



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

DEPARTMENT OF COMMUNITY AFFAIRS
150 Washington Street
Providence, R.I. 02903

February 16, 1973

The Honorable City Council
Providence City Hall
Providence, Rhode Island 02903

Dear Sirs:

Can the Government Assistance Section of the Rhode Island Department of Community Affairs be of service to the members of your honorable body or any other municipal officer?

Municipal officials from coast to coast are desperately searching for information and knowledge related to finances, federal and state legislation and programs, collective bargaining, charter revision, purchasing, records management, personnel and other matters related to orderly and efficient operation of local government. Happily, your quest need not be in vain.

It would please us to have the opportunity to provide information, advice or render technical assistance in all matters related to government administration and management. Mr. Richard F. Sylvestre, Chief of our Division of Housing and Government Services (277-2867) and Mr. A. Edgar Lussier, Supervisor of the Local Government Assistance Section in this Division (277-2854) are always available to receive your requests and assign one of our staff specialists to assist you. We can assure you prompt, concise and efficient action to any inquiry you may direct to our attention.

I am enclosing a statement of the Scope of Services which our Local Government Assistance Section has to offer together with our latest publication A Guide for Effective Municipal Management for your review. Please feel free to call us at any time. Until then, I remain

IN CITY COUNCIL

MAR 1 - 1973

READ:
WHEN UPON IT IS ORDERED THAT
THE SAME BE RECEIVED.

Wm. Joseph
CLERK

FCW/jr
Enclosures

Yours truly,

Frederick C. Williamson
Frederick C. Williamson
Director

Scope of Services

Division of Housing and Government Services Local Government Assistance Section

The Local Government Assistance Section delivers a full range of technical and advisory services related to community development of all municipalities in Rhode Island. The performance of such services is focused on solving local problems which are part of the economic, physical and social development of the State of Rhode Island as a whole.

To provide day to day problem solving assistance on related matters as requested by local officials and other semi-public agencies having similar concerns.

To prepare information to be used by local governments to assist them in identifying and solving common problems.

To provide technical assistance to cities and towns on all matters related to revenue sharing.

To promote and encourage interlocal cooperative arrangements.

To assist local governments by providing research on fiscal and related government problems.

To advise local government officials of resources available for helping plan effective services or obtaining funds for such services.

To make available to cities and towns information on services provided by all state and federal agencies.

To review and analyze available data pertaining to the structure of local governments.

To analyze municipal statistics and fiscal needs and to advise local governments on sound fiscal management, including accounting, budgeting, purchasing, taxation, capital improvements, investments, and reporting.

To operate a continuous research program which will collect and evaluate data on the fiscal programs of the communities and disseminate this information to all the communities.

To analyze and research every bill or act presented in the General Assembly and supplement with an explanation those bills or acts that have impact on city or town government. This information is to be passed on weekly in a legislative report sent to all responsible city and town officials relating the disposition of the bills or acts.

To research areas and subjects which appear to be new developments to determine their significant future benefits or liabilities.

To assist local government in publicizing programs by obtaining active citizen participation in local goal setting. Suggest ways and means of coordinating local programs with state goals and objectives.

To attend and participate in local and regional conferences, meetings and seminars relative to local municipal activity and programs in order to establish the rapport so necessary to the Department and the Community.

To seek out and research Court decisions, decisions rendered by Boards of Arbitration that are pertinent to municipalities and report the results to Law Departments, City and Town Clerks, Legislative bodies and Chief Administrative officials of all cities and towns.

To provide information and data to the Rhode Island Purchasing Agents Association with the basic objective of establishing liaison with the various communities so that purchases of materials, supplies and services can be handled on a regional basis thereby effecting savings to these communities.

To coordinate the efforts of our Department with the Rhode Island League of Cities and Towns.

To seek out problem areas, analyze them and prepare alternate solutions. Staff assists and informs various municipal officials by collecting and disseminating information in regards to new techniques, methods, approaches and procedures in financial operations leading to greater efficiency and effectiveness for local government.

To do related work as required

A Guide for Effective Municipal Management

PHILIP W. NOEL, GOVERNOR



DEPARTMENT OF COMMUNITY AFFAIRS

FREDERICK C. WILLIAMSON
DIRECTOR

The preparation of this publication was financed in part through a comprehensive planning grant from the Department of Housing and Urban Development to the Rhode Island Department of Community Affairs, under the provision of Section 701 of the Housing Act of 1954 as amended.

**A Guide for Effective
Municipal
Management**

State of Rhode Island

Department of Community Affairs

Division of Housing and Government Services

**RICHARD SYLVESTRE
CHEIF**

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SUPERVISOR
GOVERNMENT ASSIST.**

STATE OF RHODE ISLAND • DEPARTMENT OF COMMUNITY AFFAIRS



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FREDERICK C. WILLIAMSON
DIRECTOR

One of the central missions of the Department of Community Affairs is to assist Rhode Island communities to develop their own capabilities in response to the needs and responsibilities of their citizens. To carry out that mission the Department was given four major responsibilities: (1) To provide direct technical, consultative and training assistance. (2) To administer certain state programs vital to community growth. (3) To conduct continual research on problems affecting community affairs. (4) To improve the quality and responsiveness of local government. This publication is one of the Department's responses to its assigned mission. It is our sincere hope that this publication will provide assistance in the vital management aspects of municipal administration.

