

REPORT  
ON  
STREET CLEANING AND REFUSE COLLECTION  
DEPARTMENT OF PUBLIC WORKS  
CITY OF DETROIT

Prepared by the  
DETROIT BUREAU OF GOVERNMENTAL RESEARCH  
And based upon a report by the  
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## FOREWORD

In a carefully prepared report on any subject, questions of fact need not and should not be matters of difference. Deductions from facts, however, are easily matters of personal opinion. In a report dealing with so important and technical a subject as the collection and disposal of city wastes, the opportunity for such differences of opinion is clearly recognized. For this reason, every effort has been made to avoid categorical solutions of the questions raised. Rather an attempt has been made to indicate conditions and problems, and suggest solutions which have proven successful in communities of similar size and conditions.

This report is the work of Raymond W. Parlin, Deputy Commissioner of Street Cleaning, New York City, and H. S. Morse, of the Detroit Bureau of Governmental Research. For advisory purposes the report passed through the hands of W. B. Holton, Director of the Bureau of Governmental Research, San Francisco, California, and formerly Assistant Director of the New York Bureau of Municipal Research; and Lend D. Upson, Director of the Detroit Bureau of Governmental Research.

The question of the proper type of organization for a department of street cleaning was considered sufficiently important to warrant the calling of a conference in New York City. At this conference, in addition to Messrs. Parlin and Morse, were Ernest P. Goodrich, Acting Director of the New York Bureau of Municipal Research, Consulting Engineer for the Dual Subway System, West Side Track Elevation, Los Angeles Harbor Commission, Portland, Oregon Harbor Commission, etc.; J. T. Fetherston, Commissioner of the Department of Street Cleaning, New York City; T. L. Hinckley, Engineer of the Toronto Bureau of Municipal Research; William A. Basset, Chief Engineer of the New York Bureau of Municipal Research; J. W. Routh, Engineer of the Rochester Bureau of Municipal Research; and C. D. Benson, Engineer, of the New York Bureau of Municipal Research.



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## SUMMARY OF RECOMMENDATIONS AND SUGGESTIONS

### RECOMMENDATIONS

It is recommended: -

1. That the Department of Street Cleaning and Sanitation be reorganized along geographic lines, in order to provide adequate and detailed supervision and to fix responsibility for work done in any particular area. (pp. 5-13)
2. That a Planning, Inspection, and Instruction Division be created, to assist in coordinating work and in standardizing methods of the various branches of the department, to instruct recruits, and to make possible scientific planning to meet demands for extension and readjustment of service. (pp. 10, 11, 16, & 17)
3. That, in order to make the service more attractive and to increase the efficiency of the personnel (pp. 13-20)
  - a. Employees be secured through limited civil service control
  - b. Plans be laid for the installation of a pension system
  - c. Physical requirements be established for the employment of laborers
  - d. Medical assistance be provided for employees
  - e. Recruits be employed for a probationary period
  - f. Employees' service records be installed
  - g. Rates of compensation be standardized and graded so that recognition may be given for superior service
  - h. A schedule of promotion be prepared for the information of employees and credit be given for satisfactory records in examinations for promotion
  - i. Uniforms and badges be required for all employees while on duty
4. That appropriations be made for the City as a whole rather than by wards, in order that the money be expended for service where it is most needed; and that a division of the work of the department be made in accordance with the demands of the service and not along ward lines (pp. 19 & 46)

5. That a scientific reporting and cost accounting system be installed, and that a system of control over stores and supplies be developed, to insure a close financial and supervisory control over the work of the department (pp. 21 & 23)
6. That more machine flushing and hand patrol service be provided, as these are at present the most effective methods of securing clean streets (pp. 32 & 46)
7. That the pick-up of material from the gutters after machine cleaning of the streets be more closely coordinated with the machine work, in order that such material be gathered before it is again scattered over the streets (p. 31)
8. That a special investigation be made to determine whether it is possible to operate street railway flushing machines and abandon street railway sprinkling, since flushing removes the dirt while sprinkling simply lays the dust temporarily. (p. 35)
9. That citizens contributing to private street sprinkling contracts be encouraged to put their money into additional public flushing, since the practice of sprinkling paved streets where proper flushing is performed is a nuisance rather than a benefit. (p. 38)
10. That the use of sewers for the disposal of snow be increased, as a ready and economical means for facilitating such work. (p. 50)
11. That arrangement be made whereby the street railway companies shall clean a portion of the streets of snow, or that such work be done at their expense. (p. 52)
12. That new definitions of the various kinds of refuse be adopted, assuring a separation of refuse into three classes – garbage, ashes, and rubbish, as the first step in economical refuse collection. (p. 55)
13. That larger equipment be provided for the collection of rubbish, in order to reduce the cost of hauling. (p. 63)
14. That consideration be given to city ownership of collection equipment for ashes and rubbish, including both horses and wagons, in order to provide uniformity in equipment, and as means for effecting economies and making possible a close control of the collection service. (p. 65)
15. That the work of the sanitary police force, acting under the immediate direction of the Health Department, be expanded to cover the entire city and that an educational campaign be carried on through cooperation with other interested departments to acquaint the public with its duties in the care of streets and alleys and the treatment of refuse. (p. 75)

## SUGGESTIONS

It is suggested:

1. That the name of the organization be changed from "Department of Street Cleaning and Sanitation" to "Bureau of Sanitation", the term "bureau" being used to indicate a unit within the organization of the Department of Public Works. (p. 12)
2. That a classification of complaints, including complaints against the department and complaints from the department against the public and other city departments be currently prepared, to serve as a barometer of the results accomplished and to indicate weak points which may be strengthened. (p. 23)
3. That the payroll procedure be improved, so that the original time books become permanent payroll records. (p. 22)
4. That the summary of work performed as well as the amount of money expended be included in the annual report, so that it will serve both as a record of past work and as a source of information for the public. (p. 24)
5. That special study be given to the scientific routing of flushing machines. (p. 29)
6. That two-way hydrant connections and auxiliary valves be provided for use on hydrants. (p. 30)
7. That the teams needed in flushing be substituted for horse-drawn flushers. (p. 34)
8. That automobile flushers be substituted for horse-drawn flushers. (p. 34)
9. That squeegees be tried as auxiliaries to flushing, on streets where much oil or other sticky material is present. (p. 35)
10. That flushing reports be sent to the central office, and at least in summary form be brought to the attention of the Superintendent. (p. 36)
11. That the sprinkling of newly paved streets be systematically carried out and the expense paid out of street construction funds. (p. 39)

12. That study be given to other types of hand sweepers equipment before purchasing more of the present type, in order to facilitate this work and to reduce the cost of collection. (p. 41)
13. That more and better designed rubbish receptacles be provided of such a type that it will not be necessary for the pedestrian to use both hands in order to deposit rubbish in them. (p. 42)
14. That special litter squads be organized to operate in the congested downtown streets where the quantity of litter on streets is especially noticeable. (p. 43)
15. That a light automobile truck be provided to pick up street rubbish from receptacles. (p. 44)
16. That "white wing" uniforms be altered and improved. (p. 44)
17. That hand hose flushing of the better paved alleys be tried, in order to eliminate, if practicable, the dust nuisance caused by dry hand sweeping. (p. 47)
18. That regularly employed straw bosses be made assistant foremen and given compensation in proportion to their responsibility. (p. 48)
19. That hose flushing methods for the removal of snow be tried in a restricted area. (p. 51)
20. That separate portable receptacles be required for garbage, ashes, and rubbish. (p. 56)
21. That garbage be collected three times a week in summer and twice a week in winter in thickly settled sections of the city. (p. 58)
22. That work summaries on garbage collection be brought currently to the attention of the Superintendent. (p. 59)
23. That the garbage collection routes be thoroughly revised. (p. 59)
24. That a study of the design of garbage collection equipment be made before purchasing more of the present type. (p. 60)
25. That attention be given to the need for dustless and odorless equipment when purchasing new equipment. (p. 64)

26. That special study be given to the possibility of producing economies by adopting motor equipment in connection with collection of refuse by horse-drawn vehicles. (p. 65)
27. That the roadways to the dumps be improved to meet the needs of the service. (p. 68)
28. That the repair shops be centralized in the vicinity of a city stable.
29. That general manufacturing of equipment be not attempted. (p. 70)



