

**THE NEED FOR MORE AND BETTER HIGHWAYS:
PAYING FOR THEM**

**REPORT OF
THE VIRGINIA HIGHWAY STUDY COMMISSION
to
THE GOVERNOR
and
THE GENERAL ASSEMBLY OF VIRGINIA**



SENATE DOCUMENT NO. 11A

COMMONWEALTH OF VIRGINIA
Department of Purchases and Supply
Richmond
1964

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Senate

January 20, 1964

Honorable A. S. Harrison, Jr.
Governor of Virginia
State Capitol
Richmond, Virginia

Dear Governor Harrison :

The Virginia Highway Study Commission has heretofore sent you its report concerning certain aspects of the Virginia highway system. We then noted that a further study by the consultants would be forthcoming.

I am enclosing a copy of the addendum to the report of the Commission and would respectfully suggest that it be printed as an addendum to the earlier report.

Assuring you of my appreciation of your many courtesies, I am

Sincerely yours,

William F. Stone
Chairman of the Commission

WFS/dw

ADDENDUM TO
REPORT ON THE STUDY OF
VIRGINIA HIGHWAY PROBLEMS
FOR
VIRGINIA HIGHWAY STUDY COMMISSION

Concerning:
CHAPTER VII
OTHER MATTERS RELATING TO THE HIGHWAY DEPARTMENT
Commonwealth of Virginia
Richmond, Virginia

December 31, 1963

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INTRODUCTION

The Virginia Highway Study Commission retained the firm of Worden & Risberg in September, 1962, to provide consultative assistance to the Commission with respect to examining administrative matters in the Department of Highways. In November, 1962, the consultants were requested to focus their major attention on other matters under study by the Commission.

The consultants' report of June 24, 1963, to the Study Commission included a section, No. VII, entitled "Other Matters Relating to the Highway Department." This section included a number of observations which were intended to be constructive suggestions, the implementation of which would contribute to improved operating effectiveness. We are pleased to report that the Department has taken the initiative and already has begun the implementation of a program which includes many of the suggestions.

The following pages expand on the observations made under Section No. VII and include additional recommendations that will lead toward better operations.

ADDENDUM

A. *Organization*

The Virginia Department of Highways employs approximately 10,000 persons, of whom 1,400 are located in Richmond, the balance working in every area of the State in the eight construction districts and forty-four residencies. The Department is the largest State agency and corresponds in size with the largest industrial organizations in Virginia.

Organizing such a large and diversified group into an effective work force is, of course, a difficult undertaking. The Department's success in serving the highway needs of Virginia will, in large part, reflect the ability of its administrators to apply sound principles of organization and efficient methods and procedures while employing and retaining able engineering and operating personnel.

The Department is organized as an administrative department of the State, charged with powers and duties spelled out in Title 33 of the Code of Virginia. The articles of this Title define the powers and duties of the State Highway Commissioner and, in so doing, provide him with complete executive and operating authority over the agency. The statutes establish the position of Chief Engineer-Deputy Commissioner but do not define his duties.

The present statutes and organization concept require the Highway Commissioner to establish the plans and objectives of the Department and to play the leading role in carrying out programs to achieve these ends. In effect, he is the chief executive officer *and* the chief operating officer of this very large agency. It is apparent that the Commissioner, under the present arrangement, becomes so involved with many minor operating problems that he has inadequate opportunity to devote effort to the executive responsibilities of his position. The Chief Engineer, who is second in command, could relieve his superior of many operating problems with a net beneficial effect on the contribution of both officials, but this would require changes in the statutes and in organization concepts.

The State Highway Commission members have limited powers and duties, most of which are listed in § 33-12. It is our observation that the Commission members function with ineffective authority and that they are not made adequately acquainted with the wide range of matters they are asked to approve. This is an unfortunate use of the substantial talents of the men who are members of the Commission. The State and the Department will benefit from the expansion of the members' participation in Department activities not only because they will be better informed about the matters brought up for Commission consideration but also because the experience and knowledge of these men can be applied to the solution of management and operating problems facing the Department.

The Statute § 33-2 requires the appointment of a Commission member from each construction district. Although it is not called for in the statutes, the Commission members often tend to represent their home districts. This is understandable yet not desirable because it tends to limit the effectiveness of the members and their contribution to the overall highway program. These men could serve a more important need if they were authorized to provide more extensive policy and administrative guidance to the State Highway Commissioner and his staff and if they were directed to concentrate their attention on broad Statewide highway

problems. The District and Resident Engineers should be made fully responsible for giving proper attention to local problems.

