

# THE LIGHT IS ALWAYS GREEN



Once the coordinated skills, talents, and specialties sections described have made possible the opening of a new highway for Delaware's progress, the never ending task of maintaining the new facility begins. The goal: to keep the transportation life-lines of the State safe, convenient and free-flowing.

This program includes repair (filling holes in pavement and smoothing gravel roads), reinforcement (filling edge; ruts and low shoulders; resurfacing where necessary, drainage control), safety (removal and control of snow and ice, repairing and painting bridge and guard rails, mowing grass and weeds for sight clearance, painting center and edge lines, adequate signing), and beautification (removing litter, planting and care of trees and other vegetation).

For maximum efficiency, each of the three county divisions has its own maintenance section divided into maintenance areas of approximately 380 miles of road each.

# MAINTENANCE AND EQUIPMENT

Although each county division has its own maintenance section, planning and purchasing are centrally coordinated.

Working with division engineers, the Maintenance and Equipment Section analyzes, budgets, and prepares proposals for maintenance materials to be used during the year such as aggregates, asphalt materials, tires and tubes, lubricants, spark plugs, batteries, grader and snow plow blades, wire rope, calcium and sodium chloride, lumber, diesel fuel oil, drainage pipe, tire chains, snow fence, anti-freeze and weed killer.

New equipment is purchased by contract through this Section as well. Requests for equipment are processed for Department approval and advertised. A card record file covering all equipment is maintained.

With the assistance of the U.S. Bureau of Public Roads, the Highway Department is able to purchase various items of equipment through government surplus, an arrangement which allows the Department to pay only a percentage of total cost.

Rental contracts are executed with private contractors for emergency use of their equipment for snow removal. Statewide inspection of all snow removal equipment is made annually.

In addition to the resurfacing and patching programs handled by maintenance personnel in each county, the Maintenance and Equipment Section advertises resurfacing and hot-mix patching proposals in the three counties.

The Section is also responsible for a safety system of warning lights and signals during repairs for the protection of the traveling public.

Safety on the job is a major concern which has resulted in the preparation this year of a new safety manual. To stress the importance of safety on the job, a central safety committee has been formed with members from all divisions.

Each year, a Statewide Maintenance School is held in each of the three counties to acquaint personnel with the latest techniques and developments in such fields as snow and ice control, drainage, resurfacing, care and operation of equipment, public relations and safety.

*Redecked bridge, New Castle County. Nine bridges were redecked and eight repaired by maintenance crews in the County.*



*An important phase of maintenance is the removal of excess water from roadways. Drainage ditches need frequent cleaning and repair for maximum efficiency.*



*Snow fighter gets a grease job in the Bear maintenance shop.*



*Roadside mowing in Sussex. Ten mowers and ten pickup trucks purchased for use in Sussex this year greatly facilitate this work.*



*Curve shoulder surface treated for safety. In addition to the surface treatment and hot mix contracts awarded to private contractors, much of this type of maintenance is performed by the Highway Department maintenance crews.*