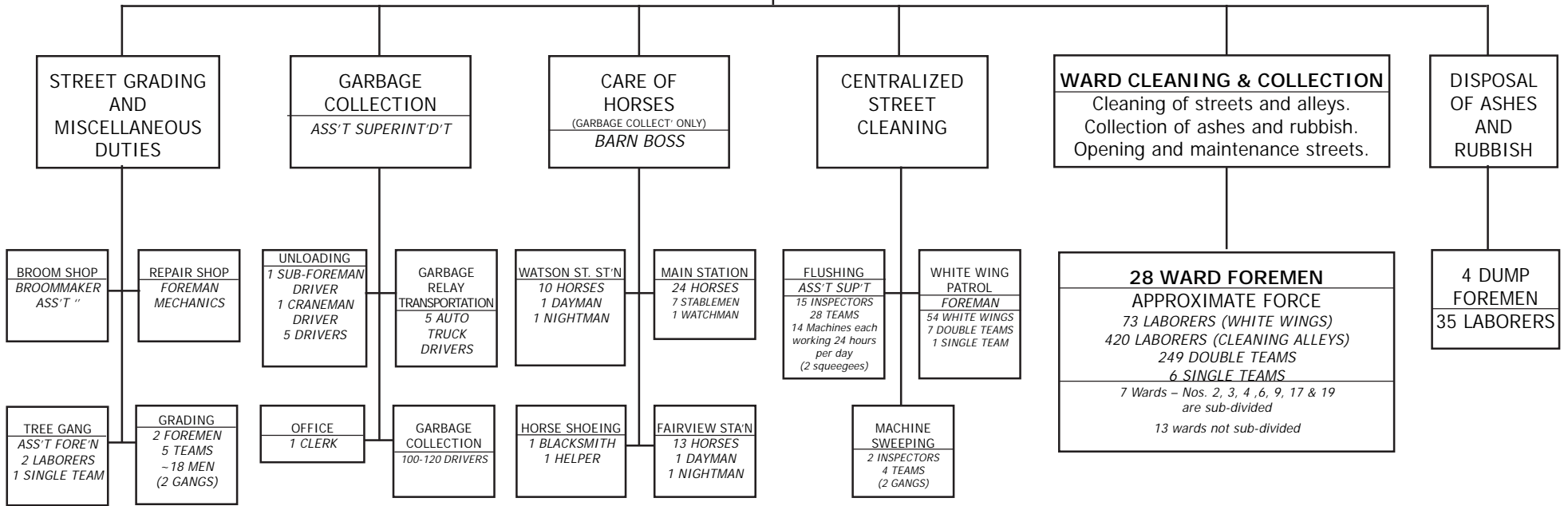
DETROIT MICHIGAN  
1916

COMMISSIONER  
OF PUBLIC WORKS

**PRESENT ORGANIZATION OF STREET CLEANING  
AND SANITATION FORCES**

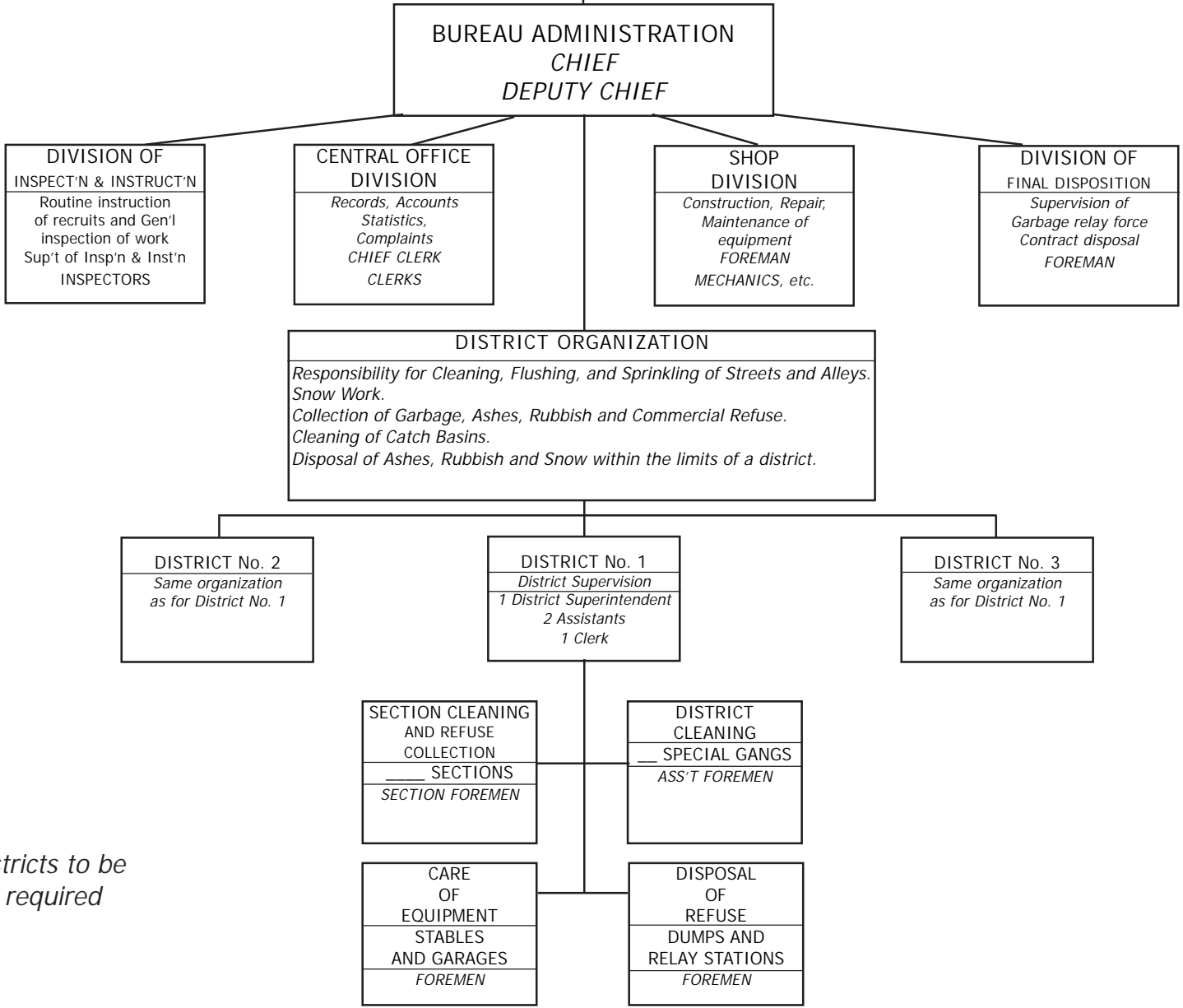
ADMINISTRATION  
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1 CLERK



COMMISSIONER OF  
DEPARTMENT OF PUBLIC WORKS

**PROPOSED ORGANIZATION  
OF A BUREAU OF SANITATION  
DETROIT MICHIGAN  
1916**



**NOTE**  
Other Districts to be added as required



# REPORT ON STREET CLEANING AND REFUSE COLLECTION

## A. INTRODUCTORY STATEMENT

Few municipal undertakings deal with more variable conditions than the work of street cleaning and the collection and disposal of city refuse.

In Detroit, because of the extremely rapid growth of the city, these problems are even more difficult of solution than is the case in most cities. Abnormal demands for extension of service, excessive quantities of refuse from building operations, and a new, shifting, and therefore, more or less irresponsible population complicate the work.

Several other conditions peculiar to Detroit interfere more than is usual with the work of street cleaning. Among these conditions are the practice of parking automobiles along the business streets from early morning until late at night, and the excessive use and abuse of alleys.

Furthermore, few city activities come into closer contact with the general public than the work of street cleaning, and in the collection of garbage and other household wastes, the Department of Street Cleaning and Sanitation becomes an important factor in the smooth running of the home. For these reasons, probably no division of the city government is so easily subject to a close scrutiny of the service rendered.

Recognizing this fact, together with the existence of unusual conditions, the appearance of the streets is, in general, creditable to the Department. But this survey shows clearly that the fast growing city has outstripped this division of the Department of Public Works, and a complete reorganization of the force for street cleaning and refuse collection is of immediate necessity.

## B. GENERAL ADMINISTRATION

### 1. ORGANIZATION AND DUTIES

#### a. General

The Department of Street Cleaning and Sanitation has jurisdiction over the cleaning of streets and alleys, the collection of refuse and small dead animals, the disposal of refuse, the opening and maintenance of unimproved streets (unpaved), and the care of department equipment.

The organization of this sub-department of the Department of Public Works is graphically shown on the accompanying chart. It will be noted that the duties of this sub-department may be divided into six main classes:

1. Centralized city street cleaning
2. Ward Cleaning and refuse collection
3. Garbage collection
4. Disposal of refuse
5. Care of equipment and horses
6. Miscellaneous

These are the natural groups into which the organization is now divided, although the supervision over these groups is subdivided and the various foremen are held independently responsible to the Superintendent. This is indicated in the charts – the duties of flushing, machine sweeping, the “white wings”, the dumps, garbage collection, care of horses, the cleaning of the various wards and other activities being shown as separately supervised and having no direct connection.

#### b. Inadequate Administrative Control

The methods of administration used by the

Superintendent are limited to:

1. Regular meetings of the officers in charge of the wards
2. Personal conferences with the various officers
3. Inspection of the work in the field
4. Complaints

In a city as large as Detroit this method of administration can hardly be considered adequate. Only the intimate acquaintance with the local conditions secured through long and continued contact has made it possible to furnish the present service.

Further, lack of clerical assistance has made effective administrative records and cost accounting impracticable. Such a condition would not be found in well organized private work, and should not be permitted to continue in the public service. It is the more surprising that so much information is available where the system is defective.

#### c. Overlapping Responsibility

Both the centralized cleaning forces and the ward forces work over the same area, and, in the case of flushing and machine sweeping, one force starts the job and the other finishes it. In the case of "white wings", many sweepers are supervised by the white wing foreman and paid out of white wing funds even though working at considerable distances from the headquarters of the white wing force; other white wings, though paid from the white wing funds, are supervised by ward foremen; and still others, although not termed

white wings, perform the same duties in patrolling the streets, but are carried on the ward funds and supervised by the ward foremen. The assistant superintendent in charge of flushing, the two foremen in charge of machine sweeping, the white wing foreman, and the various ward foremen, are practically independent of each other, and supervision and coordination of their work must be secured directly through the Superintendent.

Such overlapping of the duties of the various employees tends to prevent fixing the responsibility for results and makes coordination of the work difficult. When the city was small, the present form of organization may have been satisfactory. Detroit, however, has not become so large that to secure the best control the responsibility should be divided and responsibility for details removed from the Superintendent.

## 2. PLAN OF REORGANIZATION

### a. General

There are two main types of organization which may be applied to work of street cleaning and refuse collection, which for lack of better terms, may be called "functional" and "geographic". Assuming that the principal functions of such an organization are street cleaning and refuse collection, the chief distinction between these two types of organization is that under the geographic the supervision of these functions is under one head who is responsible for a particular area, while under the functional type each function is separately supervised, so that two supervisors will cover the same

area, each performing his particular function. Under both types coordination of the work must ultimately be secured through the Superintendent.

There are points for and against either of these types of organization. But without attempting in this report an analysis and comparison of these types, it can be stated as a basic fact that the functions of street cleaning and refuse collection are not so technically different or so far apart in their purposes that one supervisor cannot cope with both functions. As a general proposition, therefore, it may be stated that the geographic type of organization is practicable and has a distinct advantage in that it fixes responsibility for the cleanliness of a particular area.

The choice between these two types is a practical proposition, depending upon several factors, among which are – the area and population of the community; the character and extent of improvements; the density of population and variations in density; the methods best applicable to conditions, or the methods in use, including kind, quantity and location of equipment; and the number of separations and perfection of separation of refuse. Also it is possible that under certain conditions, a combination of the two types may produce the best results. So a clear cut choice between the two may not always be advantageous.

It is suggested for Detroit that better results will be secured through organizing the city into geographical districts each under the supervision of a district superintendent who shall supervise all functions carried on within the district. The accompanying chart of the proposed organization shows the city divided into three districts. This number is used arbitrarily, and it is probable that an intensive study of working conditions will indicate that the number of districts should be increased. This is particularly true because of the recent large increase in the area of the city through annexations.

The organization proposed will reduce the responsibility of a single officer to a point where he can efficiently perform his duty without slighting any part of the city, as is now necessary when one man is obliged to cover the entire city. It should also be possible to assign equipment and men in such a way that there will be no overlapping of the areas for which a particular district superintendent is responsible.

To provide for detailed supervision over the work in various parts of the districts, the present ward system can be copied, with modifications of boundaries, and an increase in responsibility be obtained by the addition of activities which do not overlap another ward or section.

#### b. Functions Under Each District

The work in each district falls naturally into

four groups:

1. The cleaning of streets and the collection of refuse which can be limited to small geographical sections of the district.
2. The work of cleaning streets through the use of special equipment which naturally will cover several sections and must, therefore, be supervised for the district as a whole.
3. The disposal of refuse at dumps or relay stations where the whole district will be served at a few stations.
4. The care of equipment, which includes the stables, garages and yards which serve or lie within a district.

c. Sections

The geographic units or sections referred to under the first group as parts of a district will be similar to the present wards in size, although effective supervision will be facilitated if these units are not so long and narrow as the present wards. Each section should cover an area which would provide all of the routing work which a section foreman and an assistant foreman can effectively supervise, and should be laid out in accordance with the demands of the service and not along arbitrary political lines.

