signal repair and bridge operation).

The total employment figures do not count 68 Delaware Turnpike employees, 39 seasonal employees and 19 CETA employees on board as of June 30, 1977. The seasonal and CETA employees are mainly assigned to trashing, mowing and other basic road maintenance projects.

Accession during the year included 55 new hires, 16 returnees from leaves of absence (medical, military and educational) and 3 transfers-in from other state agencies. Separations included 42 voluntary resignations, 56 retirements, 24 leaves of absence, 8 dismissals, 9 deaths, 9 transfers-out and 1 layoff.

The college recruiting program was de-emphasized due to budget cuts and the hiring freeze. Engineer turnover, however, has continued at a high level and contingency plans are being prepared to resume a limited college recruiting program.

EMPLOYEE AND LABOR RELATIONS

Labor relations with Locals 837, 879, 1036, 1443 and 2429 of the American Federation of State, County and Municipal Employees, A.F.L.-C.I.O. were maintained at

a high level of success during FY '77. No arbitration cases were required and almost all grievances were settled within the department with only two cases going to the State Personnel Commission.

A labor contract was successfully negotiated with the new Delaware Turnpike Local 2429 and negotiations are presently being concluded with the Statewide Construction, Supervisory and Clerical Local 837.

A total of 56 employees were individually counseled prior to their retirement dates and were prepared for all aspects of retirement such as social security, life and medical insurance and personal budget planning. All employees have been counseled with regard to the new retirement program.

CLASSIFICATION

Position classification reviews were conducted in the engineering, drafting, designer, maintenance and accounting areas with participation from the State Personnel Office.

Double increment wage and salary increases for outstanding performance were again completely restricted by the FY '76 Appropriations Act. Promotions were limited and were awarded only after job audits were performed or it was ascertained that the vacancy was of a critical nature. Many positions created by attrition were not filled.

EEO AND AFFIRMATIVE ACTION

The Department's Affirmative Action Program was reviewed and revised during the year. A new policy statement with specific goals was also issued. The Personnel section continued to maintain close liaison with both the State Affirmative Action Officer and the State Human Relations Commission to further establish EEO policies and procedures. The department has also continued to work closely with the federally funded Comprehensive Employment Training Act (CETA). An Equal Employment Opportunity Commission claim lodged against the department was successfully defended.

FISCAL CONTROL

During FY '77, a total of \$24,927,949.42 was received by the department as revenue, of which \$380,921.52 was general fund revenue, \$938,514.67 was for various special funded programs, and \$23,608,513.23 was received from the Federal Highway Administration for the highway program.

Expenditures for the same period totalled

\$75,282,582.67 of which \$34,402,523.05 was general funds, \$1,656,244.60 was for various special funded programs and \$39,223,815.02 was for the highway programs.

Selected summary financial statements are included in this report.

EXTERNAL AUDIT

During the past year the External Audit Section has continued the effort to overcome an inherited backlog of audit work which is required for projects accomplished in earlier periods. The field work has been completed for Delmarva Power and Light Co. (Gas and Electric Divisions) and the Audit Report is being prepared. The review of Diamond State Telephone Co. disclosed errors in billing which the company has accepted and they have now submitted revised billings reducing the costs to the State in excess of \$60,000.00.

Pre-award Financial Evaluations of proposals to provide services to the Department were issued for:

Frederic R. Harris, Inc.
 Modjeski and Masters
 Wilmington Metropolitan Area Coordinating Council
 ConRail (review of field-office operations)

Major cost audit reports issued during the period were for work performed by:

Harland Bartholomew & Associates
 Mueser, Moran, Proctor & Rutledge
 Tippetts-Abbott-McCarthy & Stratton
 Artesian Water Co.
 Wilmington Water Dept.
 New Castle County Levy Court
 Reading Railroad Co.
 Delaware Contractor's Association
 Goodkind & O'Dea, Inc.
 Boswell Engineering Co.
 J. E. Greiner Co.
 Ford, Bacon & Davis

COMPUTER SUPPORT

While normal data processing services were provided by the Computer Support Section during FY 1977, to various sections of the Department, quite significant and far reaching changes were made within the section. Most importantly, there was a major change in equipment on which we perform our jobs. In mid-November one IBM 360/50 computer was replaced by an IBM 370/158 computer which has the potential of greatly improving services, if not cost, to the department. In the wake of

this development our section's proposal for an engineering mini-computer was unfortunately scuttled. A "VM operating system" was installed which allows both the previous CDP "DOS" disk operating system and the Computer Support Section's "OS" operating system and others to run simultaneously. Later, disk storage devices were upgraded from model 2314 to 3330 drives, increasing mass online storage by several times. Computer Support also generated and OS/VS1 supervisor, which has been adopted by CDP as the original OS/VS system in the State.

During this year we expect to upgrade our input-output peripheral devices which will improve service for department users.

ADMINISTRATIVE SERVICES

Activities for the Administrative Services Section are summarized as follows:

Summary of Contracts Advertised:

TYPE

Construction

Federal Participating	24	\$16,743,607.09
100% State	32	5,161,671.61
Rejected	9	
Withdrawn	5	
TOTAL Construction	70	\$21,905,278.70

Materiel

Materiel & Supplies	53	\$ 1,863,973.11
Equipment	19	420,357.70
Rejected	1	
No Bids Received	2	
TOTAL Materiel	75	\$ 2,284,330.81

TOTAL Construction & Materiel

145 \$24,189,609.51

Receipts

Contract Sales	\$ 21,001.67
Map Sales	2,264.82
Traffic Summary Sales	137.25
TOTAL Receipts	\$ 23,403.74

Contractor Prequalification:

During the Fiscal year, the responsibility for prequalification was transferred to this section. Department rules require that bidders must be prequalified to bid on department projects. This is accomplished by submitting on standard forms provided by us, sworn statements as to experience, organization, construction equipment and financial resources. These statements may be submitted at any time during the year, and prequalification, if granted, will be valid to May 31, of the second succeeding calendar year.