We would be grateful if those who use this publication would direct their comments and suggestions to Mr. Richard F. Sylvestre, Coordinator, Division of Housing and Government Assistance or Mr. A. Edgar Lussier, Supervisor of the Local Government Assistance Section in the Rhode Island Department of Community Affairs.

The Department hopes this publication will provide a foundation for the full development of management expertise in local administration within the State of Rhode Island.


Frederick C. Williamson

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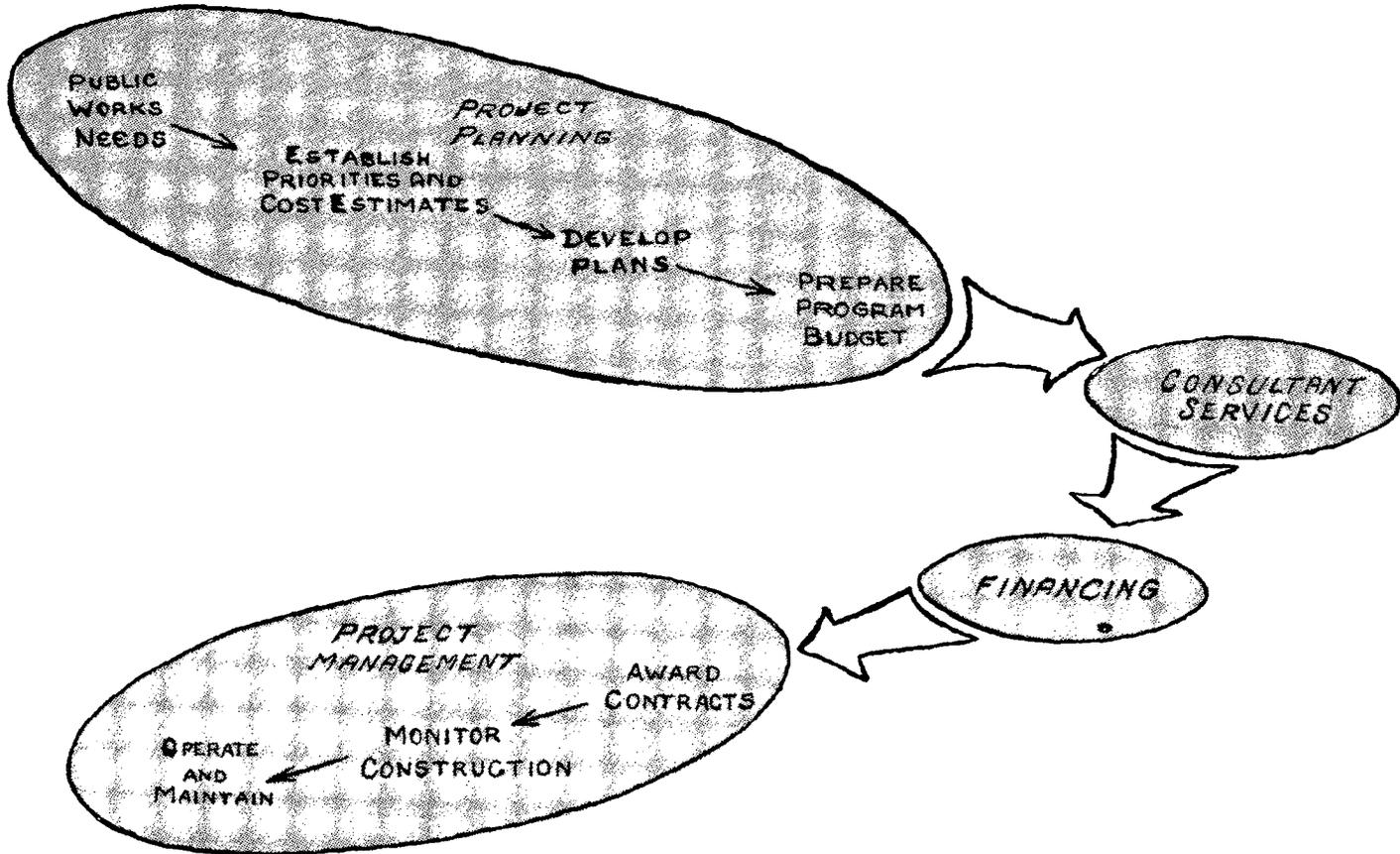
CHAPTER I

INTRODUCTION

A municipal officials handbook is many different things. There is a considerable amount of published materials on the subject of municipal administration. In general, most of this material is very useful and necessary to engineers, solicitors, and other legal, financial, and administrative specialists. Many handbooks describe the technology of sewage systems, water systems, street construction, rolling equipment, and other technical "how-to-do-it" aspects of government. This handbook, in contrast, is intended to concentrate on effective management from the standpoint of the local elected official. It is designed to provide procedural information and guidelines to the public official who must deal with the technical, financial, and legal specialists in carrying out his duties.