The responsibility of the section foreman should include control over all the cleaning of streets and collection of refuse carried on within the section. Generally speaking, each section should be provided with suitable headquarters for the storage of equipment and control over the force.



d. District Cleaning

The district cleaning will naturally be divided into squads or gangs for machine sweeping and flushing, and over each squad or gang will be placed an assistant foreman. These forces will be responsible for cleaning, whenever it is necessary to cover more than one section with a single gang or piece of apparatus. The coordination between the work of the section foreman and district gangs will, therefore, be the duty of the district superintendent under whom both work.

e. Care of Equipment

In placing the responsibility for the care of equipment under the district superintendent, it is assumed that each district will be provided with equipment from a stable, garage, or yard within the district. This is generally necessary if traveling long distances in order to get to the work in the morning and on leaving the work at night, are to be avoided. Experience in other cities has indicated that the responsibility for supplying equipment and for doing the work should be placed in the hands of a single individual who is close enough to the work to be able directly to control the situation, and not in the hands of a specialized or centralized long distance control.

f. Installation

As a first step in installing the geographic type of organization in Detroit, it is suggested that as a practical proposition a compromise arrangement be adopted, and that the collection of garbage be operated as a separate function on a city-wide basis, as is

at present the case. The function of street cleaning and ash and rubbish collection can then be placed under the geographic organization outlined, and at such time as the organization is running smoothly, it can absorb the function of garbage collection, and the necessary readjustments of districts and sectional areas can be made.

g. Final Disposition of Refuse

The supervision of contracts for the final disposition of refuse can best be controlled centrally rather than by districts. Even if this phase of the work is done by city forces rather than by contract, but through central plants, better control will generally be secured for the city as a whole rather than by districts. On the other hand, district dumps, or municipally operated district incinerators can best be handled through district supervision. It is, therefore, suggested that existing contracts for the disposal of refuse be continued under the direct control of the central office. Similarly, garbage relay and loading stations should be controlled from the central office until such time as this portion of the work is performed under a distinctly district plan.

h. Planning Division

In street cleaning, perhaps the most important duty of the superior officers is in planning and laying out the work in advance. The study incident to this requires the best judgment available in the department. To facilitate this work, complete physical data in the shape of statistics of previous work, maps, and

physical data regarding the geographical divisions of the city should be made available. It is recommended that a special attempt be made before the season opens this year to secure such data and to bring together a committee of officers for the purpose of making plans for the year's work, so that it will be divided in the most efficient manner possible.

In this connection, it might well be inserted, that the status or standing of so-called "departments of street cleaning" is undergoing a change throughout the United States. The time was – and still is in some cities when the "Street Cleaning Department" was the chief agency of the administration for dispensing political patronage. With a loose organization employing a large force of unskilled laborers, it was easy to expand the force to meet political exigencies, and the dangers of such abuse were not so apparent as when practiced in the police or fire departments. Consequently, it was imperative that the chief, or superintendent, of the department should, first and foremost, be a keen and active politician. Now, however, the cleaning of a city is recognized as a big, vital, and complicated municipal function which calls for technical rather than political service.

#### i. Inspection

As the area and quantity of the work to be supervised increases, it becomes more and more difficult for the superintendent or chief administrator of an organization as large as the present street cleaning and sanitation force to get over the ground often

enough or thoroly enough to secure the information necessary for the proper administration of the work. To meet this difficulty, and as an adjunct to the proposed planning division, it is necessary to provide other eyes and minds which will bring to the chief the information which he desires, and these gatherers of information should not be closely associated with the routine work of the department forces. This calls for an inspection force for the chief. The assignment of at least one man to general inspection duties would assist materially in developing an effective administrative control over the field forces. A better plan would be to have as many inspectors as there are districts. Through occasional transfer of these inspectors from one district to another, comparison of methods and results is easily possible and a general improvement and standardization of methods can be obtained.

j. Change of Name

The present custom of calling the street cleaning and refuse collection forces the Department of Street Cleaning and Sanitation is not consistent with the use of the term "department" in connection with the superior group, known as the Department of Public Works. In the proposed reorganization of the Department of Public Works, it is suggested that this portion of the large organization be termed the Bureau of Sanitation, using the term "bureau" to mean a unit within a departmental organization.

k. Advantages of the Proposed Organization

The advantages of the proposed reorganization plan may

be summarized as follows:

1. The elimination of divided responsibility or authority over a single area.
2. A clear definition of the responsibility of the various offices.
3. A concentration of supervision where most required.
4. Relief of the chief of the Bureau from details of routine work which now prevent his planning ahead.
5. Better service, with a primary increase in expense, but with eventual decrease in expense for these services.
6. An organization which may be expected, without material change, to meet the growth of the city.

### 3. PERSONNEL

#### a. Selection of Employees

The appointment of laborers is not subject to civil service regulation at the present time. As far as could be learned, the selection of employees has been in large part personally supervised by the superintendent. The department is handicapped on account of the scarcity of good labor. This scarcity in itself has made difficult the selection, disciplining and discharging of men, and has made it necessary to hold men in service who should not otherwise be there, in order that the force might not be short-handed.

With the possibility of the future installation of a pension system and the need for protecting the supervising officers

from unwarranted political interference, the installation of a limited amount of civil service control is recommended. Such control should, however, be limited and administered in effective cooperation with the department. This control should be predicated on the establishment of physical requirements, the inclusion of a probationary period requirement, and the maintenance of historical service records of the employees. The strength of the argument that certain departments can employ a type of man who would otherwise be an object of charity is recognized. However, it is believed that this employment should not be so extensive as to materially impair the efficiency of public activities.

#### b. Pensions

To make the public service attractive to the best qualified men and to insure proper care to faithful employees when they are no longer able to perform their duties, it has been found desirable to provide a pension system in many branches of governmental service. A pension system for street cleaning forces will undoubtedly be introduced in Detroit some time in the future, and plans should now be laid to make sure that the street cleaning force will be in proper physical condition when that time comes. This means that new employees should be young, active men, not old men who already are almost subjects for pension.

#### c. Physical Requirements

The laboring work of a department of street cleaning is hard and at times dangerous. If men are not physically qualified to

perform the work without unnecessary risk of injury or physical breakdown, both the City and the employee will suffer. No man should be certified for employment until he has passed a proper physical examination. Such an examination should take into account the need for active men with good eyesight and hearing for sweepers; men who will be able to keep on their feet every day in all seasons; and the need for comparatively tall, strong men in the collection service who can lift heavy weights without danger to themselves. Precaution in the selection of men is good economy, as the city will be obliged to assist in caring for employees injured during the course of the work, or who break down under the strain of attempting to do work for which they are not physically qualified.

d. Medical Assistance

The numerous injuries and accidents in the street cleaning and refuse collection service, and the lack of education among the employees, make it vitally necessary that special attention be given to the health and welfare of these employees. If such assistance is not given, minor injuries, such as cuts and strains, very often develop into serious injuries, and prevent an employee from rendering proper service. As a rule, the public is obliged to support injured employees during the period of their disqualification, and very often this loss of time could be avoided if medical assistance had been supplied in the beginning. It is recommended that competent physicians be employed during such time as may be required to examine and care for all of the employees of the department.

e. Instruction During Probationary Period

It is suggested that recruits hired for the street cleaning forces should enter upon a probationary period, even after having passed physical tests. Three things might be done in this probationary period to make sure that the city secures the type of employee required for the service and the recruit is given a fair chance to learn. Each employee should be instructed in the standard methods of performing the work for which he has been hired, and, if possible, tested upon other work which he may be called upon to do. The ability of recruits under normal working conditions should be ascertained by measuring it against the judgment of qualified individuals in the department. A candidate should be rejected as soon as it is clearly apparent that he is not up to the standard required by the department.

In the instruction of recruits, two methods are practicable: under the first, in operation in New York City since May 1916, recruits are instructed in a class room, mornings, in the use of the equipment used in cleaning streets and collecting refuse. During the afternoon the recruits work in the field under the eye of the instructor. The period of instruction approximates twelve days, varying with the aptitude of the recruit. Another method would be to omit the class work and instruct the men individually while at work in the field. A combination of the two methods, utilizing the previously recommended force of inspectors for field instruction, after graduation from class work would produce the best results.



f. Standard Methods

The instruction of recruits presupposes the establishment of standard methods for the performance of work. These have not yet been developed in Detroit except individually among some of the supervising officers. A good method of determining upon such standards is thru a conference system whereby the superintendent and his supervising officers form themselves into committees to analyze and prepare a set of instructions as the basis of several conferences and discussions. As a result of such discussion, the best methods of doing the various kinds of work may be determined upon and adopted. The proposed inspection service, as previously noted, will also assist to this end.

g. Record of Employees

At the present time the only record of employees which is kept, other than that on the payrolls, is the record of those recommended to the superintendent by aldermen and other persons in the city service. This record in itself is more of a protection against undue political interference than a record of employees.

A card index or other record might be maintained on which should be shown complete data relative to each employee or officer from the time of his first application for appointment until he secures his appointment in the service. It should show every breach of discipline or other action which works against or in favor of future promotion, as well as all accidents, sick leave, transfers from one section to another, etc. It is recommended that such a record be started at once and maintained in the future.

#### h. Compensation

The present rates of compensation are generally higher than the wages paid for similar work in other cities. There is no reason to believe, however, that they are too high for Detroit, inasmuch as there is a natural shortage of good labor at the present time. There is reason, however, to believe that better results will be secured in the future if provision is made for the gradation of salaries in recognition of superior service or as a natural result of long service.

A very satisfactory system has recently been drafted for the street cleaning service in the City of New York, which can be used as a guide for a similar system in Detroit. This provides for the entrance of a recruit into the service on a temporary basis; the advancement to regular service at a fixed rate for the first year, and an automatic increase in rate each year for a period of five to seven years, provided the work of the individual has been satisfactory. Provision is also made for reducing compensation from one rate to another in case of unsatisfactory service.

#### i. Promotions

It is urged that a definite schedule of promotions which can be obtained by the best qualified men be prepared as an encouragement to employees. Extra credit could be given at the examinations to all employees with satisfactory records over that given to men who have not been in the service.

j. Uniforms and Badges

At the present time distinctive uniforms are required for the “white wing” forces only, and coats are furnished for the officers only. It is recommended that badges be provided for all employees to enable citizens or officers more easily to identify the employees in the field. Such badges should be properly numbered, easily distinguishable, and worn by all employees, including the officers, while on duty.