The Highway Commission members could provide an important contribution to the Highway Department by organizing themselves into a series of Commission subcommittees for such functions as Urban, Secondary, Right-of-Way, Traffic and Planning, and Administration. Each subcommittee would be particularly concerned with policies and problems related to its functional interest. For example, the Right-of-Way Subcommittee would want to examine the basic right-of-way policies on which the Department's land acquisition efforts are based, it would suggest changes in policy as they become indicated, and it would evaluate the Department's effectiveness in right-of-way operations.

The Department's existing organization structure is shown in Chart I. It can be seen from this chart that the lines of communication from the construction districts and the engineering divisions to the Right-of-Way, Fiscal, Purchasing, and Personnel Divisions run through the Highway Commissioner. The formal lines between the various engineering divisions and the Construction districts are through the Chief Engineer. The lines between certain related engineering divisions run through the Chief Engineer and two Assistant Chief Engineers. In actual practice, the divisions often informally bypass the formal channels in order to save time, but this has the detrimental effect of breaking down needed managerial controls.

In the following pages, we will suggest a different approach to organizing the Highway Department, one which is designed to delineate the authority and duties of the Highway Commission, the State Highway Commission, the Chief Engineer-Deputy Commissioner, and other leading Department executives. A recommended organization structure is shown in Chart II.

The State Highway Commissioner should be selected for his ability to direct and guide the Department in the establishment and achievement of the State's long-range highway objectives. The Commissioner should function as the chief executive officer of the agency. He should be sure that the Commission's policies and objectives are sound and consistent with the needs of the State. He should assign full responsibility to the Chief Engineer to carry out policies and to meet objectives, and he should delegate full authority to the Chief Engineer to direct all agency personnel in the accomplishment of these ends.

