

Traffic

The Department's objectives of safe, effective and efficient movement of people and goods on Delaware highways required more studies and evaluation than in previous years.

In meeting the obligations, the Traffic Section issued 20,779 hauling permits producing revenue of \$108,397.53, remarked nearly 60,000 linear feet of school crossings, stop bars, diagonal bars and arrows. It required over 24,000 gallons of paint and 192,000 pounds of beads to mark over 1,700 miles of traffic lanes. In connection with safety and traffic problems, traffic engineers made more than 700 traffic studies, of which 49 concerned traffic signals, 139 involved entrance studies and 123 were signing studies. Others consisted of speed studies, parking studies, signing studies, etc.

For the past two years traffic engineers have undertaken the replacement of standard eight-inch traffic signal lens with the new twelve-inch lens at major intersections. The new signal provides a 120 percent increase in visible lens area. As of this report twenty-one replacements have been made. Four school flashing signals were altered to provide a full-time stop-and-go function.

During the past year nearly 13,000 new traffic signs were fabricated, at a cost of \$150,000. A new "Welcome to Delaware" sign was produced to provide uniformity as well as aesthetic appeal. Signs are produced at cost for many Delaware towns and municipalities as well as suburban developments and other State agencies. The implementation of a simple photographic method of making silk screen has provided not only flexibility but economy through speed and reuse.

Income from signs produced for other agencies this year amounted to \$34,630.46. Damage to signs and signals in 142 separate accidents provided collections of \$11,420.09.

The recommended use of a new reflective marking material will provide increased economy and greater school safety. The 200 crossings requiring remarking, a sign standardization program and other recommended future sign projects will require an estimated \$100,000 per year for the first 4 years.

With the completion of the Interstate Lighting Project, the Department became the owner of approximately 600 lighting units. The traffic engineers, through a power consumption study, were able to predetermine cost estimates which resulted in a savings of \$29,400 on a six-year bulb life cycle.

traffic engineering & safety . . .



First highway centerline marker, circa 1920

Safety

The four-year Safety Improvement Program, initially scheduled to terminate in 1969, has been made a continuing project by the Federal Highway Administration. Delaware's general plan for implementing a Highway Safety Improvement Program was submitted to the Bureau of Public Roads this year. The Delaware Plan includes recommendations and studies concerning intersection accidents, railroad highway grade crossings and fatal accident statistics.

Future concepts concerning highway safety recommendations in Delaware involve development and use of Accident Investigation Diagnostic Teams. Teams will consist of persons with expertise in the fields of vehicle design, highway design and medicine. They will conduct extensive analysis of sample accidents to determine major contributing factors. An improved method of exact accident location will be adopted through the use of mileposting on State maintained roads, and numbering all suburban/urban intersections.

maintenance & equipment . . .



Flood damage, Laurel, Sussex County, 1933

Major activities of the Department during the year included the operation and maintenance of the 4,400 miles of highways which comprise the State Highway System, and the purchase of ancillary equipment.

Regardless of increased mileage, higher wage scales and inflated material costs, the Department has been able to reduce the number of maintenance personnel and still operate with only a modest budget increase. This is achieved through modernization and improved maintenance management.

New Castle

Operations this year involved the 1,300 plus miles of roadway, including much resurfacing. Major bridge repairs were accomplished and drainage corrections were accomplished on Route 896.

Kent

In maintaining over 1,200 miles of local roadways, several projects highlighted the year's efforts. Smaller timber bridge replacement by large diameter pipe, reinforcement of road edges with hot-mix, and use of hot-mix patches to repair concrete blowouts, were the major projects. Semiannual shop inspection was started in the new Equipment Preventative Maintenance Program for Division equipment.

Sussex

This Division continued to maintain over 1,800 miles of roadway with emphasis on patching using over 8,500 tons of cold-mix. Major maintenance efforts involved parallel ditching, drainage and highway aesthetics. The resurfacing crew completed approximately 106 miles of road.

All employees in maintenance and construction work now wear hard hats and the Department has issued a new Safety Manual. Division Engineers use their Safety Coordinator, and Department Safety Meetings are held every two months. Representatives from the insurance underwriter, as well as the State police, attend.

Equipment

Vehicle and equipment purchases were initiated during the year to increase the Department's on road fleet to approximately 2,176 units, valued at \$2,111,358. Cost of this year's acquisitions amounted to \$166,067.70.

The establishment of three Divisions and one Administrative Center Motor Pools, during the year, will provide increased economy in the Department. An Administrative Center "shuttle car" service with five vehicles, will augment the program.