Uniforms for employees in the sanitary service are as much to be desired as in police and fire departments, for several reasons:

1. They tend to prevent accidents to men working in heavy traffic streets
2. They produce greater self-respect in the organization
3. They assist in supervision by making the men more easily distinguishable to the officers
4. They greatly improve the appearance of the force, thereby producing a more attractive city and a certain amount of pride in the force among the citizens

The type of uniform should naturally be adapted to the work on which the forces are engaged. The usual material for sweepers or “white wings” is white; for loaders, drivers and dump laborers, it is preferably khaki colored, so that the dust will not be too apparent. Water-proof garments should be provided so that the work can be efficiently performed in the rain. Officers’ uniforms

should be designed with a view toward neatness, simplicity, and durability.

Three methods for providing for the purchase of uniforms are suggested:

1. That the men be required to purchase them at their own expense.
2. That the city purchase them and bear the whole expense.
3. That the city purchase them and that a portion of the expense be charged against the men.

The first method is very commonly used throughout the country, but in Detroit it is believed that the third method would probably be best adapted to the conditions when purchasing the first set of uniforms, after which all others might be purchased by the men themselves as under the first method. Preferably, each man should own at least two uniforms, and the officers in charge make an inspection every morning and insist that all uniforms be neat and clean.

In purchasing uniforms, it is recommended that a contract be made for the whole force. An especially good method of purchasing by contract is to organize a committee for the preparation of specifications, and invite representatives from the working force to serve so that they may learn for themselves that the uniforms are purchased at the best possible prices. By such a method, large savings can be made over the method of allowing each man to purchase his uniform for himself.

#### 4. APPROPRIATIONS, ACCOUNTS AND RECORDS

##### a. Revised Appropriation Methods

Economical and effective street cleaning is not facilitated by appropriating the funds for street cleaning by wards, as is now the case in Detroit. Appropriations which definitely limit the amount which may be expended in any ward simply tie the hands of the administrative officers. In addition, the appropriation by wards has a tendency to make the work to a greater extent subservient to ward influence than is the case with city wide appropriations. As a basis for judgment for those making appropriations, it is entirely feasible to prepare a work program which will indicate the cost of such service for the next year. It is recommended that appropriations be made for the various activities included in such a program, but for the city as a whole rather than by political units.

##### b. Cost Accounting System

With the possible exception of records of the collection of refuse from alleys and the collection of garbage, service records and cost accounts are conspicuous by their absence. The cost system now in force merely subdivides the total outlay of funds among the various activities, and provides the necessary information for the certification of payrolls and other expenditures of money for equipment and supplies. Little attempt is made to determine whether the work done in each division of the service is proportional

to the expenditure or not, except to the extent that this may be determined by inspection.

Regular reports and cost data are necessary to insure close control over the work by the administrative officer. Such reports must be made and cost data kept so that the work of the various units of the organization may be compared. These records, if properly designed and currently available, should enable both the administrator and supervising officers quickly to locate weak spots in the organization. In many cases they also enable them to secure an element of competition between units working on similar activities, and through this means to arouse an interest in devising better methods for performing the service. They will further enable the superior officers to determine the advisability or inadvisability of adopting new methods by giving a basis for scientific determination.

### c. Payrolls

The preparation of payrolls from records made in field books as at present practiced presents weak points in procedure which should be strengthened. It is urged that as a protection to the city and to remove temptations from employees, all original records carrying the certification of those officers who have first-hand knowledge of the kind, amount, etc. of the services rendered become a part of the permanent record of the payroll division, and not be returned currently to the officer responsible for such certification, as is now the case. Whether these original reports can at the same time become the payroll for the department as well is a matter for

consideration. It is possible that they could be made up in duplicate at the main office at the beginning of each week, with the names and the numbers of the men regularly employed filled in, so that the field foremen need enter only the hours worked and add the names of any other men who may start work during the week, leaving all calculations for the clerical force of the payroll division at the end of the week. In this way, an original document containing all the certifications of those who are responsible is secured and automatically becomes a matter of record, and, at the same time, duplication of work is avoided.

d. Stores Control

There is at the present time little or no central control over the issuance of supplies or records of stores on hand maintained by the central office. It is recommended that this be corrected at the same time that the accounting system is revised.

e. Classification of Complaints

At the present time, complaints are receiving commendable attention on the part of the superintendent and other departmental officials and regular reports are expected from those investigating conditions. Many complaints are received directly by the assistant superintendent in charge of garbage, a record of which does not always appear on the records at the central office. Complaints form a most accurate barometer of the results accomplished by the street cleaning and sanitation service. But this accuracy is only secured when all come to the office of the

superintendent either individually or in the shape of a current summary, both by classes and location.

It is suggested that not only the complaints of the public against the department be recorded, but also that a record be kept of the worst conditions coming to the attention of the officials for which the public is responsible; and in case any department or division of the city government has authority to correct unsatisfactory conditions, a regular written notice calling attention to the situation be transmitted to that division for action.

It is suggested that special attention be given to the handling of complaints of all kinds and that a classification and summary be currently prepared for the information of the superintendent and for comparative purposes in the future.

#### f. Annual Reports

The preparation of an annual report setting forth the physical results which have been obtained thru expenditure of public funds is just as important as a report which shows that funds have been legally expended. Further, such a report may provide an avenue of beneficial publicity through which contact may be secured between the public officials and those of the citizens who take an active interest in government. It is only thru such a document that the public or interested officials can obtain any idea of whether the money has been wisely expended and of what policy has guided the expenditure. A well designed annual report also serves as a summary of past work for the information of the administration in the future.



It is, therefore, suggested that summaries of work performed be included in such report as well as the expenses incurred in the performance of the work. The preparation of such reports will be facilitated greatly by the installation of a better cost accounting procedure.

## C. STREET CLEANING

### 1. GENERAL STATEMENT

The work of street cleaning, as now organized, is divided into two parts, one including a group of centrally supervised forces which cover the whole city, and a second consisting of forces working within the various wards and supervised by ward foremen.

All of the machine flushing forces, except those picking up the stroke of the machines, all of the regular machine sweeping forces, except those picking up the stroke, and a large proportion of the regularly employed white wings working near the business section or along the more important thoroughfares, are supervised by officers responsible directly to the central office who cover the whole city or portions of it without regard to the ward boundaries.

The ward forces in the twenty-one ward so the city are supervised by a single ward foreman assisted by as man sub-foremen or "straw bosses" as are necessary in fourteen wards out of the twenty-one, and in seven wards the forces are divided into two groups, each supervised by a different ward foreman. The ward forces pick up the strokes left by the machine sweepers and flushing machines, clean certain streets and all alleys, and give patrol or white wing service where it is not supplied by the regular white wing force. In addition to these street cleaning functions, while they are cleaning the surfaces of alleys, they gather together and assist in

loading rubbish, ashes, and commercial refuse, and on the outskirts grade and maintain those streets which have not been paved.

The general policy now followed is to clean all of the paved streets in the city at least once a week and the more important or dirtier streets more often. The backbone of the system is the flushing of all hard pavements with the exception of cedar block, and the machine sweeping of cedar block pavements, as well as many of the dirtier pavements, which are also flushed. In addition to and supplementing these methods of cleaning, gang hand sweeping, partially assisted by machine sweepers, and patrol or white wing service are supplied.

This policy meets the requirements of Detroit in a generally satisfactory manner. However, to improve the service and to meet the demands which the rapid growth and changes taking place in the city are making, it is believed, as is pointed out hereafter, that more flushing and hand patrol service should be provided, and machine sweeping should be reduced to a minimum.

## 2. FLUSHING

### a. General

At the present time it is the policy of the department to flush all except the cedar block pavements once a week, and the more important or dirty streets oftener if possible. For this purpose

fourteen horse-drawn flushing machines, twelve of which are provided with a gasoline-driven pump, and two depending upon air pressure are operating twenty-four hours per day and at least six days a week. In addition, three machines are kept in reserve and used only to replace those which are in need of repair. An automobile flushing machine has recently been added to the equipment.

The practice is to operate the machines in batteries of two each under the supervision of a hydrantman or street cleaning inspector. Each battery has a certain area to cover each week, and each shift has assigned to it an area which it covers daily. If the battery is able to cover more ground than has been assigned, it is expected to go back over the dirtier sections of its route a second time.

All teams and drivers are hired from private owners at the rate of sixty cents per hour, work eleven hours per day, and are paid for twelve hours. The extra hour is used for feeding the teams. On the air pressure flushers the inspectors work three eight-hour shifts, but on the flushers equipped with gasoline pumps it is customary for the inspectors to work twelve hours per day. This practice has been adopted in order that the number of men handling the engines may be reduced to a minimum.

The seven gangs or batteries are supervised by an assistant superintendent who not only supervises the work but

keeps the various machines supplied with gasoline. He visits these machines at least once a day between 6:00 A.M. and 10:00 P.M. In the summer extra supervision of the night work of the flushers and white wings is provided.

The policy of working the flushing machines twenty-four hours per day is commendable, as it reduces the fixed charges per unit of work done to a minimum and enables the equipment to cover the maximum area possible through eliminating the lost time in traveling to and from the stable. Very few cities are utilizing their equipment as effectively as is the City of Detroit.

**b. Scientific Routing**

The present practice in routing flushing machines is largely that of cut and try. In other words, a gang is given the area which the supervising officer believes it should be able to clean, then additional area is added until it is believed it is covering as much ground as possible. The results which the present supervisor secures appear to be generally satisfactory, due to his long experience. However, the city is now growing so fast and the needs for more flushing are so apparent that re-routing of the machines will soon be necessary. During the year 1916-17 the amount of money available for this work was increased by nearly double that available for the previous year.

To enable supervising officers to quickly plan new routes for flushing equipment, a more scientific method than is now used is desirable. Several instances have been noted where a more detailed study of the present routes and the procedure of the various gangs would produce economies. A time study made for one shift on the work of two gangs indicates that unit costs can be cut materially by a more detailed planning of the routes.

It is suggested that special study be given to this question and that the necessary data be secured from the city engineer's office so that area maps showing hydrant locations, the area of each block and intersection, the location of street railway tracks, etc. may be available. With this data, the results of time studies, and observation of local conditions, it should be possible for the supervising officials to lay out routes for the various gangs which will give each a consistent assignment and make it possible for the city to secure more work from each gang.

#### c. Two-Way Hydrant Connections

Due to the number of single-nozzle fire plugs in the city, it is frequently impossible to fill two flushing machines at once without a special two-way connection which will allow the connecting of two machines to a single nozzle. It is believed that better results will be secured and delay prevented if each hydrantman or inspector in charge of flushing is supplied with such

special connection. If possible, two auxiliary valves should be added, so that either one of the outlets may be closed as soon as the tank on the flusher is filled. This equipment will not be expensive and should pay for itself in less than a year in enabling the flushers to cover more ground through the reduction in lost time.