Services:

Support for all divisions and sections of the department is provided through various units of this section. Purchasing furnishes supplies and coordinates printing, copying machines and mail service. The Word Processing Center provides typing and composing services through magnetic tape selective typewriters. A study is being made to update this equipment so additional services can be included. Our Department Library is simply a technical library with a considerable collection of publications on highway and transportation technology which has been sorted, classified and catalogued. Materials are also available through interlibrary loans. The Records Center maintains the Department's record retention and disposal system through file maintenance, microfilming and disposal. The center also distributes and maintains a complete file on all legislation and it's status.

DEPARTMENT OF TRANSPORTATION
 COMPARATIVE STATEMENT OF TOTAL FUNDS AVAILABLE
 EXPENDITURES - UNEXPENDED BALANCES - ALL FUNDS
 FOR YEAR ENDED JUNE 30, 1977 - 1976

	Year Ended 1977	June 30 1976	Increase (Decrease)
Funds Available	120,653,305.01	129,801,750.04	(9,148,445.03)
Expenditures	75,282,582.67	79,201,459.56	(3,918,876.89)
Unexpended Balances	51,370,722.34	50,600,290.48	770,431.86
Disposition of Funds			
Continuing	41,375,860.44	41,770,445.56	(394,585.12)
Encumbered	9,911,682.04	8,074,100.73	1,837,581.31
Reverted	83,179.86	755,744.19	(672,564.33)
Unexpended Balances	51,370,722.34	50,600,290.48	770,431.86

DEPARTMENT OF TRANSPORTATION
COMPARATIVE STATEMENT OF EXPENDITURES BY DIVISIONS
AND SPECIAL FUNDS FOR YEAR ENDED JUNE 30, 1977 - 1976

	Year Ended 1977	June 30 1976	Increase (Decrease)
General Funds			
Office of Secretary	70,387.58	84,839.19	(14,451.61)
Office of Administration	358,867.88	376,515.16	(17,647.28)
Division of Highways	33,971,447.05	30,586,742.07	3,384,704.98
Transportation Authority	1,820.54	1,256,366.33	(1,254,545.79)
Sub Total	34,402,523.05	32,304,462.75	2,098,060.30
Special Funds - Construction Funds			
Highway Construction Fund 1961	203,397.73	459,821.25	(256,423.52)
Highway Construction Fund 1964	664,586.46	1,058,865.75	(394,279.29)
Capital Improvements 1966	62,305.31	39,442.84	22,862.47
Capital Improvements 1967	122,247.89	473,993.61	(351,745.72)
Capital Improvements 1968	176,104.71	427,171.10	(251,066.39)
Capital Improvements 1969	776,871.07	876,219.74	(99,348.67)
Capital Improvements 1970	671,744.67	1,003,200.90	(331,456.23)
Capital Improvements 1971	137,225.32	365,653.10	(228,427.78)
Capital Improvements 1972	161,396.78	423,221.55	(261,824.77)
Capital Improvements 1973	1,729,227.94	3,784,972.71	(2,055,744.77)
Capital Improvements 1974	3,454,047.71	15,662,735.68	(12,208,687.97)
Capital Improvements 1975	8,952,649.08	14,246,927.57	(5,294,278.49)
Capital Improvements 1976	18,977,047.02	7,723,928.34	11,253,118.68
Capital Improvements 1977	3,134,963.33		3,134,963.33
Total - Construction Funds	39,223,815.02	46,546,154.14	(7,322,239.12)

Schedule A-2

	Year Ended 1977	June 30 1976	Increase (Decrease)
Other Special Funds			
FHWA - Advance Right of Way	180,325.41	5,508.83	174,816.58
Public Employment Program	4,120.80	78,102.71	(73,981.91)
UMTA-DE 09-0002		5,804.17	(5,804.17)
Federal Aviation Administration Grant		24,714.67	(24,714.67)
UMTA-ST 09-8001		11,000.-	(11,000.-)
Transportation Study - Kent County		24,395.19	(24,395.19)
Conrail Subsidiary	150,910.66	85,119.70	65,790.96
CETA VI (Fund 28)	24,882.78	35,489.32	(10,606.54)
CETA VI (Fund 29)	11,160.70	15,684.37	(4,523.67)
Support For Office of Secretary	36,028.84		36,028.84
Support For Office of Administration	40,112.37		40,112.37
Abandoned Vehicle Escrow	188.-		188.-
D.T.A. Regulatory Revolving Fund	1,591.04		1,591.04
Escrow Account	54,926.30	46,913.58	8,012.72
Bicentennial Memorial Park	18,479.59	1,438.63	17,040.96
Dela. Transportation Authority	729,123.41		729,123.41
Traffic & Planning	404,394.70	16,671.50	387,723.20
Total - Other Special Funds	1,656,244.60	350,842.67	1,305,401.93
Total - Special Funds	40,880,059.62	46,896,996.81	(6,016,937.19)
Total - All Funds	75,282,582.67	79,201,459.56	(3,918,876.89)

