

1. INTRODUCTION/POLICIES

01.01 INTRODUCTION

01.01.01 SCOPE AND PURPOSE

This Manual is issued as a guide to all employees of the West Virginia Department of Transportation, Division of Highways who are responsible for or involved in maintenance activities. It lets each one know what he/she is expected to do in the supervision or performance of any phase of highway maintenance.

This manual is intended for internal guidance only and is not intended to create a legal or moral duty. Supervisors have discretion, based upon their expertise and the particular circumstances, to deviate from this manual and to conduct additional research or receive input from experts in other areas, as needed.

The primary purpose of this Manual is to insure proper maintenance of highways and highway facilities. It is a means of achieving statewide uniformity of policies and procedures in the performance of work and field supervision on maintenance projects and in the provision of services. The standards for restorative maintenance operations are herein established. It is possible that such factors as the volume and type of traffic, limitations on funds, or local conditions may render exact compliance with these standards impractical. However, discretion and good judgment must be exercised whenever it is necessary to deviate from recommended procedures.

This Manual provides the detailed procedures and/or the references to other Departmental Manuals of policy/procedures to be followed in the performance of all major phases of maintenance. It also can be used as training aid for newly employed maintenance personnel.

Every employee of the Maintenance Organization must realize the desirability of following sound economical practices and the necessity for satisfactory relations with the public. Therefore, he/she must understand and be thoroughly familiar with the contents of this Manual. Also, in case his/her duties require him/her to utilize information that is given in a similar Manual issued by another division of the Division of Highways, he/she is expected to become familiar with the pertinent contents of that Manual.

01.01.02 DEVELOPMENT OF HIGHWAY MAINTENANCE

The earliest American roads were foot paths which were improved gradually by widening and the application of readily accessible materials, such as gravel, broken stone, select borrow and cobblestones. The first asphalt pavement was laid in Newark, New Jersey, in the year 1870. In the following year, 1871, the first brick pavement was laid in this country in Charleston, West Virginia. The use of portland cement concrete

as surfacing for streets and highways followed closely the initial use of asphalt and brick.

With the advent of the first road, highway maintenance came into being. Over the years, as the construction and design of highways have been improved and as technical advances have been made in road-building materials and methods, maintenance has become more involved and more exacting. Today, maintenance is a specialized field of highway engineering just as is the construction and the design of highways and highway facilities. Because of the complexity of highway maintenance, a well trained organization is needed to apply approved uniform methods and procedures. This Maintenance Manual has been compiled to supply vital information to the personnel in the maintenance forces of the West Virginia Division of Highways and other interested parties.

01.01.03 BRIEF HISTORY OF THE WEST VIRGINIA DIVISION OF HIGHWAYS

The West Virginia State Road Commission was reorganized in 1921. Prior to 1921, all roads in the State had been constructed and maintained on a purely local basis. In 1921, the State Legislature established the State Road Commission, which was placed in charge of all major roads, or the primary system. Each road of the secondary system was considered solely the responsibility of the County in which it was located. County roads were maintained in a variety of ways. In some places, each property owner was required to devote a set number of days each year to the maintenance of a specific section of road. This usually was adjacent to his/her property. If the individual took pride in his/her work and the appearance of his/her property, the section assigned to him/her was well maintained and if he/she were not conscientious, his/her section of road suffered. Portions of heavily traveled roads in each County were maintained by a County Road Organization, which was responsible to the County Court of said County.

In 1933 the West Virginia Legislature enacted legislation requiring the State Road Commission to assume sole responsibility for the construction , improvement and maintenance of all "COUNTY-DISTRICT" roads within the State. By this Act, West Virginia joined other states in which the State is responsible for the maintenance of a very large percentage of all roads within the State.

The majority of the old County-District roads are now included in the State local service system. However, some have become of sufficient importance to be designated as segments of the trunkline, feeder and expressway system.

The name of the West Virginia State Road Commission was changed by an Act of the Legislature in 1970 to the West Virginia Department of Highways. Under the same Act, the Road Commissioner was assigned the title of "Commissioner of Highways."

By Legislation that went into effect July 1, 1989, the Department of Highways became the Division of Highways, a part of the Department of Transportation.

Today the State of West Virginia has approximately 37,800 miles of public streets and highways within its borders. This total includes rural public roads that are not in

the State system, National Forest roads, city streets, State Parks roads and State Forest roads and the West Virginia Turnpike. Under the direct control and responsibility of the Division of Highways are approximately 34,000 miles of roads and streets of all types, or approximately 90 percent of the total of all public roads in the State.