#### d. Pick-up After Flushers

In some of the wards the pick-up force working on the stroke left in the gutter by the several machines follows the machines within a few hours, while in other wards or in portions of wards, the stroke remains in the gutter sometimes over twenty-four hours. This is due in part to the practice of cleaning streets in connection with the cleaning of alleys.

To secure proper results the stroke should be removed from the gutter at least before the material has become dry enough to be scattered over the pavement by the wind or traffic. The best results are probably secured by working the gutter gang with the machines. The duty of the gutter gang is to sweep water from the depressions and pile the dirt while plenty of water is available to use in cleaning the gutter. Another method is to wait a few hours until the material has dried enough so that it will not be spread over the surface of the pavement in sweeping, but not until it is dry enough to be blown about.

No street can be considered clean until the dirt which has been forced into the gutter by the equipment has been entirely removed from the pavement. It is, therefore, recommended that more attention be given to the coordinating of the work of the flushing and the pick-up forces, if necessary by placing the two under the same supervision.

e. Increase of Flushing

Flushing has been found to be the only effective method of coping with the fine dust nuisance. Until vacuum street cleaning has been perfected, the cities will be obliged to increase the amount of flushing if they wish to secure higher standards of cleaning.

The present practice of flushing most of the streets once a week does not appear to be often enough to prevent the dust nuisance. A number of streets are flushed more often in order to be maintained in a reasonably clean condition. The worst case noted of this kind is East Jefferson Avenue near the eastern end, where the street railway area is not paved, and a large number of vehicles carrying sand and other material pass. Such a street can be kept clean only by flushing once a day. The business portion of the city can be kept clean by flushing at least three times per week wherever traffic is heavy, and a great many of the streets outside the business section need flushing more frequently than once a week.



An appropriation nearly twice the amount for last year is now available for flushing, but more equipment will be required to use this money effectively. It is questionable whether with even this amount of money it will be possible to secure the amount and quality of cleaning which the city should receive. It is recommended that the amount of flushing be increased.

f. Ownership of teams

The practice of hiring the teams used on the flushing machines makes the control over the forces much weaker than it should be, and increases the expense. Drivers of private teams seldom come to work on rainy days, and if insubordinate, must be sent back to the owner and the city is left dependent upon its ability to hire other teams or forced to wait for a new driver. If, after a shower, the flushers are not working, because the owners of the teams have put them at work elsewhere, often a full shift of work is lost. As the most effective flushing can be done during and after a shower when the greatest amount of area can be efficiently covered within a given time, it is important that the city should be able to control absolutely the movements of this force. This will not be possible as long as teams are hired. The cost of a team and driver per day of twelve hours, during which the team works eleven hours, is at the rate of sixty cents per hour or \$7.20 per day. If the teams

were owned by the city the cost should be at the rate of \$3.00 for eight hours for drivers plus the expense of caring for a team. For a twelve hour day, the cost should be substantially less than the rate paid to contractors. It is suggested that the teams needed on this work should be purchased by the city.

g. Automobile Flushing Machines

The cost of flushing with the present horse-drawn equipment as determined by two special tests and the examination of the records is as follows:

	<u>Present Cost of Flushing</u> <u>Per 1000 Square Yards</u>
Air Pressure machines	23.1 cents
Gasoline pump machines	25.9 cents

The examination of the data upon which these costs are based indicates that the gasoline machines gained over an hour per shift in the rapidity of filling their tanks, but failed to secure an advantage from this again, either because of inefficient routing, the slower speed of their teams, or for other reasons. There appears to be no good reason why this should have been the case.

Experience elsewhere indicates that automobile flushing machines will perform the work more efficiently than horse-drawn machines, and that the unit costs for this work may be as low as 12 cents per thousand square yards. This means a saving over the present costs of between 10 cents and 15 cents per thousand square yards which in the year would amount to approximately \$3,000 to

\$4,000 per automobile machine operated, assuming that the machine would cover 120,000 square yards per eight-hour shift and work two shifts per day for 180 days a year. The department officials recognize these possibilities and have recently purchased one automobile flusher. This is a move in the right direction.

h. Use of the Squeegee

In districts where automobiles are commonly parked during the day, and on new wood block streets, it is practically impossible to remove by means of a flusher the grease and dirt which is stuck to the pavement, although flushing assists in loosening this material. Under such conditions the only mechanical equipment which appears to be adapted to the work is the squeegee, and it is believed that such equipment can be used to advantage, particularly along the gutters, as an auxiliary to flushing. It is suggested that a trial be given to this method especially along Woodward Avenue, using one squeegee with the two flushers now working.

i. Cooperation with Street Railway Company

Under the street railway franchise the railway companies are required to sprinkle the area between their tracks and two feet on each side, so that the nuisance caused by dust raised by passing cars may be eliminated. Flushing would remove the cause, while sprinkling only temporarily reduces the evils of fine dust.

It is entirely practicable for the street railways to make a single trip over their systems, flushing not only the railway area but the street area as well. Within the past few years very efficient equipment has been developed in the shape of a tank car provided with an electronically operated centrifugal pump supplying two or more nozzles attached directly to the car and one on a swinging arm, with sufficient water to flush any but the widest streets.

It is recommended that a special investigation be made to determine whether it is possible to install such equipment and operate it over those streets upon which street railway tracks are located, under an agreement whereby the city and the railway company will each bear a proportionate share of the cost of the work. It is believed that such an investigation will show that it is possible to do this work at night in the congested portions of the city, and during the day in the residential districts, for less than the total sum which the work now costs the city and the street railway companies.

#### j. Reports of Flushing

It is the practice of the assistant superintendent in charge of the flushing to require a regular weekly report from each inspector showing the work done, and the force account. This report is used for his personal reference and in making up the time book, but is not used as a central office record. This practice of requiring reports should be continued and used as a basis for determining

comparative costs for the guidance of the supervising officials. It is suggested, moreover, that such reports become a part of the records of the department and currently come to the attention of the superintendent at least in summary form.

### 3. MACHINE SWEEPING

Two machine sweeping gangs, one on the east and another on the west side of the city, are now covering all of the cedar block streets and a large portion of the more dirty pavements of other types.

#### a. Pick-up

When more than a few hours elapse between the cleaning of the streets by machine sweepers or flushers and the gathering of the material which has been left in the gutters, the results secured are not satisfactory. As soon as the material becomes dry it is very often scattered over the street by wind or by traffic, and much the work which has been done by the machines is lost. This is more often the case with sweepers than with flushers as the stroke crosses street intersections, while with flushers it is usually sent into the gutter. Cases were observed in Detroit where the stroke of the machine still lay in the gutters eighteen to twenty-four hours after the machines had finished work. It is believed that special gangs should be organized to follow machine sweepers

immediately and flushers within a few hours so that all of the material which has been swept or removed from the pavement may be gathered and carried away before it is dry and dusty.

b. Machine Sweeping Not Effective

Machine broom sweeping cannot be considered either effective or satisfactory except as an aid to cleaning by other methods. Under the best working conditions a machine broom will improve the appearances of a dirty street, but it can seldom be expected to remove the fine dust and often it spreads the coarser material or mud over the surface where it dries and is blown about as dust. It is not now believed to be good policy to flush cedar block streets and therefore dependence is placed upon the machine broom. If this is necessary, it is believed that this form of street construction should, if possible, be replaced by some other form which may be flushed. In any case it is recommended that the amount of machine broom work be not increased.

#### 4. SPRINKLING

At the present time the street cleaning forces do not sprinkle streets. However, a considerable amount of this work is performed by private contractors who are paid by citizens or merchants.

a. Contract Street Sprinkling

The practice of sprinkling paved streets within a city where proper flushing is performed is a nuisance rather than a benefit. The main excuse for such work is found on newly paved streets where it is necessary to cover the pavement with sand or other dusty material, or in the vicinity of excavations or unpaved streets where dust and dirt are being tracked on to the pavement. Even in these cases it is far more preferable that additional flushing be done rather than to allow sprinkling.

It is recommended that every effort be made to replace contract sprinkling by public flushing, and that the merchants or citizens be encouraged to put the money which is now practically wasted in this way into additional flushing. The change will produce a real benefit through the removal from the street surface of the fine dust which sprinkling only settles temporarily. Also, if such results can be secured the danger of accidents due to slippery streets will be reduced.

b. Sprinkling Newly Paved Streets

Some years ago it was customary for the street cleaning department to sprinkle newly paved streets in order to prevent sand from blowing about the neighborhood. Of recent years this duty has been taken from the street cleaning forces and placed with the pavement construction and repair forces. The sprinkling of such

streets has been largely neglected with a resulting increase in the work of cleaning nearby streets. Carelessness on the part of those paving the streets adds to the expense of street cleaning without adding to the appropriation for doing the work. It is believed that the street cleaning forces should keep such streets wet, either at the expense of the contractors or that the cost should be paid from the construction funds.

## 5. HAND SWEEPING PATROL

### a. General

In patrolling or hand sweeping the streets under the white wing system, sweepers are supplied with a hand cart carrying a wooden tub of about 5.5 cubic feet capacity which is fixed to the cart, a special scraper shovel, a push broom and an ordinary corn broom. With this equipment the sweeper is expected to patrol a regular assignment gathering the dirt from the street. When this tub is filled he removes it to a special refuse box located in an alley within a few blocks of his assignment. Upon arriving there the contents are shoveled into the box which has a capacity of twelve to fifteen tubs. Once or twice a day special teams collect the material from the boxes and haul it to the dumps, the driver shoveling from the box to his wagon.



b. "White Wing" Equipment

The present white wing cart and tub are unnecessarily large and clumsy. The practice of carrying all of the material from the street to the boxes, in many cases involving a travel of several blocks, is wasteful of time and effort. The same criticism applies to the practice of rehandling the material several times with a shovel.

It is suggested that before purchasing or installing new equipment, attention be given to some of the special can carriers and nestable metallic cans of about three cubic feet capacity which are used elsewhere. It is believed that the type of carrier on which two loaded cans, or one can carrier, is preferable to the present equipment. It should also be possible to store filled cans, if they are properly covered, along the curb or at the entrance to any alley without offense to the public and with considerable economy. Where parking of automobiles is common, they might even be placed in the gutter. Such equipment would obviate handling the material twice with the shovel as the cans can be emptied directly into the wagons.

c. Instruction of "White Wings"

In several sections of the city the sweepers in running the gutters and removing heavy material use only the shovel and corn broom, with the result that only part of the material is removed. On such work the use of the push broom and thorough

cleaning of the area should be enforced. In other places sweepers use push brooms very ineffectively either pulling it toward them or not putting enough strength into the stroke to remove the material. In many cases the sweeper appears to be handicapped through the absence of the scraper on the back of his broom. Systematic instruction given to all recruits on individual assignments, and standard methods of performing this branch of the work should be developed and enforced.