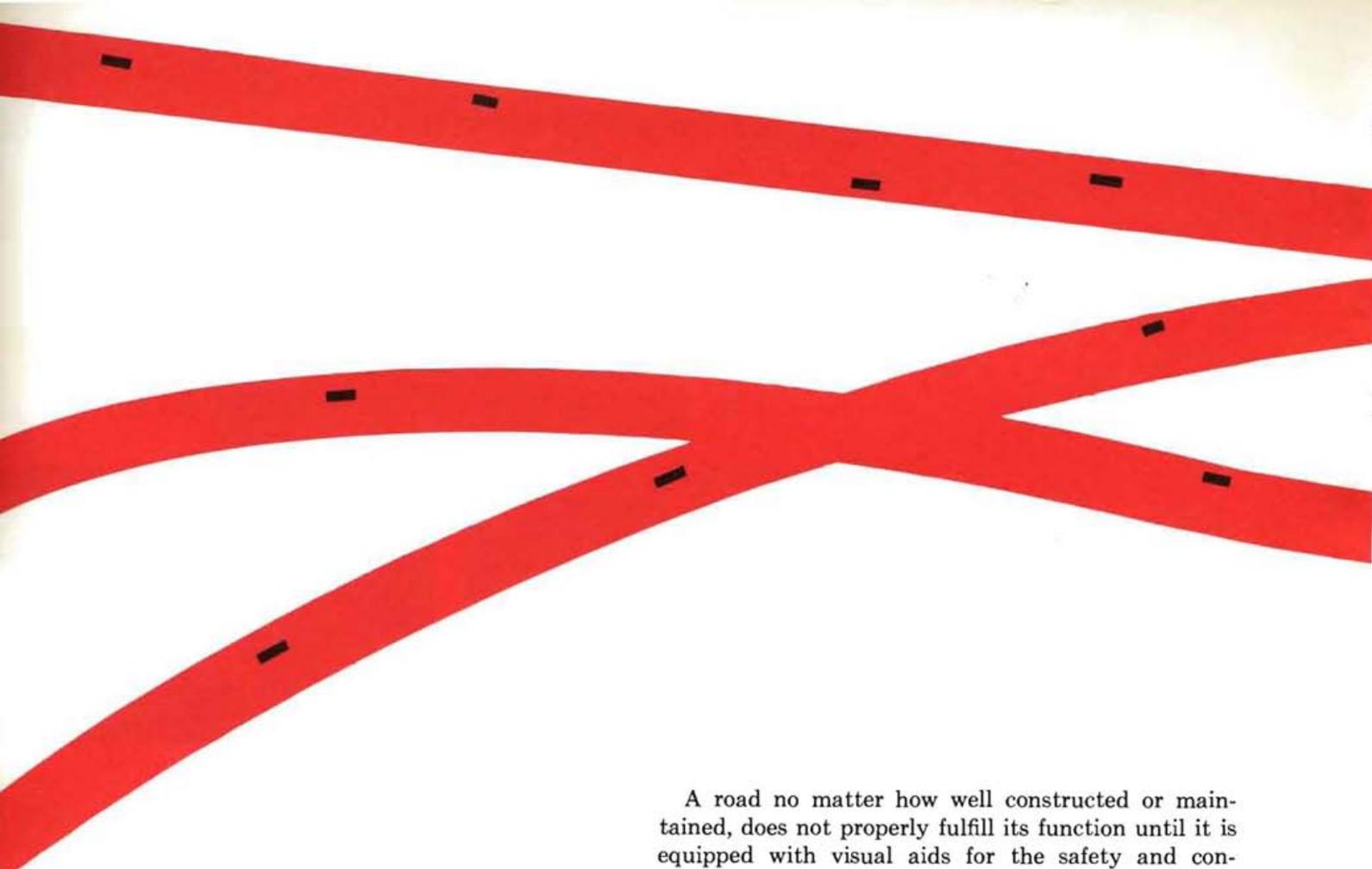


*Turning lane installed on Kirkwood Highway, one of several provided by the New Castle Maintenance Crew this year.*



*Forsythia and dogwood bloom in the median strip in Kent County — a lovely example of highway beautification undertaken jointly by the Highway Department and local civic organizations.*





## TRAFFIC

*Applying paint at 190° for quick drying, the new equipment requires no protection for freshly painted line.*



