

# IT IS NOW YOUR HIGHWAY

## SNOW CLEARANCE IN KENT

*Although the winter of 1964 was not classified as a severe winter, Kent County had its share of activity. Due to the "bare pavement maintenance" concept, which the traveling public is insisting upon, snow and ice removal caused considerable concern requiring greater use of chemicals. In the process of clearing the roads of snow, 1,000 tons of sand, 170 tons of calcium, and 190 tons of salt were used. By the end of November, 130,000 feet of snow fence was erected in Kent County.*

## SUSSEX RESURFACING PROGRAM

*One of the largest resurfacing programs for Sussex County, approximately four hundred seventy-three miles on secondary roads, was accomplished; and Route 14 from Milford to Rehoboth was added to the bare pavement maintenance program giving the State all main primary roads running north and south.*

Drilling and Hammering . . .

Hauling and Clearing . . .

Blasting and Shoring . . .

Levelling and Building up . . .

Surfacing and Marking . . .

The highway is now complete. The men, the vehicles, the machines and the equipment are gone. As far as the eye can see stretches a long, wide, beautiful highway.

The official opening of this new highway may have taken place with formal ceremonies — or it may have opened without any fanfare.

The important thing is that it is now YOUR highway . . . your space in Delaware for travel to work, play, visit or shop. And even before the first car whirls down the strip, the slow process of highway deterioration begins. Nothing is permanent, for regardless of modern-day knowledge and precautions, natural forces are always attacking roadbeds and surfaces. What these forces accomplish slowly, the traffic that follows does quickly. Although to the general public the highway is finished, to the Highway Department this is but the opening of the second phase of a continuous program.

Maintenance is a twenty-four-hour-a-day project the year around, and consumes a considerable part of the highway dollar. The Department has two primary objectives: the preservation of the road and the installation of traffic services designed to increase the comfort and safety of highway users.



*Protection set up in preparation for a maintenance patching operation on main highway.*

### NEW CASTLE BRIDGES

Draw bridges in New Castle County require considerable maintenance. Electrical and mechanical difficulties are repaired with a minimum of delay to river and road traffic. Replacement of worn out parts has been a continual process on these bridges. The steel roadway decks required extensive welding due to the heavy volume of traffic. Nine broken gates needed replacement during the year. The openings for the draw bridges were: Third Street Bridge, 1848; Walnut Street Bridge, 1127; Market Street Bridge, 953; Newport Bridge, 2; Flemings Landing Bridge, 1; and Fennimore Bridge, none.

### SUSSEX COUNTY EQUIPMENT

The Sussex division purchased eight new trucks during the year and is hopeful of purchasing twenty-five more next year getting rid of all trucks with more than 200,000 miles. Other purchases included a Mobile Crane, two 1½ yard front-end loaders, a grader attachment.

*Side strip mowing for appearance and visibility.*

*Road after reconstruction.*

Each of the three counties has its own maintenance section and each section has its own program designed to give maximum service. In turn, these programs are closely coordinated for over-all State efficiency. Included in the maintenance program are such activities as repair, preservation, restoration and reinforcement of road surfaces, removal and control of snow and ice and all services necessary for efficient traffic control. Also involved are the planting and care of trees and other vegetation for erosion protection and beautification.

Some maintenance work requires constant attention. In this category is included repairing holes in pavement, smoothing gravel roads, filling edge ruts and low shoulders, cleaning and repairing signs for all jobs.

Permanent road repairs are made during favorable weather in season. In spring, this includes repainting center and edge lines, removing snow fences and cleaning litter from highways. In summer; mowing grass and weeds, spraying weeds, repairing and painting bridge and guard rails and repairing shoulders. In fall; final mowing, erecting snow fences, preparing snow equipment. In winter; snow and ice removal, sanding and salting (anytime, day or night).

The Delaware State Highway Department, through its program on a statewide basis, strives not only to keep the roadways clear, safe and usable throughout the year but also gives its attention to

medial strip maintenance, checking on bridges, caring for roads in winter and cutting grass and related activities in summer.

To perform this work, the Highway Department employs a maintenance staff of approximately 650 men for its yearly program.

The Department occasionally rents equipment and hires outside assistance to do specialized types of work. Contracts are also let for purchase of materials which the Department needs in the usual course of its program such as sodium chloride, calcium chloride, bituminous materials, crack filler and paints.