The specific public officials toward whom this handbook is directed are the mayors, town administrators, councilmen, supervisors, and the various boards and commissions. Many political subdivisions usually lack an extensive staff of planners and managers, and the public official himself must face the problems of municipal management and make the necessary decisions. He must plan, program, budget, obtain and manage professional consulting services, and implement various projects, usually on a part-time basis.

It is generally impossible to become an expert from reading a textbook or a handbook, and no attempt has been made, through this handbook, to create instate experts of its readers. Rather, it is hoped that the handbook will enable the local elected official to better define their administrative problems, and to become better acquainted with many of the technical, financial, and managerial aspects of his role in municipal



public works management. After studying this handbook, the local elected official should be in a better position to work effectively with his counterparts in other municipalities, with his consultants and advisors, with his contractors, and with the public.

The chapters of the handbook are organized to correspond generally with the progressive phases of public works management. The figure on the next page illustrates these project phases and relates them to the chapters of the handbook. This figure is repeated at the beginning of each chapter to emphasize where the contents fit in the overall scheme of project management. As the figure illustrates, the phases of a public works program range from determining the need through to construction- and then the circle is completed as lessons learned are fed back to the early phases of new projects.

Chapter 2 discusses the roles and responsibilities of elected officials in providing initiative and leadership to develop municipal public works facilities. Chapter 2 also defines and illustrates just what is meant by public works and their impact on the municipality.

Chapter 3, Project Planning, really presents the first phase of public works management. The chapter discusses how to define the projects which need to be undertaken, how to evaluate them, and methods of establishing project priorities. The State and Federal role in local public works programs is discussed, along with the relationship between public works planning and other municipal planning efforts. The chapter covers developing a capital improvements program, a multi-year program budget, and illustrates several techniques for scheduling projects over a period of time.

Chapter 4, Professional Assistance, provides guidance in obtaining

consultant services for public works programs. Descriptions of typical consultant services are presented with information concerning types of contracts and methods of payment. Techniques are provided which may be used for interviewing consultants and evaluating their services.

Project Financing is the subject of Chapter 5. The various methods of paying for public works projects are outlined, including several pay-as-you-go and a number of deferred payment schemes. Debt limitations are discussed in connection with loans and bond issues. Service charges and assessments are presented as alternative means of financing certain municipal improvements and revenue-producing projects. Municipal authorities and procedures for deciding whether it is appropriate to form an authority are described.

Once plans are made, budgets prepared, consultant services completed, and money is available, the remaining public works tasks are involved with Project Management, which is covered in Chapter 6. This chapter includes guidance on advertising for bids and awarding contracts, monitoring construction, and operation of the completed project. Sections are included on the management of public purchases, the need for a good public relations program, and other topics related to public works management.

Several appendices at the back of the handbook are for reference purposes. Included are a glossary of terms; a list of information sources; and various charts and tables which provided planning guides for lease-versus-purchase comparisons, loan-payback schedules, and similar topics.

It must be emphasized that this handbook is not a legal authority for undertaking municipal public works actions. It is intended as a guide to aid in implementing public works activities; however, it has no legal

standing, and the appropriate municipal codes, borrowing laws, tax laws, planning laws, and other State and Federal rules and regulations must always be consulted and followed. The City or Town Solicitor, engineer or other advisors should always be consulted for expert advice on specific problems or projects. It is hoped this handbook will enhance your understanding of municipal public works management, and assist you during consultations with various expert advisors.

The requirement for efficiently managing municipal public works has become more important and more difficult with the increasing costs of public facilities, greater demands for service by the citizenry, State and Federally mandated programs, and the attendant expanded role of local government. The rising cost of providing good government services has placed you, the local elected official of Rhode Island, in a difficult position. You are being urged by the Federal and State governments, as well as by local taxpayers, to provide new and better services. At the same time, the local citizens are asking you not to raise their taxes. The only way you can operate successfully under these pressures is by managing tax moneys as efficiently as possible in providing those programs which the taxpayers in the municipality need most.

CHAPTER 2

ROLES AND RESPONSIBILITIES

THE NATURE OF PUBLIC WORKS

A dictionary definition of public works typically reads somewhat as follows:

public works. Facilities constructed by the government for public use or service, as highways or dams.

If the public works programs faced by the local elected official in Rhode Island were as simple as the definition, there would be no need for this handbook. As you well know, a general definition hides many questions, frustrations, and uncertainties which do exist in the real live world.

A somewhat more complex definition of public works activities might be:

Those activities, undertaken by a municipal body, which involve expenditure of funds and efforts for planning, administration, financing, design, construction, and operation of facilities which result in new or improved primary services to the citizens of the municipality.