Today, the very lives of most people depend on a good vehicular transportation system. The overall responsibility of the State in regard to such a system includes the acquisition of right-of-way, design, construction and maintenance of roads and bridges. Maintenance is a long-range continuing obligation and each phase of highway operations ultimately leads towards maintenance.

01.01.04 HIGHWAY MAINTENANCE IMPORTANCE

01.01.04.1 OBJECTIVES

Highway maintenance requires the application of suitable methods for preserving each roadway structure and facility as it was originally constructed or subsequently improved, and also includes the measures that must be taken to keep traffic moving safely with as little interruption or delay as possible.

The operations involved in maintaining a highway or highway facility in good condition includes patching, removing surface corrugations, sealing cracks, blading surfaces, controlling slides, cleaning ditches and culverts, repairing bridges, and emergency highway work. In order that a highway may be operated as a safe, efficient, pleasing link in the nation's highly important transportation system, Department employees must perform such duties as erecting signs and traffic control devices, painting traffic stripes, mowing grass and weeds, clearing away trash, removing snow and ice, and spreading abrasives. The end results of adequate highway maintenance are smooth, safe and efficient roadways, well-functioning drainage systems and clean and attractive rights-of-way.

01.01.04.02 COST FACTORS

All procedures, from the original location reconnaissance to the final construction operation, have a bearing on maintenance costs and conditions.

In the original route location study, much thought is given to such features as drainage problems, stream crossings, possible landslide conditions, unsuitable soils, directness of route (because a shorter distance generally means lower maintenance costs) and horizontal and vertical alignment.

Design features of a highway have an important bearing on both the cost and the ease of the future maintenance of the highway. The predicted volume and character of traffic play an important part in the selection of the surface type and the geometric design of the highway. The elevation of the roadway surface with respect to the natural ground, particularly in regions of snowfall, is very important.

If the elevation of the roadway is somewhat higher than the adjacent ground area, the wind will generally keep the roadway clear of snow but such a location cannot be chosen in many parts of West Virginia. The grade percentage through a cut

is generally selected so there will be as little erosion as possible and yet will be enough to provide good drainage. The side slopes both in cuts and on fills generally are flat enough to encourage the growth of vegetation and to permit mowing. The waterways and drainage structures must be large enough to handle the runoff from the ground surface.

When a highway is properly constructed in accordance with approved specifications, there is a definite and recognized reduction in the difficulty and cost of the future maintenance of the highway.

There is as much difference in the methods and techniques used for maintenance today and those when the former State Road Commission was organized, as there is in the old horse-drawn vehicles and modern motor vehicles. To take care of the increases in the road mileage, and in the traffic volumes and weights, and to meet the ever-increasing demands for more and better services, today's maintenance operations require more advance planning, the development of better techniques and continual training in the use of the latest approved procedures, materials, and equipment.

01.01.04.03 PLANNING

Planning is the key to a well organized, effective maintenance program. This statement applies not only to the advance planning that is done at the Central Office and District level, but also the day-to-day planning that is required at the County level. Because of the great importance of planning, a separate chapter is devoted to that topic in this Manual. Chapter 3 discusses the proper procedures for Planning and Scheduling. In addition, broad general plans for some of the major maintenance operations are described in the appropriate chapters. Methods of modifying these broad plans so as to obtain workable plans to fit local conditions are also discussed and the need for making adequate plans is mentioned frequently.

01.02 POLICIES

01.02.01 PUBLIC RELATIONS

The relationship between the Division of Highways and the citizens of West Virginia is often the result of direct contact. Therefore, each employee must realize his/her behavior, both on and off duty, reflects upon the entire Division of Highways.

In dealing with the public, each employee must be polite and courteous at all times. Repeated demands for unwarranted road or bridge improvements can be very aggravating. It is often difficult for the employee receiving these demands to exercise patience and courtesy but he/she must do so. A Division employee must always remember the road or bridge the complainant has in mind is, to him/her, the most important one in the State.

It is also the policy of the Division to provide information relative to its operations, objectives and progress by means of the news media. All public announcements of state-wide significance originate from the office of the Commissioner of Highways through the Public Information Division.

Announcements of interest to a particular district normally originate from the office of the District Engineer. Such announcements, however, are to be coordinated with the Public Information Division. Following a public announcement, an employee directly concerned with the project should cooperate with all individuals seeking specific information on the matter.