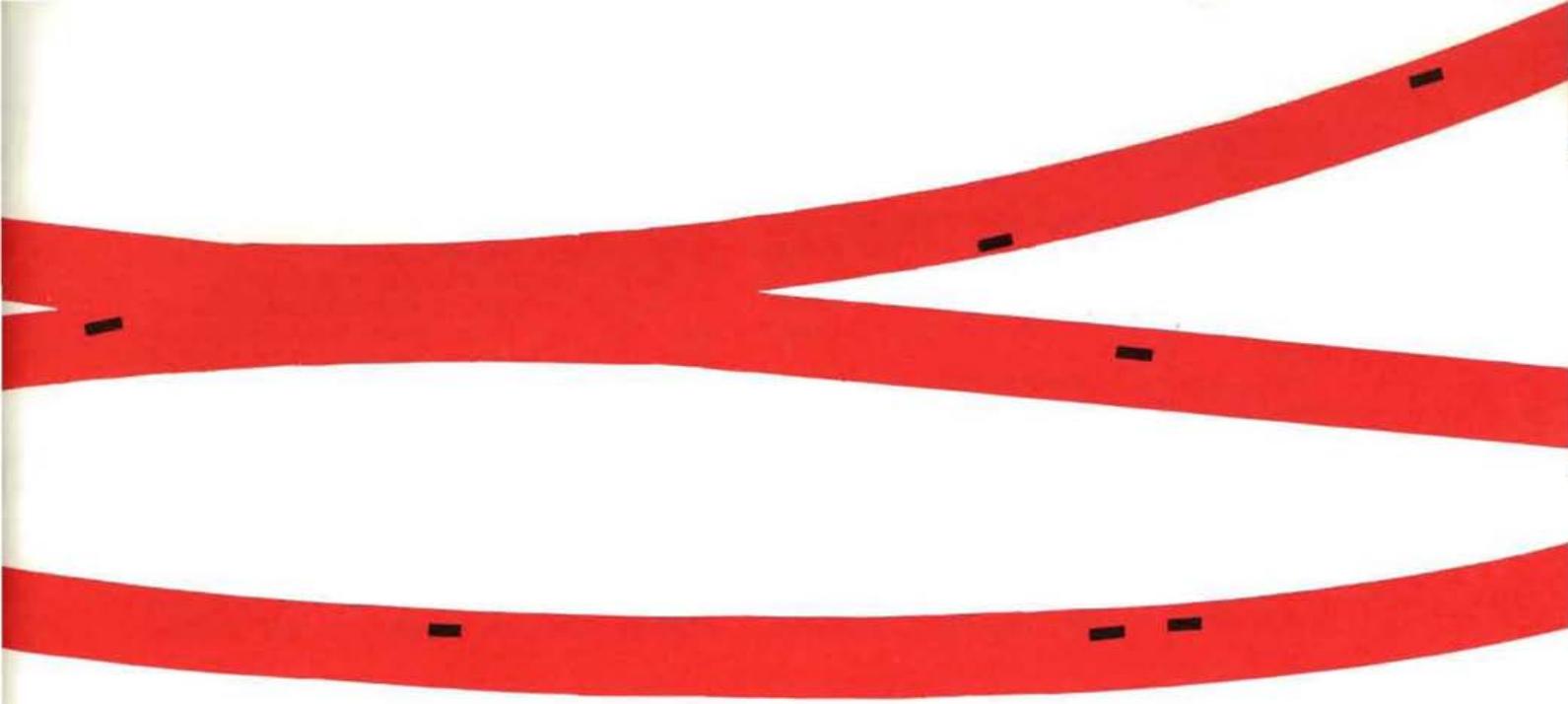
A road no matter how well constructed or maintained, does not properly fulfill its function until it is equipped with visual aids for the safety and convenience of the traveler. Only when directional signs, traffic signals and painted markers such as centerlines are added does a road become fully functional.

Traffic signals along major highways are added on the basis of need until their number becomes sufficient to warrant some sort of interconnected operation to reduce congestion.

One of the earliest systems of traffic control changed signals automatically whether there were cars waiting or not. A timing device in the signal box changed at preset times to handle peak traffic periods throughout the week. Unfortunately, it could only respond to predetermined traffic patterns which were not always efficient for existing conditions.

This rigid system is being replaced with units that change the signals to green on the side street approaches only when a vehicle is waiting. Instead of the old timing device, each unit contains a small analog computer that translates the traffic count made by radar into the amount of green time needed to move traffic through the intersection. Up to ninety different patterns of signal operations can be automatically activated.

During the painting season, a major change was made in the application of pavement marking paints with the delivery of a new paint machine. Applied at



a temperature of 190 degrees the paint requires no protection, thus eliminating the use of line markers, extra labor and equipment. Capable of applying approximately 400 gallons of centerline paint and over 500 gallons of edgeline paint in a single painting day, the new equipment used a total of 21,160 gallons of white and yellow paint applying 1,929 miles of centerlines, barrierlines and edgelines. In addition, directional arrows, stop bars, stop ahead, stop and school markings were applied to the pavement.