PRESENT ORGANIZATION STRUCTURE

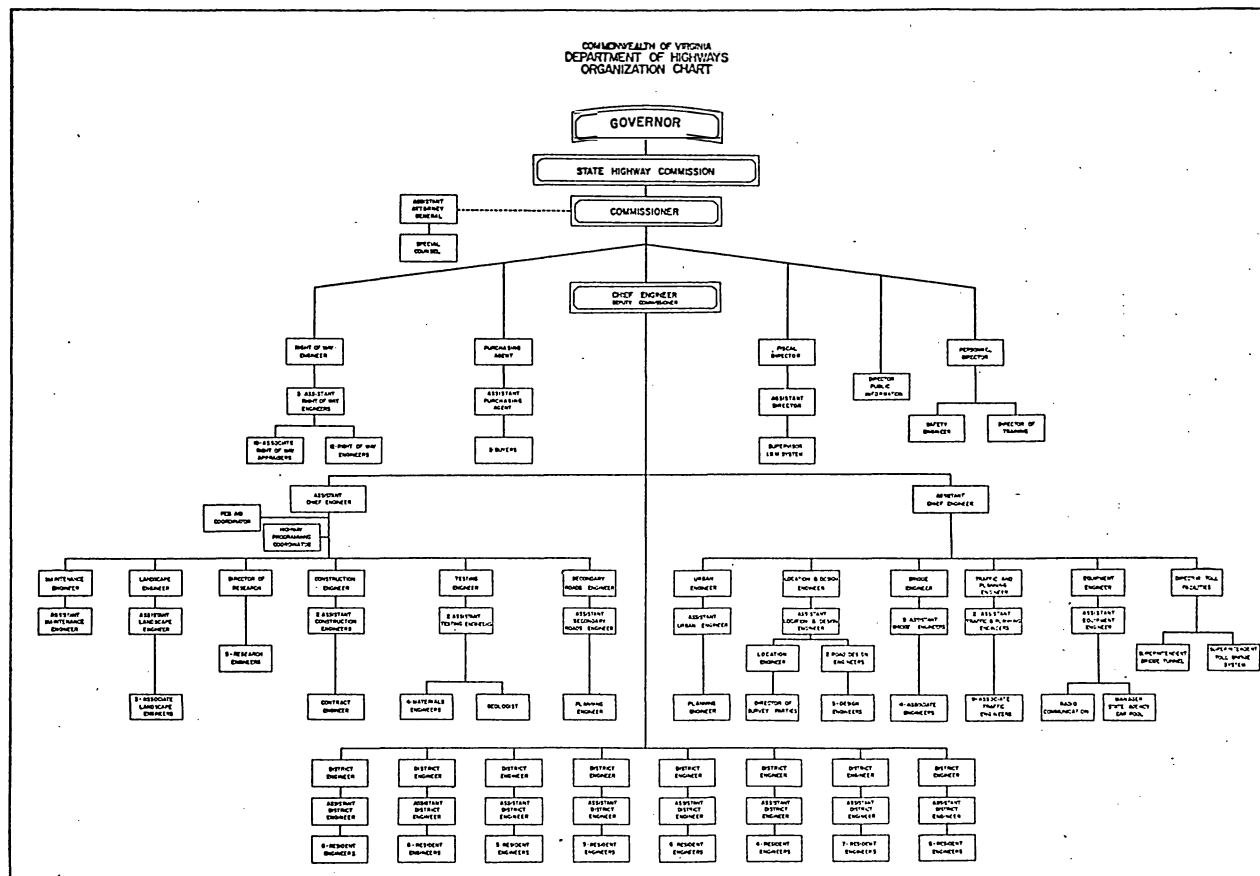
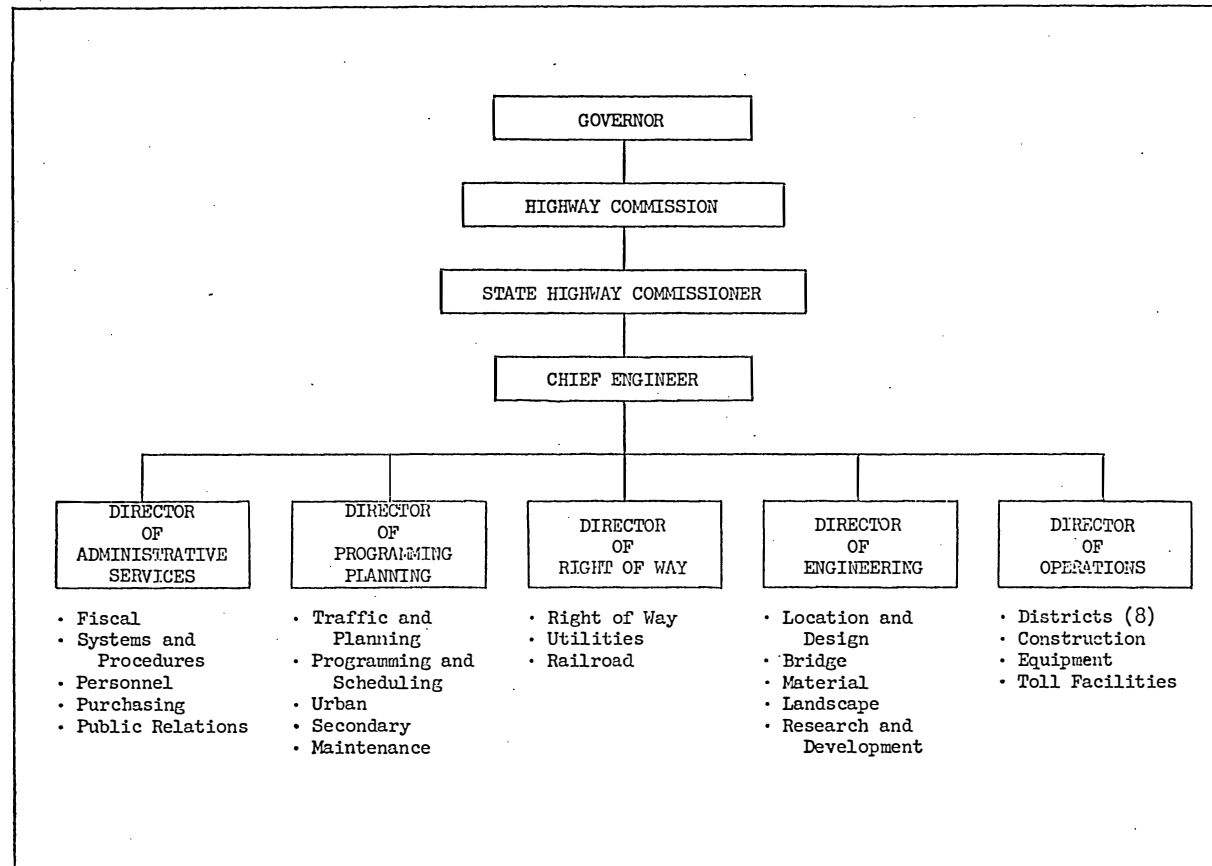