The figure on the following page illustrates that public works represent a wide range of activities by municipal employees and contractors in the execution of projects directed toward the fulfillment of many community objectives. Certain of the projects such as sewers, water works, and solid waste facilities are directed toward improving public health; while such others as street lighting and traffic signals are intended to improve public safety. Some projects are necessary to satisfy the demand for better transportation facilities through the provision of improved streets and highways. Regardless of the objective, these activities of the municipal employees or contractors are overseen and contracted through the public works management functions of municipal government. Without this management function the efforts of employees and contractors would be futile, and the resulting projects would be inefficient, costly, and unresponsive to the needs of the community.

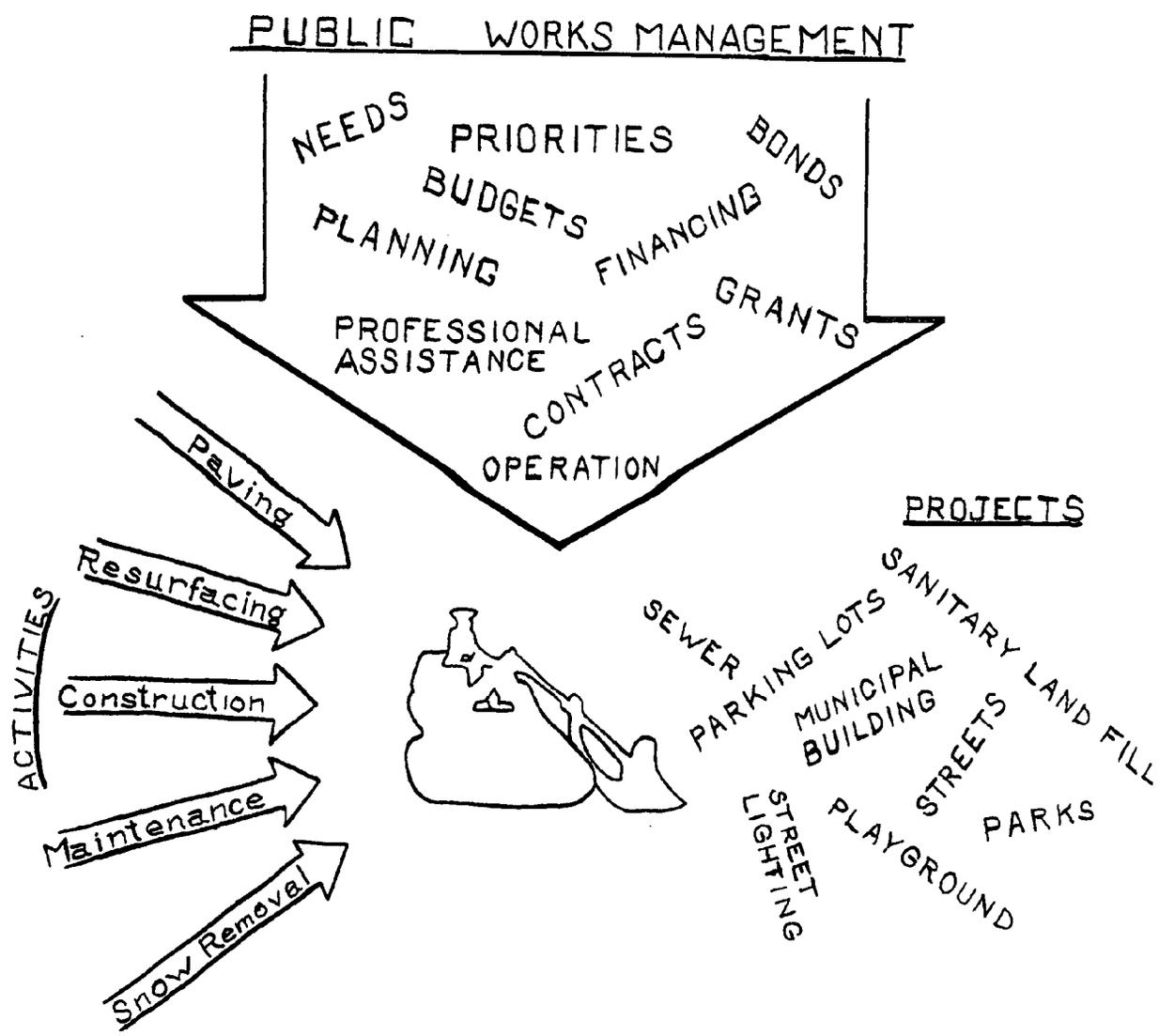


FIGURE 2

ROLE OF THE ELECTED OFFICIAL

The role of the elected municipal official in public works management can be defined in a number of ways. The various municipal codes specify certain duties and responsibilities. In addition, any official elected to office will have identified as part of the election process a number of problems which he feels compelled to solve. Demands by the citizens, by the state and federal governments, and opportunities for participation in regional programs will tend to define a set of responsibilities and to mold a role which the official must fulfill.

The expenditure of public money for public purposes is a major responsibility. In most municipalities in the State of Rhode Island expenditures for public works projects are only exceeded by the cost of education. Throughout the state it is estimated that over \$30,000,000 per year are spent for public works by cities and towns.