In Traffic Sign Maintenance, a total of 7,239 new signs were erected using 5,560 steel sign posts; 6,609 signs were replaced using 4,735 posts; and 3,958 signs were repaired including straightening and painting on 12,145 posts.

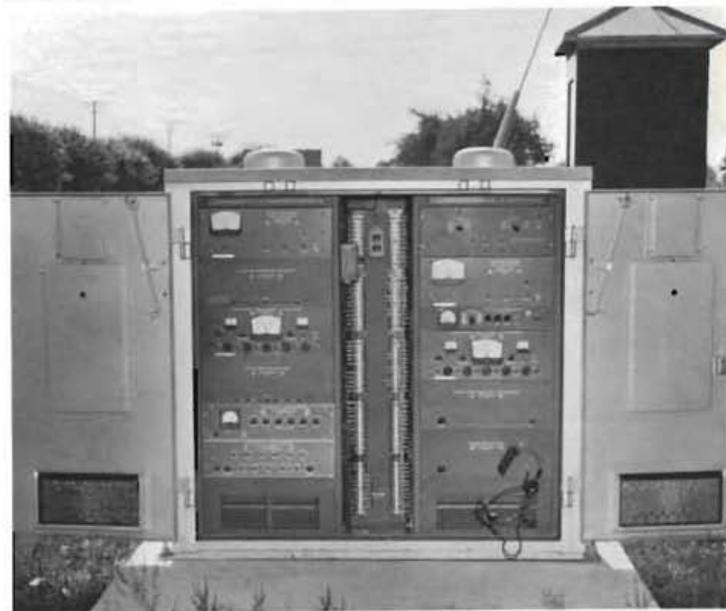
Traffic Maintenance crews placed 261 new signs using 218 posts; replaced 70 signs using 43 posts; and performed maintenance work on 143 signs and 24 posts on the Delaware Turnpike.

#### **SIGN SHOP**

During the year, the Sign Shop fabricated and delivered 8,126 signs to the three counties. A total of 191 trail blazers were made for the Cape May-Lewes Ferry.

Special riveting equipment was purchased this year along with the equipment to cut aluminum to size eliminating the need for stock-piling special sign shapes. Machinery has also been acquired to round corners and punch holes.

*The complex mechanism of the modern traffic control box.*



*Another sign completed in the all modern sign shop.*



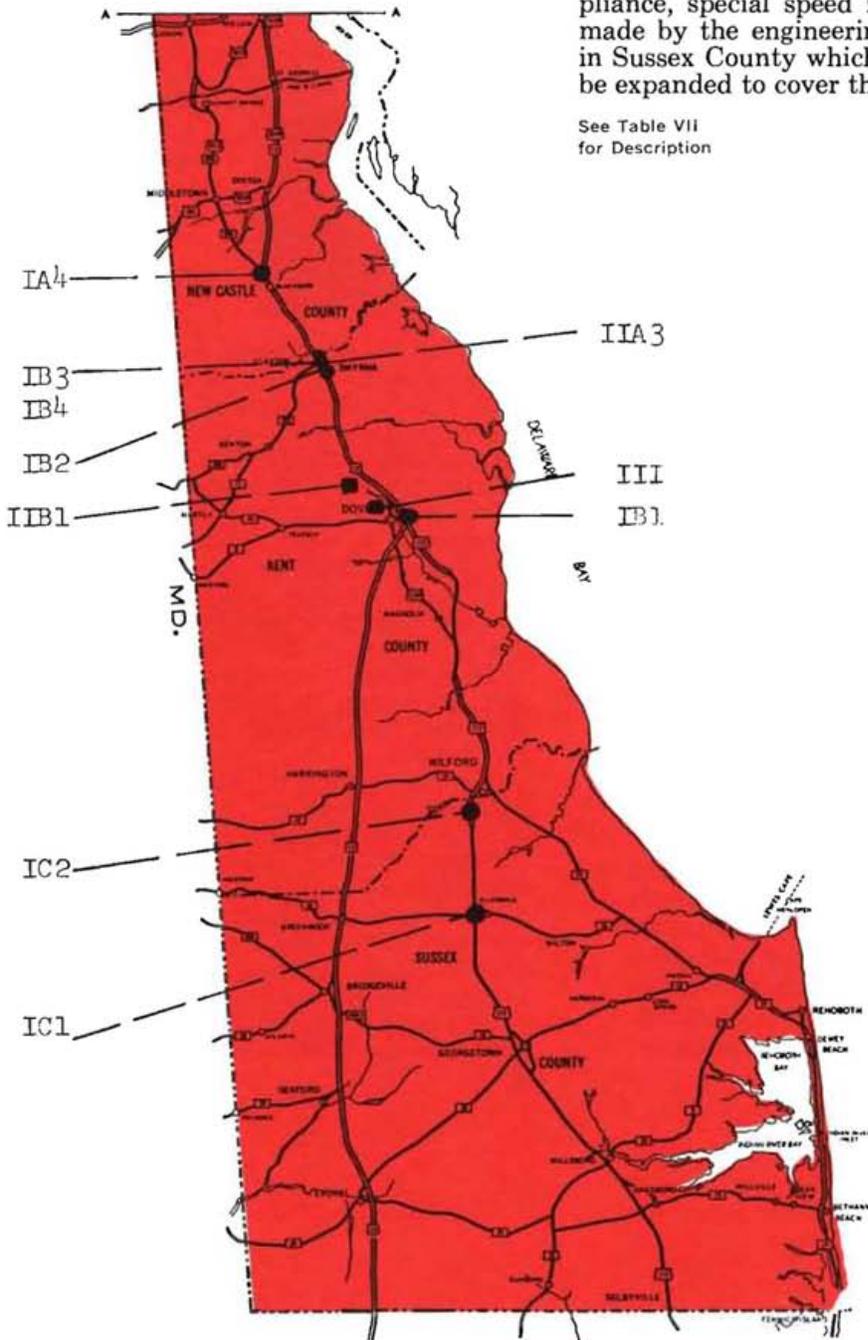
intersection location away from curves to tangent sections.