CHART II
RECOMMENDED ORGANIZATION STRUCTURE



The Statute § 33-3 states that the Commissioner shall be a practical businessman but lists no requirements as to his competence as a highway engineer or administrator. It is important that modern, practical business methods be employed in the operation of the Department; however, highway administrators constantly face more specialized problems coordinating engineering and construction concepts with expanding traffic and safety needs. The Highway Commissioner must possess technical as well as administrative competence if he is to discharge the responsibilities of his office properly.

One measure of the success of a State Highway Commissioner will be the long-term value of the highways that his staff plans and builds. For example, even twenty years after the retirement of Commissioner Shirley, his highway plans remain valid and many are still being implemented and expanded. It is recommended that highway engineering competence and highway administrative competence be thoroughly considered with respect to evaluating the capabilities of Highway Commissioners.

The Chief Engineer-Deputy Commissioner should be appointed by the State Highway Commissioner, subject to the approval of the Highway Commission. He should function as the chief operating officer of the Department with authority over all divisions of the Department. He should be responsible to the Commissioner for the effective operation of all divisions and for the accomplishment of the objectives set by the Commissioner and the Highway Commission.

The Chief Engineer currently has two assistants, each of whom oversees six engineering divisions. The eight District Engineers also report direct to the Chief Engineer. Through the proposed organization changes, five more division managers would come under the general direction of the Chief Engineer. It is recommended that the position of Assistant Chief Engineer be dropped and that the following new positions be created :

- . . . Director of Operations
- . . . Director of Engineering
- . . . Director of Right-of-Way
- . . . Director of Programming and Planning
- . . . Director of Administrative Services.

The several Directors will have authority over distinct functional groups of activities and will be responsible to the Chief Engineer for the performance of their divisions. In every case, the objective is to get problems handled at the lowest practical echelon of organization while maintaining proper management controls.

The proposed organization structure will have the added benefits of creating needed promotion opportunities for higher management personnel and of permitting the broader executive development of men who are being groomed for advancement to the higher levels of responsibility within the Department.

Concurrently with revising the organization structure, careful attention should be given to the problem of redefining the responsibilities and authority of each position on the chart. The only formal record of the responsibilities and authority of Highway Department positions is contained in the Class Title Descriptions and Work Descriptions on file at the State Division of Personnel. Much of this material was found to be

out of date and not indicative of the present position duties. A general updating of Work Descriptions commenced in August, 1963. This should be continued and completed, and efforts should be made to keep the information current as organization and operation changes are made. This function should be a major responsibility of the Department's Personnel Division.

During the fall of 1963, the Department embarked on a comprehensive long-range project to improve administrative practices and control procedures by making a penetrating investigation of organization, administrative practices, operating systems, and procedures coordinated with the broad financial management controls of the Department's operations.

Managerial controls are being developed, based on predetermined, written standards methods and procedures. Another product of this program will be procedures for orderly long range project planning and scheduling which will coordinate the need for road construction, maintenance, and improvements with the availability of man power and funds. In time, the Department executives will be able to apply these procedures and controls to establish performance criteria by which the work of the individual managers and their divisions can be evaluated and, in so doing, lead the way toward improved businesslike operations.

This project has the full support and cooperation of the Federal Bureau of Public Roads. Beyond the benefits the Department expects from improvements in operating effectiveness, there will also be prompter reimbursement by the Bureau of Public Roads of the Federal aid portion of highway projects, thus making more working capital available to the Department. It is expected that Federal aid will be received for certain State highway expenses which are eligible for such support but which, until now, have been very difficult to substantiate and process for collection because of administrative difficulties.

The Bureau of Public Roads intends to use this program as a model management improvement guide which can be studied and followed by highway departments of other states. The Virginia Department of Highways is to be complimented for its thoroughness in approaching the project and its desire to attain the objective of achieving better roads through improvements in Highway Department administration and management.