It is cautioned that the public announcement of a bid opening of a project does not always mean the project will be activated. For various reasons, it is necessary sometimes to reject bids or even remove a project from a program.

Suggestions regarding publicity or other public relations efforts for the Division of Highways are welcomed by the Public Information Division.

01.02.02 GUIDE TO EMPLOYEES

Essentially, Division of Highways employees should always consider one basic rule in discussing Division activities with public officials and other interested citizens. That is:

Confine discussions to specifics and avoid speculation. If an employee is unsure as to whether certain information requests should be granted, the employee is to consult the supervisor prior to any action being taken.

01.02.03 DEPARTMENTAL RELATIONSHIP

01.02.03.01 THE MAINTENANCE ORGANIZATION

It is very important that harmonious working relations exist among all employees of the Division of Highways. Every employee has a responsibility to promote and foster good relations with his/her co-workers. To maintain good relations within the Maintenance Organization, each employee is expected to perform his/her duties and follow instructions as issued by his/her supervisor. Also, it is an important duty of a supervisor to try in every way possible to obtain the full support and cooperation of those employees for whom he/she is responsible.

To be successful, the supervisor must gain the respect of the employees by displaying a good knowledge of the work and by treating each employee fairly and honestly at all times. Each employee must know his/her responsibilities and must have the authority to handle those responsibilities.

Every supervisory employee in the Maintenance Organization must keep his/her superior fully informed about all pertinent events that happen on any job for which he/she is responsible. This principle applies equally at all levels. The ranks from the lowest level to the highest are: Maintenance Crew Leader, Maintenance Crew Supervisor, County Superintendent, Maintenance Assistant, Maintenance Engineer, (or Assistant District Engineer-Maintenance), District Engineer and Director of the Maintenance Division.

01.02.03.02 STAFF MEETINGS

The Maintenance Engineer will generally hold periodic meetings. At these meetings the Maintenance Assistants and County Superintendents will be briefed on plans and schedules for the work immediately ahead.

Periodic staff meetings called by the County Superintendent will be held soon after the District staff meetings. Such meetings will give the Superintendent an opportunity to inform his/her supervisory personnel of the plans and schedules set forth by the Maintenance Engineer and to discuss any problems that might have arisen during the period since the last staff meeting.

Staff meetings will be kept as brief as possible. The Supervisor in charge of the meeting should prepare a program before the meeting is called. This program should include all items to be covered and it should be followed closely. Such a procedure will assure adequate leadership and will avoid the ever-present possibility that one or two people will monopolize the available time.

01.02.03.03 OTHER DIVISIONS

Another important phase of relations among Department employees is the necessity for the employee of each Division of the Department to work harmoniously with employees of other Divisions. An employee in the Maintenance Division must realize that the people in other Divisions do their work with the information and manpower available to them, just as do those in the Maintenance Division. If there is a difference of opinion between a Maintenance Supervisor and an employee of another Division, no matter what the difference is about, the Maintenance Supervisor is expected to meet the other party with an open mind and to discuss the problem with him/her. An understanding of how the functions and problems of other Divisions fit into the overall organization will promote teamwork.

01.02.04 PERSONNEL

01.02.04.01 REQUIRED QUALIFICATIONS

Highway maintenance is not an exact science. Certain types of road require different maintenance operations in different locations and under different weather and traffic conditions. Consequently, repair methods which give good results at one location and under one set of conditions may not be the proper methods at another location or under other conditions. Thus, it can be quickly seen that experienced persons with good judgment are the key to proper maintenance.

A maintenance supervisor must be a good manager and have a wide knowledge of the use of many materials, such as asphalt, portland cement, aggregates, salts and various chemicals. He/she should have personal skill in the operation of many units of equipment, such as the truck, motor grader, concrete mixer, asphalt distributor, etc. He/she must have a sense of caution to protect him/herself, his/her workers and the public during maintenance operations. In addition to being capable he/she must be physically able to perform his/her routine duties and willing to work many extra hours under trying conditions during emergencies. Finally, he/she must be able to work with others and meet the public. How well a maintenance supervisor does his/her job

determines to a great extent the attitude of the public toward the entire highway program.

01.02.04.02 INFORMATION FOR NEW EMPLOYEES

At the time of employment, each individual is briefed by his/her supervisor or other superior in regard to such matters as vacation, sick leave, holidays, military leave, overtime, salary schedule and classification system. Also, he/she is expected to ask any questions he/she may have about his/her particular position or about the manner in which he/she fits into the whole organization.