The dollars are significant; however, your role as an elected official in a small-to-medium municipality is often further complicated by lack of a full-time staff devoted to public works. For this reason, the position of an elected official in a small municipality is more difficult than in the larger cities, even though the size and cost of the projects may be less. The complication arises because, in addition to defining policy decisions, you must often also act as project planner, financial planner, purchasing agent, administrator, and project manager. Since local government is not a full-time occupation for most elected officials, these tasks must be handled in addition to other personal responsibilities which you may have.

It was not too many years ago when the major responsibility of the elected official in smaller municipalities, consisted almost entirely

of patching roads and clearing snow. With very few exceptions, those days are in the past. Expansion of population, increased awareness of the environmental quality requirements and other factors have created a whole new set of public works problems. Local governments must respond in cooperation with the State of Rhode Island, State and Federal financial aid often accompanies such programs; however, specific action is required of the municipality.

This action may involve construction and operation of public facilities. In turn, the construction and operation requires planning the location and type of facilities needed as well as the capacities needed to meet the demands of future growth. Financing methods must be understood and applied through contacting and consulting with the appropriate technical and financial experts. Consultants are frequently required for investigations into the technical and economic feasibility of a construction work. Planning for financing and managing the public works projects which result from these increased local responsibilities present new challenges to be met and resolved.

You may look upon the demands of residents, the State and others requesting new public works facilities and services as placing unreasonable and unnecessary burdens on the municipality. Without doubt, these demands tend to increase the burden placed on you as a local government official. However, it must be realized that proper investment in providing modern public works services and facilities can enhance the development of your municipality. In order to attract and retain quality residential, commercial and industrial development, adequate public works facilities must be available. The long-range economic benefits to be derived from investment in public works should form a part of your responsibility to the municipality and an incentive to act positively.

You may define your role in local government in terms of:

1. Whether you react to demands, or
2. Whether you define needs in advance and initiate action.

In the management of local public works, it is almost always preferable to define needs in advance so that necessary projects can be planned, financed and designed in an orderly manner without "emergency" pressure. When projects are carried out "under the gun" of either state and federal regulatory agencies, or as a result of strong citizen demands, it is unlikely that the design, financing, contract awards and conduct of the work will be entirely satisfactory. In most projects, there are many alternatives for design and financing. These alternatives will often deserve careful study and comparison. When pressured by time, all the reasonable alternatives may not be examined in enough detail, if at all. The result may be that for lack of time for proper planning the "best" course of action is not followed.

Through the provisions of Chapter 45, Public Laws of R.I. 1956 and the various municipal codes, municipalities have authority to control land development. Essentially, your role in the control of development is through subdivision and land development ordinances, zoning and various other local legislation which your municipality may enact. These controls are important to public works responsibilities, since they provide mechanisms whereby the developer is required to install streets, curbs, drainage, and other facilities on the land being developed. It is generally in the best interests of the municipality that public works improvements to land be installed and paid for by those who will be directly receiving the benefits. Your public works roles and responsibilities extend to the preparation of plans and ordinances which will properly control development and avoid undue expenditures from general tax moneys for public works projects benefiting only a few people.

As was pointed out above, the demand for public works projects often outdistances the ability of the municipality to pay for them. Sound long-range financial planning is a local government responsibility which can go a long way toward providing the required services in an orderly manner. However, despite good planning, there are sometimes a number of projects which represent valid needs, but are simply not economically justifiable for the population of the municipality. Examples of this kind of project may be a water distribution and supply system, a sewage treatment plant or a solid waste disposal facility. When these needs are apparent, and beyond the scope of the municipality, the elected official should investigate cooperative ventures with adjoining municipalities. There are several cases throughout the state where two or more municipalities have been able to efficiently and economically provide a service requiring a large capital investment which none of them alone could have financed. One of your roles is to search out, discuss, compromise and develop good methods for working cooperatively with other municipalities in regional programs. In addition to the economic aspects of regional programs, you will often find that close contact with other officials who have similar problems will result in the exchange of information concerning how your particular problems were solved by others. When two or more municipalities cooperatively apply for grant aid, or express a desire or recommendation to state or federal governments, the impact is often more significant than if each municipality acted alone.

Chapter

3

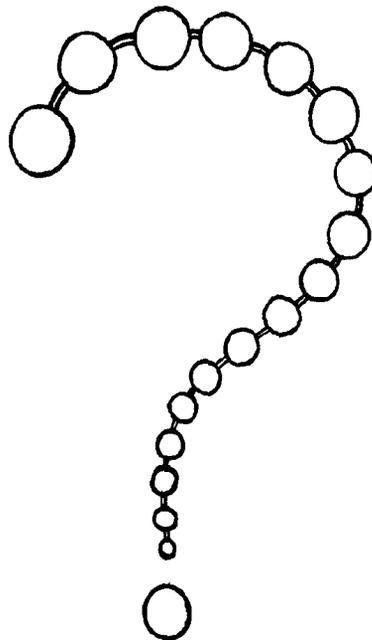
PROJECT PLANNING AND BUDGETING

WHAT PROJECTS SHOULD BE UNDERTAKEN?