With the extensive Interstate System engineering and construction program under way, requiring the expenditures of immense sums of money and very close coordination with the Bureau of Public Roads, it is understandable that the Department has gradually become centralized with more departmental authority and responsibility concentrated in Richmond.

A large public agency like the Highway Department must, of necessity, control its subordinate divisions carefully. However, it appears that many local problems of minor importance are being held up while information and requests for authority to act are relayed back and forth through channels between the residencies, the districts, and central headquarters at Richmond. This can be time-consuming and tends to create unfavorable public relations. Later in this report, a recommendation is made to raise the status and increase the authority given District and Resident Engineers. The Department should delegate more authority to these men and should encourage them to make decisions and handle problems locally to the greatest degree possible. Control of policy, however, must be retained in Richmond.

B. *Personnel Administration*

The Personnel Division is charged with administering a wide range of personnel matters, including selection and recruitment, training, safety, and maintenance of personnel records for some 10,000 employees. The Division is headed by the Personnel Director, the Training Director, and the Safety Engineer and is staffed with a clerical force of fifteen. The State Division of Personnel provides some administrative control and renders technical assistance when requested.

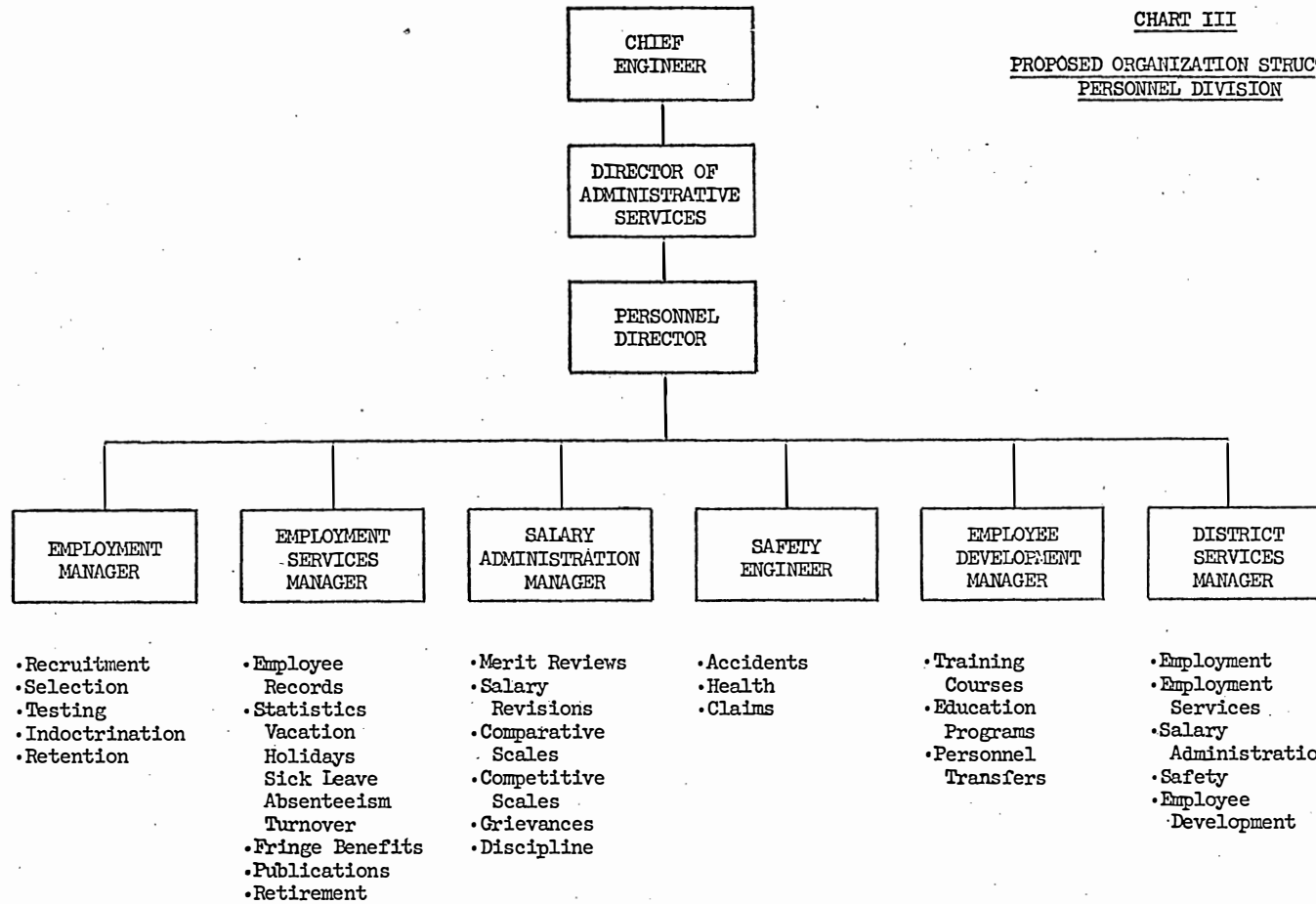
The Highway Department personnel function should be administered by men who are educated and trained in that specialized field, rather than by men drawn from the engineering ranks whose background is limited to experience gained within the Department. Many of the personnel administration practices and procedures which might be applied in such a large organization are not in use in the Highway Department. Typical examples explaining these comments are given below:

- . . . Employee turnover is very high for certain jobs, yet there is little investigation of the reasons for resignations and separations. Employees leaving the Department are not asked about the reasons for their action, and no attempt is made to hold them.
- . . . Recruitment of young engineers for the Engineering Training Program has fallen behind needs for several years. Recruitment has not been well planned or organized. No effort is made to attract or recruit experienced people. The Program is restricted to civil engineers although mechanical, industrial, architectural, and mining engineers should be considered. A study is now under way which should lead to improvements in the Engineering Training Program.
- . . . The Personnel Division has done little to recognize and develop the talents of employees. The Department has some excellent training programs, but they have been independent efforts of some divisions and districts and are not the product of the Personnel Division nor are they planned and coordinated with overall Department needs. Supervisory training programs are inadequate.
- . . . The personnel function is not recognized within the Department, by employees or by management, as a means by which employees may be developed to the point where their contribution to the Department will increase or a means by which agency management can develop more effective operations.

The Department should develop a better understanding of its need for an up-to-date, effective personnel administration division and of the benefits which can accrue to the Department from the contributions of such a division with respect to recruitment, employee training and development, employee retention, and improved salary administration. The Department should undertake a complete reorganization of this function and develop a Personnel Division adequate for the Statewide needs of all subdivisions of the Department.

The Personnel Division should be organized and staffed to provide a full complement of personnel administration services, not only for the headquarters at Richmond but also for the construction district and residency offices. A proposed organization structure for the Personnel Division is shown on Chart III. The Division would consist of five staff service sections plus one section devoted to coordinating central personnel administration activities with related activities in the field. The chart lists the functions which should be the responsibility of the various sections.

CHART III
PROPOSED ORGANIZATION STRUCTURE
PERSONNEL DIVISION



C. *Salary and Wage Structure*

Salary adjustments were granted to lower-ranking engineering personnel in May, 1963. Increases for higher-ranking officials were held up. An examination of the compensable characteristics of these positions indicates the need for a thorough salary reallocation study, particularly in view of the recommended changes in the top echelon of the Department's organization structure. This study should be performed by the State Division of Personnel.

Particular attention should be given to the salary allocation of the position of Division Engineer. It may simplify the administrative problem to place all Division Engineers in the same compensation bracket, but this is unfair to the men in the more demanding positions. The compensable characteristics of the positions involving the Location and Design, Bridge, Construction, and Right-of-Way Divisions are such that these positions should be ranked higher than the remaining Division Engineers.

The position District Engineer for a number of years has been ranked at a level two steps lower than Division Engineer. In theory, the District Engineer would be promoted upward to Assistant Division Engineer and then to Division Engineer. Considering the broad responsibility and authority carried by District Engineers, their position should be elevated in status to correspond with the current level of Division Engineer.

The position Resident Engineer should be expanded to categories "C," "B," and "A." The residencies should be classified in a similar manner, depending upon the responsibilities and activities of each location. The Resident Engineer "C" should be in a compensation bracket comparable with the Assistant District Engineer. Under ideal circumstances, the promotion path for young engineers should be in the following sequence:

Assistant Resident Engineer.
Resident Engineer "A"
Resident Engineer "B"
Resident Engineer "C" or
Assistant District Engineer

The recommendations listed above make reference to promotion paths for men rising in the organization toward positions of greater responsibility and authority. The most difficult personnel problem faced by any organization, governmental or commercial, is the apparent limitation of opportunities for advancement. The Highway Department, with a constant growth of demands on it caused by new technology and expanding traffic needs, must exert every effort to retain its most able and talented men, and it must learn to advance these men to more responsible positions as fast as their individual development permits. The implementation of the organization and personnel changes mentioned above will create needed promotion opportunities.