Along hazardous sections of roads, proposed plans will add left turn lanes, provide pedestrian refuge islands, close minor street entrances to concentrate traffic at a few signalized crossings and eliminate median cross-overs.

Where the need exists, it is also planned to surface treat shoulders along narrow roads marking curves with delineators and painting edge and center lines. The painting of bridge abutments and the improvement of sight distances at railroad grade crossings and rural intersections will provide additional safety features.

To determine reasonable and practical speed limits that will insure driver respect and compliance, special speed zone studies are being made by the engineering and traffic divisions in Sussex County which which will eventually be expanded to cover the entire State.

See Table VII  
for Description



# COMMUNICATIONS

In 1955, recognition of the need for an inter-agency, state-wide communications system resulted in legislation authorizing the Communications Division's responsibility for all state-owned radio equipment. Included in system are Delaware River and Bay Authority, State Police, Department of Civil Defense Forestry Department, Game and Fish Commission, Highway Department and fire companies.

Acting as liaison between the Police Department and the Highway Department, the Communications Division maintains a cross-monitoring system between Delaware Police troops and State Police in adjacent areas of Maryland, Pennsylvania and New Jersey. This year, the Kirkwood Highway troop was added to the Maryland system which is now monitored by four Delaware troops. In addition, radio contact is now provided between the Delaware Turnpike and the Maryland Turnpike. The completion of the Delaware Turnpike's service area radio system adds another dimension of public service and safety.

Communication coverage was also expanded this year to include a radio facility on the Delaware River by adding a police radio at the Shell Fisheries network enabling ship-to-shore messages to be relayed throughout the system.

Since construction of the new Delaware Memorial Bridge necessitated the removal of the Department's radio tower and base station on the site, the base station was installed



in the radio shop building at State Road and the antenna on the State Police tower thus avoiding the cost of erecting the tower at a new location. At the same time, the Delaware Turnpike Administration Building was linked into the highway system.

The Civil Defense warning and communication system was modernized this

year by the installation of new radio equipment at the Civil Defense main center in Delaware City. School installations of air raid alert receivers have been completed and one has been installed at the State Welfare Home.