#### d. Rubbish Receptacles

At the present time about seventy rubbish cans are provided for the reception of litter. These are of such design that it is necessary for a pedestrian to use both hand in order to deposit any rubbish in them. The result is that many people do not utilize the receptacle and throw newspapers and other rubbish directly on the streets or sidewalks.

It is suggested that an opening be left in new street boxes sufficient to allow a passerby to throw material into the receptacle without being obliged to open the receptacle. If enough containers are provided it will not be necessary to make them so large as the present cans, and it is entirely possible to make a cover or hood which will be practically rainproof, yet open. It is preferable that such a cover should be so arranged that the collector can pick up the receptacle and empty it into his vehicle without touching the material with his hands.

It is evident that at least one such receptacle should be provided on every block in the business district, with one at each corner in the more congested portions of the city, especially near transfer points or parks.

e. Special Litter Squads

At the present time it is customary to assign a few white wings to night work. The day force stops work at about 5:00 P.M. but the night force does not commence work until 8:00 P.M. This night force works in the same way as the day force except that the men cover more ground and pay more attention to litter.

It is suggested that better results both from the point of view of street cleaning and the education of the public will be secured if a special litter squad equipped with bags, and not impeded with hand carts, be put on the job at the time when the regular day force leaves, to pick up the paper and other rubbish which has been thrown on the streets and to deposit the collections in the street rubbish boxes. With such a force it should be possible to keep the main business district in a sightly condition during the period when the rubbish is most rapidly being placed on the street and when it is most noticeable to the citizens and pedestrians.

Not only will this method improve the appearance of the streets, but it will be evident to the public that the department is

doing what it can to meet these conditions. The mere fact that a person observes a sweeper in the act of picking up a paper which has been carelessly thrown on the street is in itself an educating influence which will cause a greater number of persons to use the public receptacles. Particular advantages would come from assigning such a litter squad to the vicinity of theatres and amusement places.

f. Light Automobile Truck Collection

If enough rubbish cans are provided a light automobile truck can be utilized to advantage in collecting the paper and rubbish thrown into them. It may also pay to place a paper baler on the truck so that the paper may be baled and a heavier load carried each trip.

g. Improved Uniforms

The white wings are required to supply themselves with two white uniforms consisting of a coat and trousers. In addition the department furnishes them with a broad brim felt hat and plans to furnish leggings. The color of the hat being a grayish brown does not correspond with the color of the uniform. Also it is very common to find men working in the street in their shirt sleeves or wearing only a vest. Such conditions tend to spoil the effect of proper uniform. During the summer any white wing can be pardoned if he removes his coat and works in his shirt sleeves. But this alone means that to secure a good appearance it is necessary to require a

white shirt as well as the two pieces now forming the uniform. It is therefore suggested that in the future each man be required to furnish himself with a three-piece suit and that white caps and straw hats be furnished in season, instead of the present felt hats. It is urged that in any case the use of a uniform be absolutely enforced.

#### h. Supervision by Sections

The white wings working in the business section and a number of those on the main thoroughfares at some distance from the center of the city are carried upon a special appropriation known as the white wing fund. Some fifty odd men are supervised by a special white wing foreman who also supervises the collection of street litter which has been placed in the street receptacles. About seventy-five other sweepers are under the ward foreman, and most of them are paid out of ward funds.

Effective white wing or patrol cleaning can be secured only through continual supervision. The practice of supervising the white wings in the central portion of the city by a single foreman is undoubtedly effective, but even this supervision has been found ineffective in the outlying sections, and the men have been turned over to the ward foremen. It is believed that ward or section supervision is to be preferred.

i. More "White Wings"

About 120 white wings are employed in the whole city. There are many streets not now covered by the patrol system which should have white wings regularly assigned to them if the city is to receive the quality of cleaning which it should receive to be on a par with the best cleaned cities. It is understood that funds have been made available so that some forty new men will be put on in the near future. This is a move in the right direction, but it is questionable whether even with this addition the force will be as large as necessary. Only by the use of a patrol system as an auxiliary to machine work can clean streets be maintained. It is recommended that a systematic study be made of this subject in connection with the proposed additional flushing, and more hand sweepers be added where the streets require attention between flushings in order to keep them up to a proper standard of cleanliness.

6. WARD CLEANING

a. General

A large portion of the street cleaning in the city is done by ward forces which pick up material left in the gutters by the street sweeping and flushing machines, and at the same time clean all the alleys and supplement the work of the mechanical street cleaning equipment on the more dirty streets.

b. Alley Cleaning

On account of carelessness in placing ashes and rubbish in the alleys, alley cleaning in Detroit includes not only the actual cleaning of the pavements or surface but the gathering together and loading of ashes and rubbish which have been thrown there. Not until ashes and rubbish are deposited by householders in receptacles as prescribed by ordinances, will it be possible to separate the operations of alley cleaning and refuse collection so that the work may be thoroly and economically performed.

In the dry hand sweeping of alleys clouds of dust are raised which it is desirable to avoid, both for the good of the public and the department employees. There are two ways in which this can be prevented; by sprinkling before sweeping and by hand flushing. It is suggested that alley flushing be tried in the better paved alleys where hydrants are conveniently located, if any alleys can be found in which the proper use of receptacles for ashes and rubbish make such experiment practicable.

c. Control of Ward Forces

Each ward foreman plans his own work and usually hires and discharges his own forces. Whatever control is secured over the work comes as a result of inspections by the superintendent or through the payroll and through weekly meetings between the ward foremen and superintendent. Although the ward foremen send

to the central office weekly reports which give the force account and a summary of the number of loads which have been hauled, this information is of little value in administration because the costs per load, although available, are not currently figured or referred to and no data is available as to the area cleaned. In fact the only real use of the data at the central office is in checking the payrolls, in allocating the expense of the work against the various appropriations, and in making an annual summary of the work done.

As has been before noted, only by effective work summaries currently used which indicate the quality and quantity of work performed in each ward, can weak points be quickly located and effective supervision maintained.

#### d. Assistant Foremen

It is customary to utilize especially able laborers in the ward gangs as "straw bosses" or sub-foremen, often without giving them any additional pay. At present the only method of increasing their compensation is through overtime employment. These men supervise the work of the ward gangs or a portion of the ward gangs in the absence of the ward foremen. Such an arrangement is necessary on account of the requirement that the ward foremen shall look after all of the men within the ward and follow up complaints as well as report periodically at the central office. If these sub-foremen are actually qualified to fill the positions which they occupy, it is



manifestly unjust to pay them at the rate of \$2.25 per eight hour day, which is the regular compensation for laborers. It is believed that fair play demands compensation in proportion to the responsibility assumed by these men, and a title of "assistant foremen" naturally fits the position.

e. Re-Arrangement of Street Cleaning Areas

While the wards may be satisfactory divisions of the city for voting purposes, yet these boundaries may not be practical for street cleaning purposes, as is illustrated by the case on Beaubien Street, where one ward gang cleans half the street and a gang from another ward cleans the other half. The work as now performed in one ward has little or no relation to that of the other, one side of the street being cleaned today and the other tomorrow. It is easy to see that such a division of the work makes it impossible to fix the responsibility for the condition of the street, and it would be much better to give the full width of the street for a certain number of blocks to one gang. It is recommended that as soon as expedient the division of the work of street cleaning be made in accordance with the demands of the service, and not along ward boundaries.

## 7. SNOW WORK

a. General

During the snow season, the city now plans to clean the whole street area on the more important business streets and clear

the cross walks and open the gutters on less important business and residential streets. At the same time the street railway companies plow the snow from their tracks over onto the adjacent highway, leaving it there in ridges. Most of the snow removed by the city forces is carted away to the water front or dumped into a few sewer manholes on Woodward Avenue.

b. Use of Sewers

Experiments in the City of New York and elsewhere indicate that sewers as small as fifteen inches can readily be used for the removal of snow, provided they have sufficient flow or water from the public hydrants is added. Very excellent results and greatly decreased costs have been secured in removing the snow by pushing the snow directly into the manholes by hand instead of loading it into the trucks and hauling it to the manholes. It is believed that wherever the manholes are not over 300 feet apart, this method will increase the rapidity of removal and reduce the cost. If enough plows of a type similar to those used on the garbage trucks are supplied and extra trucks are utilized for this purpose, it should be possible to plow most of the snow which may fall on the business streets into a ridge, or into heaps near manholes and to push the snow by hand into the nearest manhole at much less expense than by carting it away. These plows can be used to keep the roadway open for traffic by starting with the storm and working continuously over a route.

Where manhole spacing makes hauling necessary, many of the hauls can be greatly shortened by a more general use of the sewers than is at present practiced. This applies also to the scrapers now being tried out. These should prove successful, but they are handicapped because of long hauls to special manholes in the Woodward Avenue sewer. If the flow of sewage in smaller sewers, augmented by water from hydrants is not sufficient, snow may be dumped alongside the manholes and shoveled in gradually so that the manholes may not become blocked. If clean snow is placed in the sewers, there is very little danger of blocking them, and, experience indicates that with care, even ice and dirty snow can be so disposed of with safety.

A further use of the sewers in the removal of snow, both practicable and effective, is through hand hose flushing. After a light snowfall, or after the bulk of the snow from a severe storm has been removed, the combination of snow and street dirt produces a muddy condition of streets and sidewalks which is extremely objectionable. As a rule when such conditions prevail, at midday the temperature is above the freezing point and this mud can be flushed into the sewers, leaving the streets in a most presentable condition. This method of handling such a situation is being used in New York with excellent results and it is suggested that it be further experimented with in Detroit, in a restricted area.

c. Snow Removal by Street Railway Company

Wherever the piling of snow along the roadway by the snow plows of the street railway companies constitutes a hindrance to traffic, the snow should be removed from the streets by the street railway companies, or at their expense. In some cities, it is the practice to assign to the street railway companies an area equivalent to the total track area lying within the streets which are normally cleaned of snow by the city, as the area from which the street railway company must remove the snow at its own expense. It is also customary to assign this equivalent area in such a way that it includes the full width of the street in certain specific places. This arrangement makes it possible to fix responsibility and prevents the forces from interfering with each other. Some such arrangement might well be effected in Detroit. Or it might be even more feasible for the city to do the cleaning or charge the Railway Company for service.

d. Special Organization and Plan of Action

Snow removal is an emergency task which for effective handling call for as systematic planning and clean cut organization as fire fighting. A special force detailed solely for this work is manifestly impracticable on account of expense, and as a matter of fact is unnecessary. Employees of other departments are available for such special service, but the primary importance of this task

should be fully recognized by cooperating departments and a plan of campaign with detailed organization should be worked out so that when the emergency arrives this organization will automatically become operative.

## D. COLLECTION OF REFUSE

### 1. GENERAL DISCUSSION

#### a. General

Under the present methods and statutes governing refuse collection in Detroit, only two separations are clearly required – (1) garbage, and (2) ashes and domestic rubbish. Similarly the force engaged in the collection of refuse is divided into two parts – the first, for collecting garbage, being a separate force working under central supervision, and the second, for ashes and rubbish, being a part of the ward cleaning forces.