WHAT ARE THE ESTIMATED COSTS?

WHAT ARE THEIR PRIORITIES?

HOW SHOULD THEY BE SCHEDULED?



THE PLANNING PROCESS

A dictionary defines planning as the process of formulating a detailed method or scheme for doing or making something. In the context of public works, planning includes the methods or approaches you work out to complete a public works program. In general the development of a public works plan must consider:

- Time schedules
- Availability of funds
- Priorities
- State and Federal aid or mandates
- Related projects
- Regional factors

COMPREHENSIVE PLANNING

The Master Plan

Many people think of a municipal Master Plan, or Comprehensive Community Plan (CCP) as an idealistic wishbook of how a community will look some years in the future. In reality, a MP or a CCP provides a basis for action which will influence development; however, the plan itself does little good unless it is implemented through ordinances, regulations, and a capital improvement program carried out by the municipal government. To develop such a plan it is first necessary to inventory present conditions, project population trends, economic trends, public facilities requirements and, in addition, evaluate such constraints as soil types, geology, slope, and existing land use to arrive at recommendations for:

1. Community Development Objectives and Standards
2. Future Land Use
3. Future Circulation Systems
4. Future Community Facilities and Utilities Requirements
5. Relationships with Adjacent Municipalities

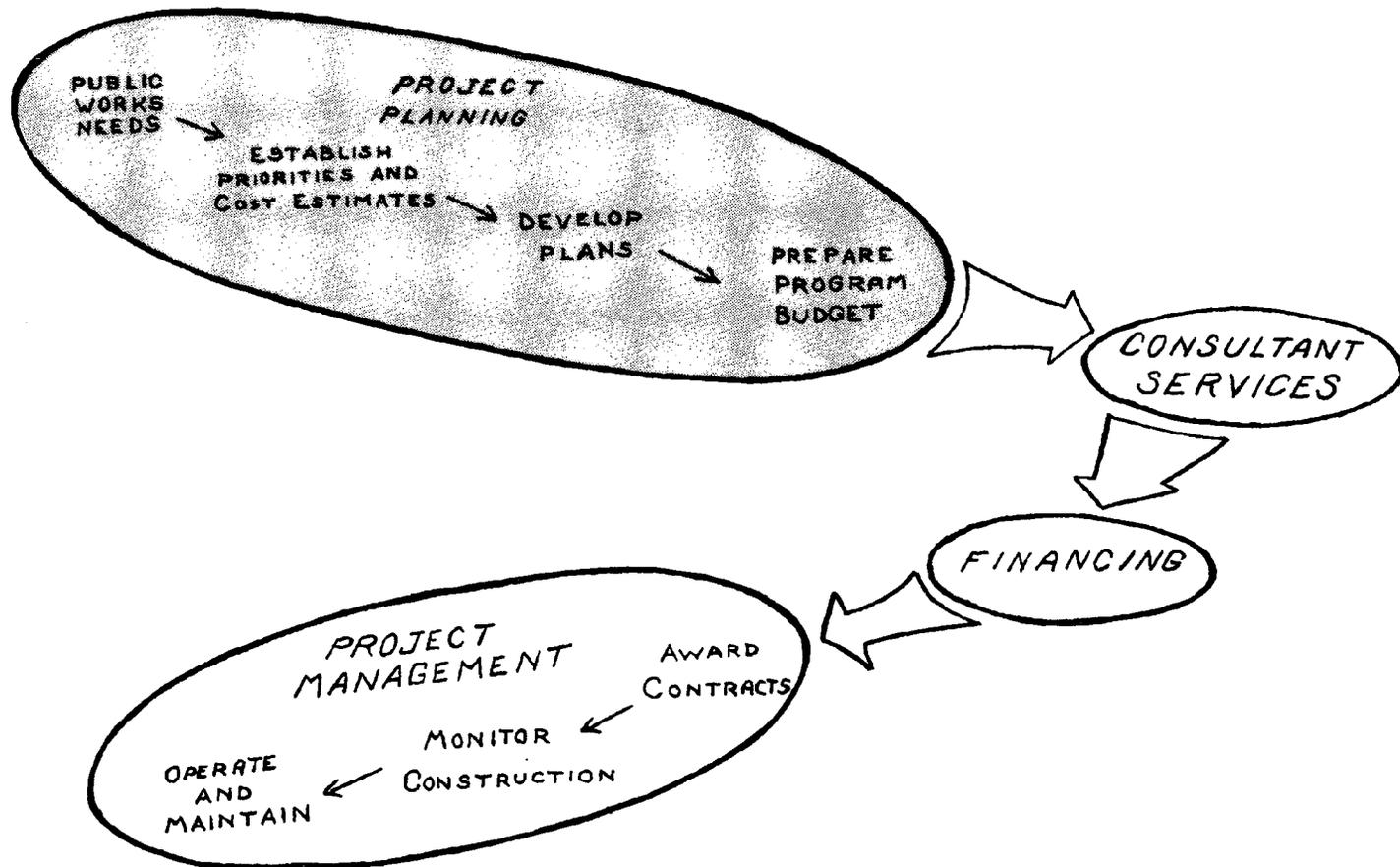


FIGURE 3

The preparation of a Master Plan or a CCP is the responsibility of the planning board or commission, and upon completion it may be officially adopted by the governing body. Normally, unless you have a professional planning staff, outside professional services or consultants must be obtained to aid in preparation of the plan. When you engage such services for this task it is important that the planning commission work with these professionals rather than allowing them to go ahead completely on their own. A consultant from outside your municipality will generally not have the in-depth familiarity with your particular or unique desires and needs; and the planning commission can provide valuable information and guidance in assuring that the plan will fit the needs and resources of your community. In particular, the development objectives upon which the plan will be built should represent the thoughts and ideas of the planning commission.

The public must be kept fully informed of the planning progress. While at least one advertised public hearing is required by the governing body prior to adoption of the plan, it is desirable that the planning commission also hold one or more public hearings or meetings to assure that the studies of existing conditions and proposals for future growth and development are fully understood by the populace.

The Master Plan or Comprehensive Community Plan and related ordinances will have a substantial effect on your public works programs and on the funds which will be required to make capital improvements. Although increased development will improve your municipal tax base and result in greater tax revenue, it will also increase the need for community facilities. Care should be taken in developing zoning ordinances and subdivision regulations to assure that unnecessary costs are not forced upon the municipality.

Requirements can be placed on developers to install many of the sewer, water, and street facilities and thus minimize the need for excessive use of tax revenues for these purposes.

Community Facilities Plan

A vital aspect of the CCP is the Community Facilities Plan, an important basis for capital improvements and public works planning. Essentially the community facilities section of the CCP inventories the existing firestations, water works, sewerage facilities, municipal buildings, recreation facilities, and other public grounds and identified the kinds of new community facilities which will be needed in the future. When the time comes for budgeting and programming these improvements, the Community Facilities Plan becomes an essential basis for implementation.

Transportation Planning