Prior to the 1955 central organization, the Civil Defense Department had installed radio equipment in each volunteer fire company. The present system includes mobile radio equipment in each truck enabling two-way communication between members of the fire net and each of the Civil Defense base stations in Kent, Sussex and New Castle along with the center in Delaware City. This year, the State Fire School director was added to the fire net.

Ever increasing highway mileage and suburban expansion forecasts the need for continued improvement in the communications network. Toward this end, the Division now maintains a supply of new equipment and replacement parts to insure immediate service to all agencies on the communications system. In the planning stage is comprehensive analysis of the material required to develop and maintain this vital link in the safety and security of the State.

This year the Legislature created a \$2 million fund for permanent control work resulting in the formation of a Project Determination Committee. Consisting of two representatives from the University of Delaware Department of Entomology, one from the Game and Fish Commission, and one from the Engineering Division of the Highway Department, the committee has the responsibility for recommending to the Department projects acceptable under the terms of the Legislature.

Anticipating the increased scope of division activities, a staff entomologist has been appointed and six additional employees added to the staff to aid in contract preparations, surveys and administrative routines.

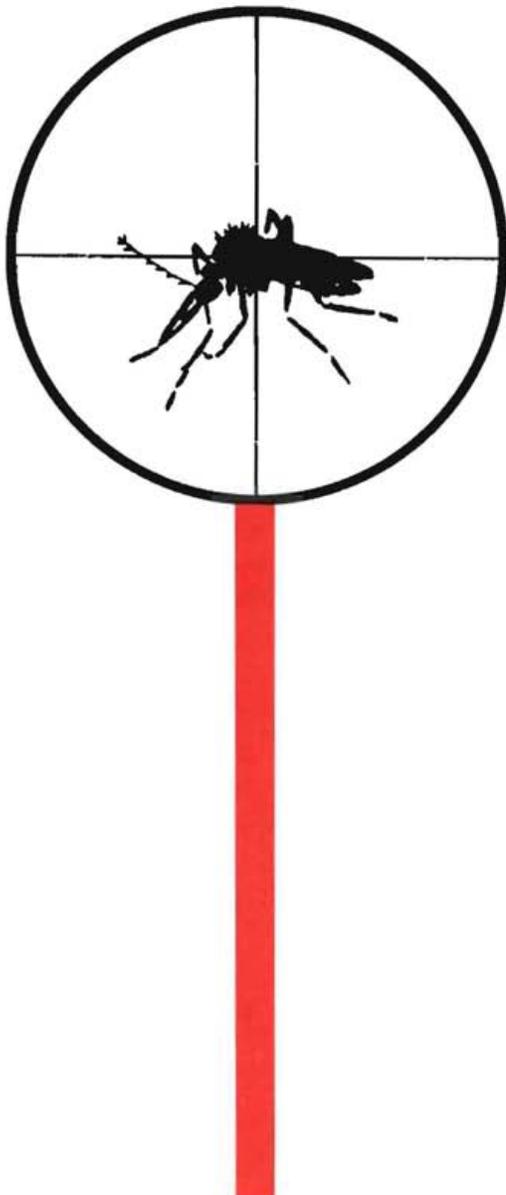
Under the new program, the Mosquito Control Division will advise on areas and types of permanent control, assist Engineering Division personnel in contract execution, and perform minor control operations not let to private contractors. For this purpose, an additional crawler-type crane and two pick-up trucks were purchased.

Regular permanent control work, following the pattern of recent years, was carried out including maintenance of marsh ditching amounting to the machine-cleaning of approximately 700,000 linear feet of marsh in Sussex County.

Aerial spraying with Dibrom, an insecticide deadly to adult mosquitoes and harmless to plants and wildlife, covered 255,000 acres. Although the below normal rainfall would ordinarily have reduced mosquito breeding problems, several unexpected tidal irregularities in the summer of 1964 and late spring of 1965 considerably increased the need for spraying. However, because of lower prices on materials, costs were held to just slightly above the previous year.

Supplementing aerial operations, the fogging machine was employed for 33½ hours during the year in small communities of Kent and Sussex Counties.

Catch basins and other small isolated spots where there is minimal danger to surrounding plant and animal life were treated with 1,700 gallons of Baytex, a chemical that is effective on the larval stages.



## MOSQUITO CONTROL