D. *Retirement Policy*

The State's retirement program permits employees to retire immediately when they reach 65 years of age, at which point the employee has earned full retirement benefits. Under State law, it is possible for an employee to continue working until the end of the fiscal year following his 70th birthday; in such cases, he receives a somewhat larger pension because of the additional years worked. It is recommended that the Highway Commission establish a policy requiring Department employees to retire at the end of the month in which they become 65 years of age.

This will have the beneficial effect of creating promotion opportunities throughout the Department and will force the training of replacements. Hardship cases should be reviewed by a subcommittee of the Highway Commission.

E. *Recruitment and Training*

The Highway Department has a salaried staff of 7,000 employees. Maintaining a force of this size requires constant efforts to hire and train new personnel to replace those who retire, leave for military duty, transfer to other agencies, or leave to take other jobs. In recent years, approximately 1,000 people per year have left the Department, necessitating replacement by new personnel.

The recruitment and training of district and residency personnel are handled as a local problem by the Assistant District Engineers and Resident Engineers or their subordinates. Several of the districts have done excellent work in attracting high school graduates to the Department's service. The young men are given a training course after which they fill jobs related to highway construction. All districts do not make equally effective efforts and, unfortunately, the Personnel Division has not coordinated their various activities into an appropriate Statewide program.

The Engineering Training Program is intended to be the major source of technical and engineering man power for the Department. Each year, Civil Engineering graduates from nearby colleges are invited to become trainees, and undertake a four-year period of exposure to and training in all phases of highway engineering and construction. During the past eighteen years, some 300 men have become trainees, of whom about 25% are now permanently assigned within the Department in important positions, such as Resident Engineer, Assistant Division Engineer, and District Engineer. The Department has benefited greatly from the program and realizes the need for expanding it and then for retaining a greater number of the trainees.

Recruiting efforts to bring new young graduate engineers into the Department's Trainee Program have not been well planned and have not been well executed. Very few men brought in as trainees have actually followed the Trainee Program in the past few years. The majority of these men have been assigned to field inspection work and then have continued on it through the four-year period in which they should have received formal training. There is no question but that the men were put to good use and handled important problems in the field; however, the Department's failure to follow through on the Training Program can be construed as a lack of real interest in it. Since many graduates look forward to a good training program, this can be expected to affect future recruiting results until the matter is permanently corrected.

The Department is conducting a study of the Engineering Training Program, directed by an educator from VMI. The information collected from that study should be used as a basis for improving this important program. The Department executives should develop an effective long-range plan, establishing the number of graduates who are to be trained each year. The present practice of restricting the program to civil engineers should be revised to include mechanical, industrial, architectural, and mining engineers.

The Department's most important personnel need for the past few years has been for field construction inspectors. This need will continue throughout the construction period of the Interstate System and the

Arterial Road Program. Employee turnover in this work is expected to be high because of the nature of the work. The Department has not developed a Statewide program for hiring and training men to fill these jobs and, as a result, the demand for men with some technical training creates a continuing pressure on the Engineering Training Program. The Personnel Division should coordinate the construction man-power needs of all districts and should accept full responsibility for having personnel trained and ready in all areas for adequate coverage of needs.

The personnel needs of the Richmond headquarters are filled by the employment of people who apply to the Department and who meet the necessary qualifications. Specialized personnel requirements formally are filled by training and advancing employees. The Department could benefit by making a stronger effort to attract specialized recruits and to exploit the services of the State Personnel Division and the United States Employment Service to find trained people to fill demanding jobs.

The Department's training programs in several districts and divisions could be rated very high. In general, however, training efforts are inadequate and fall far short of the needs of the Department and its employees. Personnel are given annual merit ratings, but they are perfunctory in nature and are not used as a tool to upgrade the caliber and performance of employees and supervisors. The Personnel Division should organize and coordinate training programs to cover every phase of the Department's operation.