Maintenance Management

In response to the increasing costs of labor, materials and equipment as well as the new developments in techniques, methods, materials and equipment for maintenance of highways and highway facilities, the Department is initiating a stronger program of maintenance management. The system has for its objective, development and implementation of Statewide methods and standards, applying basic industrial procedures and concepts. Some of the programs necessary to the establishment of a total maintenance management system are:

Uniform, realistic performance standards which establish Statewide quality, quantity and productivity standards;

- Install complete Maintenance Management Information System which will supply and disseminate both fiscal and managerial information;
- Programmed realistic cost data input and retrieval system;
- Develop and implement a system for performance budgeting;
- Determine and implement uniform, realistic equipment rental rates which include operation, maintenance, and depreciation costs;
- Establish a revolving equipment replacement fund;
- Program predetermined equipment depreciation schedule;
- Develop procedure for determination of future maintenance resource needs based upon actual work-load and predetermined levels of service

The development of a Highway Uniform Maintenance Management System (HUMMS) will insure a dollar value returned for each dollar expended in the maintenance of Delaware's highways.

Road maintenance fleet of tractor graders, circa 1920



right of way. . .



Newport, Route 41 looking east toward Christina River, with bridge in raised position, circa 1920

The continuing concern for the property owner is reflected in the changing Federal and State requirements concerning property acquisition. The requirement for a "revolving fund" continues to be of paramount concern in advance acquisition flexibility. Available monies would provide a more advantageous property purchase program.

The acquisition of 1084 parcels for highway use this year reflects the cooperation of property owners and their awareness of the State's fair approach to values and damages. Total right of way expenditures for the year reached 5 1/4 million dollars. Relocation assistance was provided to 195 families and businesses and a total of \$239,312.84 was spent in reimbursement for moving expenses and supplemental relocations. State legislation has surpassed the Federal requirements concerning relocation services and increased benefits for owners and tenants of property acquired.

This year saw 28 buildings or parcels sold or auctioned, producing revenue of \$30,250. Income from rental of excess land amounted to \$26,390 this year.

As indicated in the Highway Legislation section of this report, Senate and House Bills passed this year provided legislation to insure relocation assistance, mortgage rate supplements, incidental moving costs and greater flexibility in allowances for replacement homes.

The Relocation Payments Program now provides three different types of payment to the homeowner involved in relocation. In addition to moving expenses and replacement housing/rental supplements, incidental relocation costs, such as venetian blind and rug purchase due to room and window variations between the new and old home.

The average market selling price of decent, safe and sanitary dwellings functionally comparable to the relocating homeowner, is now studied. If the price paid, on appraisal, to the homeowner is lower than the average market price, the difference may be paid as a supplemental payment.

Protection against the inflationary mortgage money market is available, as a supplemental payment, if an increase in mortgage interest rate is encountered.

Progress toward efficient highway design, based upon sound future planning and economy in acquisition costs must continue. The problem of diminishing available lands and spiraling land costs compounds right of way requirements, and restricts freedom in design. To counter this threat to the joint effort, even earlier right of way activities are necessary in the initial phase of a project to insure economical and equitable land acquisition. In this manner, requirements of both the landowner and the State are met.

Utilities

Delaware highway right of way provides the principle routes used by all the utilities to ensure service to this fast-growing State. During the report year over 650 additional right of way franchises were granted.

Utility relocations and adjustments on highway construction and reconstruction require the careful interdepartmental advance planning of the Utility Section and continual coordination with various utility organizations.

Throughout the life of a project, the Section reviews and approves all changes, prepares cost figures, processes preliminary and final estimates and arranges for payment.

During the year, Utilities personnel prepared a new Utility Manual to incorporate the provision of the Bureau of Public Roads, Policy and Procedure Manual 30-4 and AASHO Guide for Accommodating Utilities on Highway Rights of Way and all of the latest State regulations and policies.