01.02.04.03 GENERAL POLICIES

From time to time, every employee is given an opportunity to discuss his/her status and job problems with his/her supervisor. Present policies are based on long experience. Although they are subject to change, the existing rules and regulations offer an optimum work environment in terms the average employee might expect from the Division of Highways.

Personnel policies have been developed to provide an opportunity for advancement for each employee. To help an employee qualify for a position with greater responsibility, frequent training programs are offered in many categories. It is to be noted that, insofar as possible, all vacant positions are filled from within the organization. Consequently, everyone should prepare himself/herself for the next position within his/her area classification.

Directives and memorandums are issued at various times outlining all departmental practices and policies. See Volumes I thru X - Administrative Operating Procedures. It is to each person's advantage to have knowledge of the information contained in these publications. All questions dealing with personnel matters will be directed to the Human Resources Division of the Division of Highways.

01.02.05 CORRESPONDENCE

It is essential that all correspondence be answered without delay. If a complete reply cannot be furnished within a few days, the receipt of the letter will be acknowledged and a statement will be sent to show the probable date the requested information can be furnished. The first paragraph of each letter should describe the general subject and where appropriate, it will also include the project and the road or route number, as well as the name of the county.

01.02.06 RADIO COMMUNICATION

As a result of the continuing growth and complexity of highway maintenance, new and improved methods of internal communications are being used more and more. Within the Maintenance Organization, the radio is to be used whenever there is a demand for quick communication.

The radio is a good means of rapid and complete communication as long as the established rules of transmission are followed. When these rules are ignored, the

result is confusion and delay in sending and receiving messages. Adherence to this system will expedite the transmission of messages and will eliminate the chance of a costly error that could result from a misunderstanding on the part of the receiver. *Refer to Chapter 19 of this text for additional procedures regarding proper use of radio equipment.*

01.02.07 FEDERAL HIGHWAY ADMINISTRATION INSPECTION

In connection with each highway facility constructed under the provision of Title 23, U.S. Code "Highways," a project agreement is signed by the Division Administrator of the Federal Highway Administration. According to this agreement, the Division of Highways agrees to maintain the project covered by this document.

In addition, Paragraph 116 "Maintenance" of Title 21, U.S. Code "Highways" states that the Federal Highway Administration (FHWA) will inspect periodically any project constructed in part with Federal funds.

The local Division Office of the Federal Highway Administration assigns representatives to make these periodic maintenance inspections. If a project is not being maintained adequately, the FHWA will notify the West Virginia Division of Highways. If the condition of faulty maintenance is not corrected within 90 days after the receipt of such notification from the FHWA, the FHWA may withhold approval on all future projects until the maintenance deficiency has been corrected.

Notification of a scheduled inspection by the local Division Office of the FHWA is sent to the Director of Maintenance who informs the District in which the project is located. It is the responsibility of the District Engineer and Maintenance Engineer to assist representatives of the FHWA in any reasonable manner. If a condition of faulty maintenance is found, the District Office of the Division of Highways will be notified and will be furnished a copy of the FHWA's inspection report. It is expected that the recommended corrections will be made promptly and the Director of Maintenance will be informed by letter when the repairs have been completed.

01.02.08 MAINTENANCE MATERIALS

Before any material is used, it should be sampled and tested by the Materials Control, Soil and Testing Division to assure its compliance with contract quality requirements. This procedure is discussed in detail in Volume VI, Chapter 10 of the Department's Administrative Operating Procedures.

01.02.09 STOLEN/MISSING DOH PROPERTY

Whenever it is definitely determined that the Division's equipment or property is missing from a headquarters, storage area, or job site, the Supervisor must be notified immediately. *A detailed procedure for the reporting, investigation and subsequent inventory write-off of Stolen/Missing Property is provided for in Volume V of the Division's Administrative Operating Procedures.* All maintenance supervisors must be familiar with this procedure.

01.02.10 PURCHASE OF UNUSED CONSTRUCTION MATERIALS FROM CONTRACTORS

The Division of Highways may be obligated to purchase from a contractor, unused materials upon completion of a construction project, as outlined in the Division of Highways Standard Specifications Roads and Bridges, Section 104.2. *Refer to the Department's Administrative Operating Procedures, Volume V, for the detailed procedure to be followed.*

01.02.11 PROJECT MARKERS

All markers on road and bridge projects will be maintained by the District so the letters and figures will be in legible condition at all times.