The State Highway Department has learned that maintenance of highways is accomplished far more economically through "maintenance areas." Counties are divided into maintenance areas with approximately 380 miles of roads in each.

From an organizational standpoint New Castle County has a total of 1,171 miles of roads which includes 178 miles of primary, 345 miles of secondary, 328 miles of tertiary and 320 miles of suburban. It has five maintenance areas.

Kent County has a total of 1,078 miles of roads: 122 miles of primary, 378 miles of secondary, 548 miles of tertiary, twenty miles of suburban. The County is divided into three maintenance areas.

Sussex County has a total of 1,903 miles of roads: 225 miles of primary, 698 miles of secondary, 948 miles of tertiary, thirty-two miles of suburban. The County is divided into five maintenance areas.



Each maintenance area has a supervisor, foreman, laborers and equipment to execute the various activities. This system provides maintenance crews familiar with the area, who can accomplish the work with maximum efficiency. Each county, in turn, has a maintenance engineer and assistant in charge of all work in the county who receive their supervision directly from the division engineer or his authorized representative.

The Department insists on high standards in this field. As an example, the areas maintenance supervisor is required to have two years of experience in highway construction or highway maintenance, and knowledge of the use of highway maintenance equipment, tools and materials.

#### **MAINTENANCE AND EQUIPMENT SECTION**

The Maintenance and Equipment Section works with the division engineers of the three counties and assembles information relative to material and equipment requirements for the year ahead. In 1964 a total of seventy-four proposals was prepared for bidding purposes. It also prepares and executes emergency rental equipment contracts and investigates new equipment and tools to replace worn out or inefficient apparatus.

One maintenance problem is caused by litter and vandalism. Motorists do not waste public funds deliberately, but a small percentage caused more than

\$60,000 in cost to the Highway Department by negligence.

During fiscal 1964 vandals created damage of nearly \$10,000 to highway signs by shooting and defacing. The Department's signs are vital to the safety and guidance of motorists, and mutilated signs are a traffic hazard and menace.

Highway maintenance is a never-ending and continuous task in Delaware. The State Highway Department program endeavors to give our citizens and visitors from out of state who have occasion to use our highways not only the finest but the safest and most beautiful roads throughout the entire length and breadth of Delaware.

#### **NEW CASTLE COUNTY MAINTENANCE**

This division assumed the responsibility of snow removal activities, mowing operations and general cleanup on the Delaware Turnpike since its opening on November 15, 1963. The Department hired four men to perform work on the Turnpike and hired temporary mowers for the summer months. The Department is reimbursed for this work which includes labor, material and equipment rental. Regular routine maintenance was performed on all roads maintained by the Department.

#### **KENT COUNTY MAINTENANCE**

Kent County Division maintenance has been affected by a number of factors such as industrializ-

#### **MOWING**

Mowing was continued throughout the year with all roadsides mowed at least once and sometimes more. During the year one side of each road (with a few exceptions) was sprayed with a chemical weed killer as an experimental project. Some very good results were evident after the second application.

#### **NEW CASTLE COUNTY WORK**

A total of twenty-six active construction projects for fiscal 1964 were completed by the New Castle County Division under the supervision of the Division engineer. They included 7.276 miles of portland cement concrete pavement; 1.850 miles of waterbound macadam with hot-mix; 1.678 miles of soil cement with hot-mix; 2.571 miles of portland cement concrete with hot-mix; 19.8 miles of concrete patching and resurfacing. Other roadway construction consisted of 116,376 tons of hot-mix patching.

*Grader Attachment. Devised by Kent County forces for boxing out in preparation for widening.*



*Snow plowing with new type reversible blade worked hydraulically by operator.*



### SUSSEX MAINTENANCE MATERIALS

Materials used by the Sussex maintenance forces included the following: 1,500 feet of 12" reinforced concrete pipe, twenty-eight feet of 18" reinforced concrete pipe, 373 feet 15" reinforced concrete (used pipe), 951 feet of 15% reinforced concrete, forty-three feet of 24" reinforced concrete pipe, 44,325 cubic yards of select borrow, 5,152½ tons cold mix, 273 barrels crack filler, 1,330 (100-lb. bags) calcium chloride, seventeen cubic yards concrete, five tons rockite, 15,799 cubic yards common borrow, 915 cubic yards top soil, 332 tons bulk salt, 1,107 bags (100-lbs. each) salt.