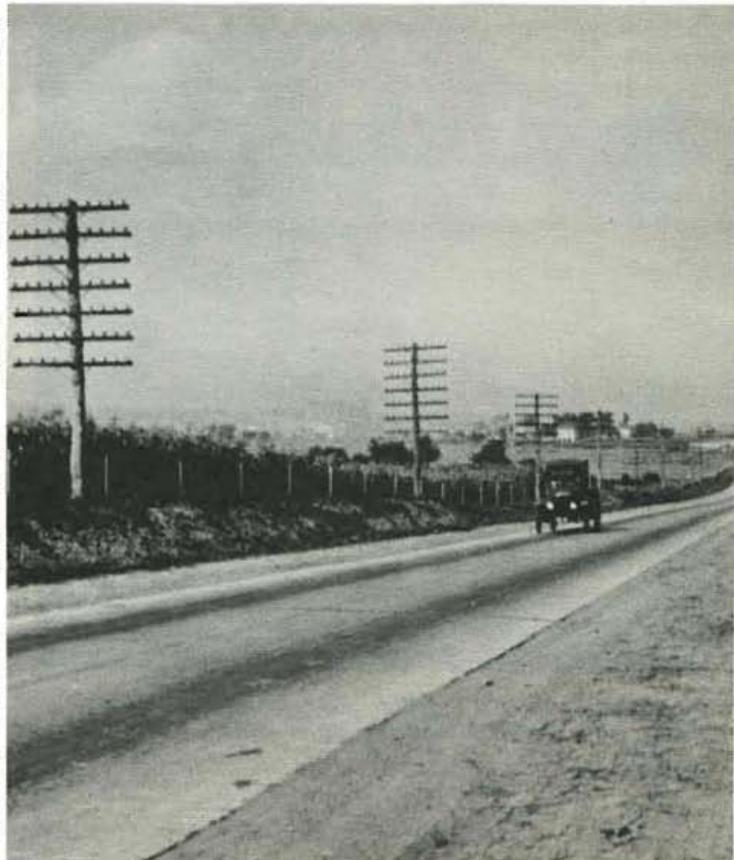
This year, 578 miles of utility facilities were adjusted or relocated. Safety installations were installed or upgraded at 12 railroad grade crossings and negotiations were completed for the upgrading of 22 additional grade crossings. During the year, \$453,638.71 was paid to publicly owned utility companies for adjustments and relocations to their facilities on public highways. Private utilities are not reimbursed except on the Interstate System.

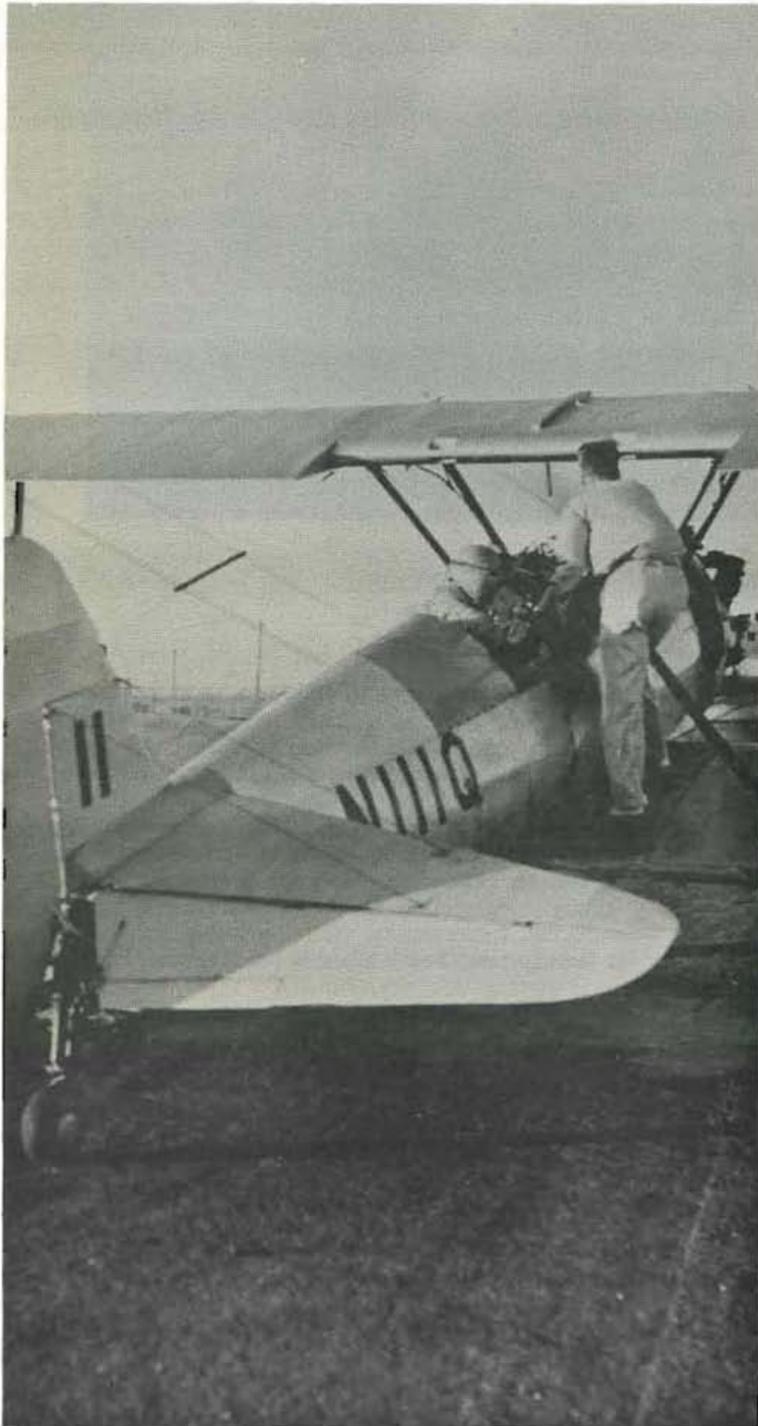
The scope of utility adjustments affecting highway construction contracts was again exemplified during the past year for construction of Route I-495, from Edgemoor to Claymont.