The major thoroughfare or circulation element of the CCP identifies the demand for various kinds of transportation facilities over the next ten to twenty years. For most municipalities, this means roads. The planners estimate where development is likely to occur and the impact this development will have on existing local streets and roads. This portion of the plan then projects improvements which are likely to be needed. Again, this information can provide guidance to long-range budgeting and the scheduling of projects. Where State roads are concerned, the transportation plan can provide a strong basis for municipal recommendations or request for R.I. Department of Transportation action on particular highways.

Regional Consideration

Finally, the last aspect of a Comprehensive Community Plan relates to the way your municipality fits into the region in which you are located. As demand for public services have become greater and costs for public works projects have continued to climb, there have been a number of

projects which you may find beneficial to undertake in cooperation with adjoining communities.

For a number of years, many municipalities have worked successfully together on sewer projects. More recently, the same approach has been used to solve regional solid waste problems. Most State and Federal grants-in-aid and loan programs give preferred treatment to joint municipal projects. The reasoning is that greater economies in construction and operation can be attained when a larger system is built to serve more people. Statistical cost data tend to indicate that this is true in most cases. In addition, a grant to a larger population group within several municipalities is likely to have a greater impact on the area than a smaller grant to a single municipality. When municipalities hold joint discussions and cooperate in planning their highway needs projects, greater benefits accrue to the constituents of all the participating local governments.

Official Maps

An important measure of implementation of the CCP is an "official map." This map is a compilation of the locations of existing and proposed public streets, and ways. It may include information describing proposed widenings or extensions of streets which are included in the CCP. The map itself does not constitute a direct commitment by the municipality to take action; however, it does indicate an official goal or objective which will influence development and the use of adjoining lands. An official map can point out municipal plans to landowners and can be used to prevent private building or development on land proposed for future rights-of-way.

DEVELOPMENT CONTROLS

ZONING

A zoning ordinance is basically a set of regulations which controls

the use of land throughout the municipality. The regulation also controls lot sizes; lot coverage; side, rear, and front yard setbacks; and such other details as parking spaces, landscaping, loading areas, etc. Generally, the municipal zoning ordinance establishes various types of use districts such as agricultural, residential, commercial and industrial and regulates the type and density of development which can take place in each district.

A Zoning Ordinance can become a problem if:

it is not understood by the public, the enforcing officer and the board of review

it is not properly enforced

it is amended frequently without adequate study

it is not based on a Comprehensive Community Plan

A major purpose of zoning is to separate functions within the municipality, to avoid such disasters as the construction of a junk yard or slaughterhouse adjacent to a residential area. A further purpose is to group together developments having similar service requirements. For example, most industries require a sewer system and a good supply of water. By locating industry in specific areas, the cost of providing essential services can often be minimized. As another example, a large housing development whose access is over an old, narrow town road may require an extensive municipal outlay to improve the road. A good zoning ordinance should take into account the transportation needs, and should avoid such problems by locating major development in areas having suitable access. A good zoning ordinance must be based on the land use portions of the Comprehensive Community Plan of the community. After a sometimes difficult period of familiarization, zoning has proved to be an essential protective device which benefits the municipality and landowners economically and can help prevent many public works problems.