### SIGN SHOP ACTIVE

In the Department's sign shop during 1964, 9,296 signs were fabricated as well as thirty-six special license tags for the Motor Vehicle Department. Three hundred fifty-one sets of decals for automobiles and trucks were made for department-used vehicles. The shop acquired new pieces of equipment for fabricating signs and refinishing old ones enabling the shop's personnel to make signs from sheet aluminum rather than from pre-cut blanks. Preparations are being made to purchase additional equipment.

### CONTINUED TRAFFIC STUDIES

The Advance Planning Sub-section of the Planning and Review Section continued to concentrate on traffic and planning studies in the highly developed areas and forecasted traffic and needs for the proposed major street and road projects. The first six-year Capital Improvements Program was prepared as now required by State law, and was used by the State Planning Office for its review of all State agency capital needs. The Department's construction resolution for 1963-4 was revised accordingly.

ation causing a population increase and a higher standard of living. This has led to a comparable increase in motor vehicles, homes in rural areas and in jobholders living on farms and in rural areas. Centralized shipping areas are also a factor. The result has been an upgrading of all roads, particularly dirt roads.

There has been a subsequent increasing maintenance requirement on hard-surface roads and a decreasing maintenance need on dirt roads. The division feels that the people of the county should be justifiably proud of the fact that the maintenance work has been done with less money and personnel than in previous years, yet with results that have been exceptionally good. However, it is pointed out that certain work will begin to lag unless more money and personnel are provided.

Kent County Division provided at least two pieces of equipment designed and made by members of its staff: a joint sealer remover and a soil spreader.

Drainage is an important road consideration because of rapid deterioration of the roadbed surface. The Kent County Division cleaned more than 87,000 linear feet of ditch and more than 100 miles of parallel ditch as well as laying 1,400 linear feet of pipe.

All divisions were busy with snow removal during the winter, although this year's weather was not considered severe. While normal activities were carried on in New Castle and Sussex, Kent

County was more active in fiscal 1964. This was due, in part, to the "bare pavement" concept for which the traveling public is becoming increasingly insistent requiring the use of more chemicals than formerly.

Storms requiring maintenance attention in Kent County occurred on December 18, 1963 (chemicals only); December 23 (5" accumulation); January 12, 1964 (10" accumulation); February 11, 13 and 28, March 21 (6" accumulation). This necessitated the use of 1,000 tons of sand, 170 tons of calcium and 190 tons of salt. Another big item concerned with this operation is the erection of snow fence. By November, the division had completed erection of 130,000 lineal feet of fence.

A never-ending process is that of patching roads. Normally blow-ups in concrete roads occur faster than repairs can be made. This year the Department has kept up with this problem but there are still a considerable number of locations which need to be patched or have been patched temporarily with cold patching material. Surface treated roads and shoulders have required a considerable amount of repair with cold mix and surface treatment, but this type of work is minimized by the extensive re-treatment programs being carried out statewide over the past few years. In Kent County some 200 cubic yards of concrete for patching and 3,500 tons of cold patch material were used on these roads.

Winter break-up on blacktop road.



Increased emphasis was placed on safety precautions. Items particularly stressed were flashing lights on vehicles, safety vests, safety helmets where necessary and advance signs at work areas. Markers were placed at all head walls to prevent damage to equipment during snow storms.

#### SUSSEX COUNTY MAINTENANCE

One of the major problems confronting Sussex County Division is mowing 1500 miles of road with eighteen mowers. The standard which the division would like to set up for mowing is on a three-time-a-year basis. However, with present conditions, each mower is able to accomplish approximately eighty-three miles of mowing with four passes and six passes on dual highways, making it impossible to achieve the ideal which the division seeks at this time.

A new maintenance Area 6 was established with headquarters at the former Indian River Coast Guard Station. This unit consists of a portion of Areas 4 and 5 along the Atlantic coastline. It is designed to be useful in helping to solve some of the problems involved in beach erosion and related conditions. The new area is charged with the responsibility of all beach maintenance in addition to the work concerned with the highways.

#### SUBURBAN NEW CASTLE DEVELOPMENT

A total of 12.8 miles of streets were accepted in suburban developments under HB #256 this year, bringing the total to date of 476 miles maintained by the Division. Active construction was in process in sixty-four developments throughout the county.

#### LODOMETER STUDY

The State Highway Department conducts a Lodometer study on trucks two weeks a year. The information which is obtained from this program is transmitted to the design study unit for its use in designing pavement thickness.



Above: Crack Router for removing asphalt from old joints.

Left: A well-maintained road.