#### b. Separation of Refuse

The main requirement for economical refuse collection, where a combined collection of all classes of refuse is not practiced, is a separation into three parts – garbage, ashes and rubbish. While the need for a separation of garbage from other refuse is self-evident, it generally is economical to separate ashes from rubbish so that the latter, which is light, bulky refuse, may be collected separately in larger equipment, and if possible, separately disposed of. Further, the combustible material in the rubbish very often causes considerable nuisance at the dumps through fires. The separation of the various classes of refuse is not yet satisfactorily enforced in Detroit, and in many cases garbage mixed with other refuse is found and rubbish is commonly not separately from ashes.

c. New Definitions

The only satisfactory definition of refuse which is to be found on the statute books is that for garbage, although domestic rubbish and other refuse are referred to and partially defined. For the benefit of the department and the public, it is recommended that standard definitions of the various types of refuse be adopted and that such definitions be in accord with good practice and so worded that they may be easily understood. The following suggestions may be of assistance in setting up standard definitions for Detroit:

Refuse shall be understood to be a general term for all classes of solid waste as distinguished from liquid waste, termed "sewage", and shall include garbage, ashes, rubbish, street dirt, manure, dead animals and commercial refuse.

Commercial refuse means garbage, ashes, rubbish, manure, dirt and solid waste material from manufacturing plants of all kinds, business building, power houses, heating plants, stores, warehouses, stables, hotels, restaurants, and other buildings of industries conducted for profit.

Garbage consists of organic material, such as the animal, vegetable and food waste portion of the city refuse consisting of vegetables, meat, fish, bones, food, and so forth, from kitchens, markets, slaughter houses and some industries.

Ashes are the residuum from the burning of fuel and contain fine ash, unconsumed fuel, cinder and clinker, sawdust, floor sweepings, broken glass, broken crockery, oyster and clam shells, incombustible rubbish, and other organic matter may be mixed with ashes for ease of removal and disposal and will be considered as permissible under the term "ashes".

Rubbish is discarded trash produced in the household and by business concerns which cannot be classified as garbage or ashes. It may include among other things discarded paper, old clothing, shoes, rags, wood, leather, boxes, barrels, empty cans, metal scrap, broken glass, bottles, crockery, etc.

Street Dirt is the material which is gathered from the surface of streets and sidewalks and may be divided into two classes – legal and illegal, the former being that part which should be included under “street dirt” and the latter that part which should not be present on the street.

#### d. Separate Portable Receptacles

If separate portable receptacles were required for the various classes of refuse, and were of such sizes that one or two men could easily handle them, the collection of refuse would be much less expensive for the city, and the responsibility for disgraceful alley conditions could be much more readily fixed. The cost of collection would be reduced by the saving of time required for loading vehicles, as a wagon can be loaded faster from proper receptacles than by shovel. Further it should be unnecessary to handle household refuse in the cleaning of alley pavements.

The sanitary conditions of the receptacles might also be improved. From fixed receptacles or bins material can be removed only by means of a shovel. Inasmuch as the collector does not always remove all the contents of such bins and a great deal is often scattered over the alley, more alley cleaning is made necessary than would otherwise be required. The opportunity for breeding flies



which is afforded by open garbage bins would be eliminated if the use of well covered metallic cans could be enforced.

e. Responsibility of Householder

The present practice of cleaning up all of the material which has been thrown in the alleys by nearby householders and merchants is not only expensive to the public, but has apparently been a cause of careless habits in the use of alleys. While efforts have been made in the past to reduce this abuse, and a very commendable pamphlet has been prepared by the department of public works, it will be necessary to continue this work vigorously if the present bad conditions are to be corrected.

It is recommended that household refuse be separated into three parts, namely (1) garbage, (2) ashes, and (3) rubbish and that the public be required to provide portable receptacles for refuse in place of fixed bins. In addition a fourth class of refuse should be separated, namely, "commercial refuse", so that a charge may be made by the various authorities to rigidly enforce the proper separation of refuse after adequate explanation of the reasons for such separation has been made to the public.

## 2. GARBAGE COLLECTION

a. General

As now organized the entire collection force of the city is supervised by a single assistant superintendent. The work is

divided into routes which represent the area covered by a single man. It is generally expected that the garbage will be collected at least twice a week except in the extreme outskirts of the city, where it is supposed to be collected once in six days, and in the business districts where it is collected as often as seven times per week.

The garbage collected in the eastern and northeastern portions of the city is carried to two relay or transfer stations by the collection vehicles, where the boxes are removed and are transported to the railroad loading station by automobile trucks and trailers. The garbage from the western and southern sections of the city all goes directly to the final loading station.

The vehicles and horses used by the garbage forces are all owned by the City.

#### b. Number of Collections

In the more thickly settled portions of a city of the size of Detroit, the collection of garbage twice a week during the summer months is not generally sufficient. During these months garbage decomposes more rapidly than in the winter, and especially during August and September accumulates much more rapidly. Therefore, for two reasons, first, that of sanitation, and, second, to make it unnecessary to furnish extra receptacles, it is advantageous to collect three times per week. During the winter when the cold

inhibits decomposition and material accumulates less rapidly, the collection need be made only twice a week.

c. Record System

To keep track of the drivers on the various vehicles, a time clock and record system is used which shows just what results are being secured by each man. Each load is weighed upon its arrival and other items of interest, such as the number of complaints, the time lost due to accidents, the cost of repairs to harness and trucks, and the condition of the horses, are noted. By such a system it is usually possible to keep in close touch with the work of each man and greater efficiency is secured than would be otherwise possible. This system is commendable. It is suggested however, that daily or weekly summaries should be presented to the superintendent.

d. Re-routing

With the increase in the demands upon the collection forces, it is necessary to plan new routes for the drivers. It is believed that it would prove advantageous if a thorough revision of the routes were made in the near future to correspond with the changes in relay stations and the growth of the community. In planning such a change, a special study might be given to the possibility (where the wagons are obliged to make the longest hauls,)

of transferring boxes from the wagons to the trucks without hauling the material to a relay station. Statistical maps could be prepared which would enable superior officers to route the work efficiently without spending an excessive amount of time in the field.

e. New Equipment

The present garbage wagons and trucks have two disadvantages. The first is the excessive height of the top of the box above the ground, and the second the presence of the central brace which makes it difficult to quickly dump the garbage from the box. It is believed that a type of box could be built for this work similar to that used in earth excavation and concrete work, which would hold two cubic yards and in connection with derricks would be so nearly self-dumping that two men could easily handle it. If this is possible, it would not be necessary for the box to be as long as it now is, and by the use of a crank axle for the rear wheels it could be set lower and still allow the front wheels to turn properly. Another advantage which might be secured from this type of box would be the possibility of loading six of them upon an automobile truck where four of the present boxes are loaded. Where teams haul directly to the final loading station, considerable economy would result if end dumping carts were used and the need for a crane eliminated by raising the loading platform to the level of the top of the cars. It is suggested that as soon as it becomes necessary to secure new equipment, a study be made of these types.

f. Better Railroad Cars

The railroad cars in use for transportation of garbage to the reduction plant are ordinary gondola cars which were not built for the work and produce unsanitary results. It is expected that an entirely new equipment of specially constructed cars will be made available in the near future. These are badly needed and their use should improve conditions greatly.

g. Supervision Should Be Districted

As with street cleaning, the area of the city has now become so great that better results will be secured if the supervision over the collection forces is districted. It is believed that better results will be secured if the foremen in each section supervise not only the collection of rubbish, but the collection of garbage as well. This can be accomplished under the proposed organization.

3. COLLECTION OF ASHES, RUBBISH, ETC.

As stated in the section on ward cleaning, the collection of refuse is not separated from the work of cleaning alleys. Both are done under the direct supervision of the ward foreman.

a. Alley Conditions

The alley conditions in Detroit are a disgrace to any city which pretends to maintain sanitary surroundings. In some sections

the situation is so bad that within a few hours after an alley has been entirely cleaned and all refuse removed from it by the city forces it is again filled with refuse. Some instances have been noted where before a day had passed since the completion of the work by the city forces the alley looked as if it had never been visited. This condition is not chargeable against the department of street cleaning, but is the fault of the public. The proper and compulsory separation of refuse into suitable receptacles by the householder is the only cure for this evil.

**b. Commercial Refuse Problem**

The need for accommodating business houses, especially the small stores, by removing on city vehicles the refuse which they have collected has been recognized in the recent provisions for a removal of what is termed "commercial rubbish" at a fixed cost of twenty cents per barrel. It is generally recognized that the cost of removal and disposal of refuse resulting from a business operated for profit forms a legitimate expense of that business which should not be assumed by the public at large, and the provision for charging for the removal of commercial rubbish in Detroit is entirely in accord with good practice.

The method of providing for the collection of commercial rubbish involves the sale of tickets by the permit clerk at the city

hall or occasionally through the ward foremen in the field, the collection of such refuse by the ward forces and the surrender to the collection force of one ticket for each barrel of refuse so collected. Tickets are to be cancelled by the ward foremen by the use of a punch which has a distinctive die for each foreman. The ward vehicles collect the material at the same time they do the domestic refuse. While certain possible weak spots are at once evident in this system, it has but recently been installed by the department and deserves a thorough trial.

c. Larger Wagons for Rubbish

The practice of loading rubbish and ashes in a mixed condition on wagons of five cubic yards capacity is unnecessarily expensive, especially for hauls of four miles and over, which are common. It is not an unusual practice where rubbish and ashes are mixed, for drivers to load their vehicles that the rubbish takes as much room as possible, so that the load while being bulky is seldom heavy and the horses are favored, while at the same time the number of loads and therefore the length of the job is increased. If the rubbish is separated from the ashes, it will be possible to use wagons which carry sixteen cubic yards without overloading a pair of horses, and the loads of ashes will be made much heavier. The operation of such large equipment for rubbish will mean that what

has been hauled in three or four trips with the present equipment may be hauled in a single trip, and the cost of hauling thereby very materially reduced.

d. Dustless and Odorless Vehicles

Much attention has been given of late in this country and abroad to the construction and use of specially designed vehicles for the collection of refuse which will be dustless and odorless in operation. With the present equipment it is necessary for Detroit to be strict in preventing overloading and in requiring covers over the vehicles as soon as they are loaded. In purchasing new equipment, it is suggested that special attention be given to this requirement.

e. Excessive Hauls

All ashes and rubbish are now hauled by teams an average of approximately four miles to one of four dumps located in the outskirts of the city. Such hauls are excessive and there is reason to believe that in future they will increase rather than diminish, unless special facilities for disposal are provided.

f. Motor Equipment and Trailers

The long hauls and the need for removing large quantities of ashes and refuse from some single institutions or locations should enable the department to utilize a few automobile



tricks to advantage. If at the same time, the horse-drawn equipments were constructed so that it might be hauled as a trailer by the truck, material reductions in cost would result through the installation of motor vehicles. Ashes from the school buildings are removed under special contract, but that is no reason why this work should not be carried out by regular forces at less expense, especially if sufficient receptacles were provided at the schools so that collections could be made at regular intervals.

g. City Ownership of Equipment

The vehicles and horses engaged in the collection of ashes and rubbish are hired from private owners. Nearly 250 double teams are used in this work. In order for the city to have the use of uniform wagons for this service, to keep them in repair, and to be certain they conform to the requirements in design, size and appearance, it is generally an advantage for a city to own the wagons even if the teams are hired. Also in most cases city ownership of teams and direct employment of drivers produces economies and makes possible much more effective control of the work.