01.02.12 SALE OF DIVISION OF HIGHWAYS MATERIALS

It is the policy of the Division of Highways to cooperate with municipalities and other political subdivisions of the State, other State departments and public and quasi-public bodies by selling to them at cost, plus a specified percentage for handling, relatively small quantities of materials owned by the Division of Highways. This is not an obligation of the Division of Highways, and such sales must not interfere with or cause delay to Division of Highways operations. Furthermore sales which verge on competition with private industry must be avoided. In other words, if the materials can be secured by the other agencies from commercial sources at reasonable cost, the State-owned materials should not be made available. Materials suitable for sale to other agencies are comparatively small quantities of asphalt, aggregate, culvert pipe, de-icing salts and other similar materials. *Refer to Volume III of the Division's Administrative Operating Procedures for detailed instructions and procedures to be utilized. The Administrative Rate (percentage) to be used is contained in Volume I, of the Administrative Operating Procedures.*

01.02.13 WORK PERFORMANCE FOR OTHER AGENCIES AND STATE DEPARTMENTS

It is not the intent of the Division of Highways to compete with private industry by undertaking for other agencies projects which would more properly be performed by private contractors. However, under certain conditions, state forces may undertake work for municipalities, other political subdivisions of the State, public and quasi-public bodies.

As a general rule these projects will be relatively small and consist of work such as patching streets, grading roads, painting traffic lines, and other similar items. Usually, the locations will be where state forces, equipment and materials are nearby and the quantity of work is too small to justify a contractor moving his men, equipment and materials to the project site except at higher than equitable contract unit prices. Other circumstances might also justify undertaking certain projects; approval will always be contingent upon completion of the work at no inconvenience to the Division's maintenance operation. *Refer to Volume III of the Division's Administrative Operating Procedures for the detailed procedures to be utilized.*

01.02.14 RENTAL OF EQUIPMENT OWNED BY THE WEST VIRGINIA DIVISION OF HIGHWAYS

Equipment owned by the Division of Highways, when circumstances warrant, may be released on a rental basis to municipalities, other political subdivisions of the State, other State departments, public and quasi-public organizations.

Equipment rentals will be approved only when the equipment involved will not normally be needed by the Division and with the understanding that the equipment can be recalled at any time it is needed for emergency work. Furthermore, rentals will not be approved in instances where equipment is available from other sources at reasonable cost.

Standard Division equipment rental rates will apply. *Refer to Volume I of the Division's Administrative Operating Procedures for these rates.* As a general, rule the equipment will be released only on a "fully operated" basis. This means it will be operated by Division of Highways personnel and the other agency will agree to pay the equipment rental rate, operator's wages with the applicable payroll additive and a specified administrative rate (*Administrative Rate - See Volume I of the Administrative Operating Procedures*).

Occasional requests from other agencies may be received for renting equipment without the Division's operator. Approval for renting state-owned equipment on this basis will seldom be granted. Agencies requesting this type of rental should be informed that the Division's rental policy is for fully- operated equipment only.

01.03 CITIZENS REQUESTS FOR ASSISTANCE

The number of bona fide requests for assistance received is usually a gauge for determining the quality and quantity of work performed by maintenance forces. Some requests are in the form of improvements to certain roads or structures, while others are justified complaints about a specific laxity of our maintenance forces. *It is the established policy of the Division to investigate and make personal contact (whenever possible) for all citizens requests for assistance regardless of the nature and validity of the complaint.*

It is a well established fact that personal contact with citizenry by a representative of the Division usually results in an amicable settlement of the problem. Generally, a person taking the time to request assistance from the Division justifiably feels it is important enough to deserve an answer. Even though a person may be regarded as a chronic complainer, he/she is to be treated with courtesy and attention. Proper diplomacy and tact by the Division's representatives in handling such citizens requests will insure good public relations.

The detailed procedure for handling Citizens' Requests for Assistance is contained in Volume II of the Division's Administrative Operating Procedures. This procedure details the specified time frame for handling citizens' requests, the proper document(s) to be utilized, and the detailed processing of that document(s). The specified document is very complete in that it allows the Division to record all pertinent details of the citizens requests for assistance, as well as providing information relative to

the intended action, i.e., either the requested assistance as scheduled through the maintenance forces or the proper reply as to why the requested assistance cannot be provided.

All Maintenance Supervisory personnel must be aware of this very important portion of the Maintenance Program and keep abreast with all subsequent changes to the procedure for handling Citizens' Requests for Assistance.