F. *Retention of Employees*

An earlier section made a reference to the Department's loss of approximately 1,000 employees per year from its salaried staff. Employee separations caused by military leave, retirement, death, or ill health—which are unavoidable—account for the majority of the turnover. It appears that less than one third of the separating employees, about 6% of the total force, left the Department to take what they considered to be better jobs. Unfortunately, the Personnel Division has not made it a standard practice to interview employees who resign, and practically no effort has been made to retain them. Little, if any, accurate information has been collected as to the precise reasons for resignations.

Losses of some talented engineers and of a great number of engineering trainees combined with difficulty in replacing these have created a defeatist attitude on the part of many employees and supervisors. The most important step in the improvement of this attitude is for the Personnel Division to adopt the firm policy of conducting a personal interview with each employee who expresses any dissatisfaction with his job. Adequate records should be developed to outline the reasons behind all separations. The Personnel Division should then compare its records with those of other highway departments and with industry so that special effort can be concentrated where it is most needed.

The Highway Department offers challenging and rewarding careers to its people, but the Department has not been effective in learning about and applying those things which encourage employees to take pride in their accomplishments and remain on the staff.

SUMMARY OF RECOMMENDATIONS

Organization

1. The State Highway Commissioner should be selected for his ability to direct and guide the Department in the establishment and achievement

of the State's long-range highway objectives. He should function as the chief executive officer of the Department. He should be chosen for his ability as a highway engineer and as a highway administrator.

2. The State Highway Chief Engineer-Deputy Commissioner should be appointed by the State Highway Commissioner subject to the approval of the Highway Commission. He should function as the chief operating officer of the Department and should be responsible to the Commissioner for the effective operation of all divisions and for the accomplishment of the objectives set by the Commissioner and the Highway Commission.
3. The Highway Commission members should be directed to concentrate their attention on broad Statewide problems. They should provide more extensive policy and administrative guidance to the Commissioner. The Highway Commission members should organize themselves into a series of subcommittees for functions such as Urban, Secondary, Right-of-Way, Traffic and Planning, and Administration.
4. The organization structure of the Department should be revised in accordance with the structure shown in Chart II—Proposed Organization Structure.
5. The position Assistant Chief Engineer should be dropped and the new position of Director should be established for each of five functional groups.
6. The responsibilities and authority of each position on the organization chart should be redefined and then efforts should be made to keep the information current.
7. The Department should delegate more authority and responsibility to District Engineers and Resident Engineers and decentralize departmental operations to the greatest degree possible, consistent with maintaining control of performance.

Personnel Administration

1. The Department should develop a better understanding of the benefits which can accrue from the contributions of an effective Personnel Division.
2. The Department should undertake a complete reorganization of its Personnel Division.
3. The Personnel Division should be organized in accordance with structure shown in Chart III—Proposed Organization Structure, Personnel Division.

Salary and Wage Structure

1. Salary compensation levels of higher-ranking Department officials should be revised. This should be based on a study performed by the State Division of Personnel.
2. Salary levels for the position Division Engineer should recognize the different compensable characteristics of the several positions now in that category.
3. The position District Engineer should be elevated in status and compensation to correspond with that of Division Engineer.

4. The position Resident Engineer should be expanded to categories "C," "B," and "A." The residencies should be classified in a similar manner depending upon the responsibilities and activities of each location.

Retirement Policy

1. The Highway Commission should establish a policy requiring Department employees to retire when they reach 65 years of age.

Recruitment and Training

1. The Personnel Division should coordinate the recruitment activities of the Department into a Statewide program.
2. The practice of transferring men from the Engineering Trainee Program before their training is completed should be discontinued.
3. The practice of restricting the Engineering Trainee Program to civil engineering graduates should be modified to include graduates in other engineering fields.
4. The Department should strengthen its efforts to attract and recruit experienced people to fill demanding jobs.
5. The Personnel Division should organize and coordinate training programs to cover every phase of the Department's operations.
6. Merit ratings should be used as a tool to upgrade the caliber and performance of employees and supervisors.

Retention of Employees

1. The Personnel Division should conduct a personal interview with each employee who expresses any dissatisfaction with his job.
2. The Personnel Division should develop adequate records to outline the reasons behind all separations.
3. The Personnel Division should compare its separation statistics with those of other highway departments and with industry so that special effort can be concentrated where it is most needed.