It is recommended that the city furnish large wagons for collecting rubbish, that special study be given to the possibilities of horse-drawn equipment for collection in conjunction with automobile relay over the long hauls, and that in this connection consideration

be given to the proposition of city ownership of all equipment used in the collection of ashes, rubbish and commercial refuse.

## E. REFUSE DISPOSAL

### a. General

The refuse collected in the city is now disposed of in two ways – (1) garbage reduction and (2) ashes, rubbish and street dirt dumping on land fills. All of the garbage of the city is taken on cars from the final loading station at the foot of 24th Street to a private reduction plant while all the other material goes to four dumps located on the outskirts of the city.

### b. Garbage

Careful study has been given by the Department of Public Works during the past few years to the question of garbage disposal. A proposal to erect several incineration plants at which ashes, rubbish and garbage would be burned was rejected. In its place the practice of garbage reduction under an arrangement with a private corporation has been continued.

The question of incineration of garbage with other refuse vs. the reduction of garbage and the disposal of rubbish and ashes by other methods has been very well discussed in the report by the Commissioner of Public Works and a consulting engineer. This report recommended that the city construct its own reduction plant, but so far it has been impossible to get action in accord with this recommendation. Other cities, notably the city of Columbus, Ohio,

have found that the reduction of garbage is a commercial success. Under proper control there seems no reason why a reduction plant for a city as large as Detroit should not be commercially profitable, and it is believed that the recommendation that the City operate its own plant is a good one and that it should be adopted.

c. Dump Roadways

Most of the roadways to the dumps and in the dumps become very soft and difficult to haul over whenever the weather is wet or the frost is coming out of the ground. Methods of securing better results are available, first, by constructing permanent or semi-permanent pavements over the main roadways leading to the dumps, and second, by constructing portable roadways which can be moved about over the dump. It is suggested that more attention be given to this question, especially if the recommendation that the size of equipment be increased is acted upon.

d. Dumping of Rubbish

Dumping rubbish with ashes and other refuse, unless it is very carefully controlled, gives unsatisfactory results. It produces soft fills which continue to settle for long periods and may cause dump fires. This, together with the long hauls which are necessary in Detroit and the longer hauls which will become necessary in the future, make the problem of rubbish disposal one which merits attention.

e. Rubbish Reclamation

Over 40 per cent of the rubbish collected is commercially valuable. In several cities including Rochester, Lynn, Providence, Boston, and Philadelphia, much more sanitary results and some profit has been secured by the erection of suitable rubbish sorting reclamation and incineration plants, where all of the rubbish is disposed of after sorting out the valuable portions. The remainder goes to a furnace where it is burned. Study of the Detroit problem may indicate that all rubbish should be hauled to one or more disposal points where the valuable portion may be reclaimed and the remainder burned. The Commissioner of Public Works now has this problem in mind and it is expected that it will be worked out promptly to a satisfactory conclusion.

## F. CARE OF EQUIPMENT

### a. General

At the present time the only horses owned by the City are those used for the collection of garbage. One hundred seventeen head of horses are now owned and three stables are operated – one at the main loading station at the foot of 24th Street, one at the Fairview relay station, and one at the Watson Street relay station.

As not much equipment now used by ward foremen is owned by the City, practically no provision except in the shape of tool boxes is made for them. Machine sweepers are stored in open lots or any handy place which may be available. The garbage collection equipment is housed at the garbage loading station or department yards, except the automobiles which are kept at the municipal garage.

A repair shop and broom shop are operated but these shops are not near the stables or other headquarters of the street cleaning department. During the winter and to a limited extent at other times, it is the practice to manufacture rubbish cans, garbage boxes, etc., at the repair shop.

### b. Centralized Repair Shops

It is believed that it would be advantageous if the repair shop and broom shop were centralized in the vicinity of one of the

stables. Such a change should facilitate the care and delivery of supplies and the repairing of all equipment, and provide better service than is now secured through the repair of garbage wagons at the garbage plan and of flushing and sweeping machines at the repair shop.

c. The Manufacture of Equipment

Where machine brooms are to be refilled and a competent broom-maker can be secured, it is sometimes found wise to make such a workman a part of the maintenance organization, but even this need not be considered if brooms can be purchased or refilled by contract at less expense. The manufacture of equipment by city employees, except as a means of utilizing the spare time of skilled workmen, is not usually found to be successful. Generally such equipment costs more than when purchased by contract. It is suggested that as a general policy such work be not attempted.

d. City Owned Horses

The shortage of teams, the inability to satisfactorily control drivers of private teams, the unsatisfactory condition of private wagons, and the possibility of making a saving in cost, all point to the need for more city-owned horses and equipment. It is believed that by careful management it will be found economical for the city to own all of its horses and other equipment instead of hiring from private parties.

e. Cost Records

It is not easy to determine exactly what results have been secured through the ownership of the horses used in the collection of garbage from any of the report or records which are available. A summary of the expenditures for the year ending June 30, 1916, indicates that not including the salary of the barn boss or fixed charges on stables, etc., it has cost \$371.95 per year per horse. On the basis of 313 days work this would mean something in excess of \$1.20 per working day.

Without increasing the work of the clerical force appreciably, it would be possible to obtain a much closer record of the cost of keeping horses. With such information currently at hand the superintendent would be able to determine whether the city was justified either in refusing to purchase more horses or in continuing and increasing the number. Attention is directed to some very satisfactory records which are kept by the City of Cincinnati and the City of Washington on this phase of the work of the street cleaning department.

f. Stables Under District Superintendents

If the recommendation made in this report that the city be divided into districts for street cleaning and refuse collection by adopted, it is believed that the stables should be subordinate to the district superintendents rather than to a central stable superintendent, and that specially trained veterinary service should be furnished by the central office to the district superintendents.



Such an organization has been found to be more satisfactory than the centralized organization, inasmuch as it gives the district superintendent complete control over the functions within the area which he supervises.

## G. CO-OPERATION

### a. General

It has been stated in this report that the streets and alleys of Detroit are in a disgraceful condition due to the presence of litter and refuse upon the pavement and not in receptacles. These conditions exist because the appearance of the streets and alleys is dependent upon the co-operation of the public and city departments concerned, and also co-operation between departments. The street cleaning department is practically powerless to maintain satisfactory conditions at a reasonable expense without such co-operation.

Efforts to secure the public's co-operation should not be so drastic that public antagonism will be aroused. Experience indicates that such efforts should be made by easy stages – first, by explanation and education; second, by ordinances defining responsibility; and third, by consistent enforcement of ordinances. At the present time the preparation for the second stage has been well made, but insufficient effort has been made to carry into effect the first and third stages.

### b. Unenforced Ordinances

Examination of the ordinances indicates that the police and courts have adequate power to prevent many of the abuses of the streets and alleys which are interfering with effective work by the street cleaning forces. The storage of building material on the

streets, alleys or sidewalks is prohibited, except under permit, and it is specified that such material shall not occupy or obstruct more than one-half the street or alley and shall not obstruct the gutter. Dust and dirt shall not be permitted to remain on the sidewalk longer than twenty-four hours; the placing or scattering of rubbish, ashes, garbage or other materials in a street or alley, except within proper containers, is forbidden; provision is made for tight carts, and overloading or carting of light material through the streets in uncovered vehicles is prohibited; the sweeping of sidewalks except between certain hours on streets cleaned by flushing is prohibited; the dumping or unloading of material in streets or alleys without written permission from the owner of the property or the city is prohibited, and several other ordinances are in force which cover similar points.

Observation indicates that practically all of these ordinances were being violated to an unusual extent, carelessness or lack of pride on the part of a few persons will soon cause others to slight their duty. If the undesirable conditions of the streets and alleys of Detroit are to be corrected, it is essential that the street cleaning ordinances be obeyed.

### c. Educational Campaign

However, the control that the department officials have over the problem of securing clean streets is in making sure that a maximum amount of service is received for every dollar expended. In this report, there are many places in the street cleaning and

refuse collection organization where marked improvements can be made, and it is worse than useless to sharpen the appetite of the public for service unless the City stands ready to provide that service. But, in general, the greatest gain will be obtained through the development of cooperation on the part of the public and other city departments.

A constructive effort of this sort was projected in September, 1916, by the Board of Health, cooperating with the Department of Public Works and the Police Department. A detail from the Police Department of eight patrolmen under an acting sergeant was transferred to the Health Department to serve as sanitary police. This squad was first assigned to the most congested district in Detroit, covering thirty-two city blocks. Effort was centered on forcing the installation of garbage receptacles and the removal from the alleys of manure boxes. The first drive proved so effective that the work has been continued and extended through eight of the east side wards.

The lesson taught by this demonstration is that through persistent, continuous, and concentrated effort and indifferent and reluctant public can be persuaded, or, if need be, prodded, into action. As the Health Officer expresses it "proper garbage receptacles have been installed and this is a greater step than has been taken before." It is manifest, however, that with continuous

extension of area, this sanitary squad will soon be spread out too thin for effective service, as re-inspections and continued supervision of the original territory covered are absolutely essential to the success of the project. The record of this sanitary squad justifies the extension of the plan to cover the entire city, and such extension is possible only through a large increase in the force assigned to this special work.

It is recommended that the operations of the sanitary police acting under the direction of the Health Department be extended to cover the entire city and that a continuous and definite educational campaign be conducted through co-operation of all interested departments, so that much of the present work caused by carelessness on the part of the people may be prevented. In this connection, in order that the people may know what rules govern the service, all important ordinances covering the work of sanitation, at least in a summarized form, should be printed and distributed as a part of the educational campaign. To lessen the prompt destruction of such matter, information of special interest might be added, such as the location of fire alarm boxes or statistics relating to the city. This campaign should further include a special attempt to interest the coming generation through the schools, with the hope of creating thereby a demand for better conditions which will replace the arbitrary enforcement of ordinances.

Finally, information regarding the work of the department forces or its needs should be given to the public, which must, in the end, make available the funds which are needed, so that the requirements for service can be adequately met.