Utility work alone on this recently awarded \$12,000,000 project will require at least 14 months of continuous adjustments. Work will have to be performed in close proximity to the highway construction activities and also with the various utility facilities involved. Extremely close coordination will be necessary, by both the utility companies and the State's contractor, in order that the highway project can be built.

Preliminary estimate of costs for this portion of I-495 utility adjustments is \$1,560,550 which is equal to 12.5% of the cost of the highway project.

State Road looking north to Rogers Corner, New Castle County, circa 1922 (Note 7 ten pin crossarms on utility poles)





Mosquito control aircraft, 1957

mosquito control. . .

The Capital Improvement Program for Mosquito Control terminated with the completion of the work previously envisioned in the Legislative Act of 1965. The continuing maintenance and spraying programs included statewide machine ditching in the amount of 736 thousand linear feet. The counties share of ditching was: Sussex, 521 thousand; Kent, 192 thousand and New Castle, 23 thousand. In addition, 26 thousand linear feet of hand cleaning was accomplished on a State level, and nine "champagne pools" were constructed in Kent County.

The past three-year water impoundment program has been very beneficial in mosquito reduction. Dyke repairs are anticipated during the coming year to maintain the level of efficiency.

Over 173 thousand acres received fixed-wing aircraft spray operations. To supplement the airspraying, Thermo Aerosol fogging machines dispersed over 18 hundred gallons in 172 hours of operation. Over 34 hundred gallons of spray and 995 pounds of Abate granular were used to control mosquito larvae.

The University of Delaware, Department of Entomology and Applied Ecology, conducted tests with a new insecticide, Baygon. These successful testing programs are conducted to keep Delaware's Mosquito Control ahead of the resistant buildup in current insecticides. The University also executes the count/identity program. Portable mosquito light traps are operated for surveillance of the principal vector of "sleeping sickness" (Eastern Equine Encephalitis). There were no cases reported this year. The coming year will require selective equipment replacement to ensure permanent control results. No new or replacement equipment was bought this year.

Due to the reorganization of State functions, the Mosquito Control function, as of August 5, 1970, will come under the Department of Natural Resources and Environmental Control.



Highway landscaping, State Road, New Castle County, circa 1934

Highway Aesthetics

This year saw the Department continue to devote extensive efforts to the appearance of Delaware highways. Design and construction of facilities that would blend with natural topography and preserve aesthetic values remained paramount. Excellent results have been achieved through the extended use of chemical grass growth retardants along U.S. Route 13 and Route 14. During the coming year this program will expand to 50 acres of treatment on hard to maintain gore areas and islands throughout the State. The Roadside Development Section was enlarged this year, to include a centrally located, statewide landscape maintenance function. This crew will assume responsibility to maintain all highway aesthetics. Salvage of flora will be accomplished with the newly acquired hydraulic tree spade. It is anticipated this responsibility will expand to landscaping as contract landscaping is terminated and highway development increases. Major projects this year include the Smyrna Safety Rest Area landscaping, major shade tree planting along Adams and Jackson Streets in Wilmington, landscaping along Delaware Avenue and Twelfth Street in Wilmington. The Interstate 95 landscaping project saw one contract for \$75,000 awarded, with plans to advertise another landscaping contract for nearly one-quarter million dollars.

Shoreline Conservation

In providing protection to Delaware shoreline from erosion this year, \$117,725.75 was spent in the rebuilding of Rehoboth Beach groins. A dune fertilization contract for nearly \$15,000 was awarded. This project will cover the dune area from Henlopen State Park to Fenwick Island. Soil conservation is being carried out along Route 14 at Dewey Beach and also an evaluation of median grasses for future highway construction in shorefront areas is being conducted. Experimental use of various dune grasses for heavily used beach areas, is being accomplished.

The Outdoor Advertising and Junkyard Control Section issued 2,218 permits for outdoor advertising signs and 23 licenses for junkyards during the fiscal year ending June 30, 1970. Deposits amounted to \$11,012.00 for outdoor advertising sign permits and \$690.00 for junkyard licenses.

Legal action is pending against three junkyards (one in each county) that are operating without the prescribed license. The constitutionality of the Junkyard Control Act has been challenged in each case. As soon as this has been adjudicated, action will be taken against all remaining junkyards operating without a license.