Subdivision Regulations

Whereas zoning controls land use, subdivision regulations control the manner in which land is divided for development. Basically, subdivision regulations require that plans must be drawn showing how land is to be divided into parcels, and these plans must be approved by the local planning board. The regulations should also require that suitable street and lot layouts, utility easements, and other facilities to be included in the subdivision be in accordance with municipal standards. Typical standards will specify how roads being dedicated to the municipality must be built, and where and how sidewalks are to be provided.

The lack of subdivision regulations can cost a community considerable money and grief. For example, a subdivider may lay out a residential area and build several streets. Later on, you may come under considerable pressure to take over the streets, maintain them, and provide snow removal service. If the streets were poorly designed and constructed, you may find that they are safety hazards, require continual patching and repair, and that the grades and curves are such as to impede snow removal or travel in the winter. The result will probably be either that these poor conditions get worse, or that the municipality will have to spend considerable money in rebuilding the streets.

This is but one example of a costly public works problem which can result from lack of subdivision control. Good subdivision regulations improve the quality of municipal facilities and at the same time save public money. Many municipalities have enacted a "dry sewer" section into their subdivision regulations. Essentially, a dry sewer regulation requires that the subdivider or developer install sewer collector lines in his subdivision if there are municipal plans to provide sewerage service within the next few years. These dry sewers are capped, but are available for use when the sewer is constructed. In addition to the cost savings, this kind of regulation eliminates the necessity to cut trenches through existing streets a few years later, causing damages which are difficult

to completely repair.

Good subdivision Regulations prevent:

all from paying for benefits to a few

Most subdivision regulations provide for the developer to post a performance bond. The intent of the bond is to reimburse the municipality in the event the subdivider fails to install required improvements in his subdivision. The bond constitutes a further protection for the municipality in avoiding costs which should properly be the responsibility of the property developer.

STATE AND FEDERAL PROGRAMS

There is an old saying-

"An elephant is a mouse built with a government grant."

There are some projects, particularly small ones, in which the necessary effort to fill out forms, wait for approval (while prices go up), and comply with conditions of a grant program cost more than the grant aid is worth. Some municipal officials believe this statement is true for all programs and look with suspicion on any form of Federal or State aid. However, to take this attitude on all programs is a mistake which is likely to result in increased costs to the taxpayers of your municipality.

Financial Assistance

As part of your municipal responsibility, you should fully investigate and evaluate all possible sources of funds and technical aid which may lower the costs to the municipal public works program. There have been, over the past twenty to thirty years, an increasing number of aid programs designed to encourage municipalities to undertake the public works projects which are needed to increase safety, environmental quality, and other characteristics of their areas.

The various aid programs change in many ways nearly every year. It is, therefore, not the intent of this handbook to provide a "shopping list" of currently available aid or loan programs. It is hoped this section will remind you of the aid possibilities available and encourage and guide you in obtaining all the information necessary to apply for appropriate financial support.

Of more importance than your personal acquaintance with all the details of possible grant programs, is a knowledge of whom to contact and where to ask questions. There are many governmental, professional, and municipal organizations or individuals whose business it is to maintain current information which can be of assistance concerning grants. Among the contracts which you may make are:

- Your U.S. Senator or Representative
- Your State Senator or Representative
- Your engineering, architectural or municipal consultants
- The R.I. Department of Community Affairs

A prime source of information and assistance in public works, as well as other municipal government areas, is the R.I. Department of Community Affairs (DCA). DCA has a staff in Providence whose major purpose is to provide assistance to local government. In some instances the assistance is in the form of information and advice. In addition, DCA administers some financial grant programs, and can supply information and assistance in obtaining grant funds through other State and Federal departments.

There are a number of units within DCA which provide technical and advisory services to local governments. In the area of public works management, the Division of Housing and Government Services through its Local Government Assistance Section can be of considerable assistance in many areas.

The Government Assistance Section maintains a staff of municipal advisors with experience in solving many of the public works management

problems which you may face. The intent of the Division is to provide direct, on-the-spot advice and assistance to local governments to help them improve their management and government systems. In some cases, one of the Division's staff will assist by offering advice or suggesting a course of action during a brief discussion. In other cases, the Division's staff may occasionally spend several days or weeks studying and analyzing a municipality's problem before making recommendations. This group is not generally in a position to conduct large, complete studies or to provide extensive services over a long time period. However, they are available to talk with you over the telephone or to attend your municipal meetings, and aid you with specific problems. Their assistance will generally be in the form of advice in defining a problem and recommending solutions; or recommending when a consultant may be required and the kind of consulting services which are needed; or recommending particular kinds of grant aid programs which may be available. It is often wise, before a private consultant is chosen, or before a commitment of funds is made to a large or unfamiliar project, to contact the Government Assistance Section and obtain their advice.

The Government Assistance Section maintains a staff of local government specialists whose primary responsibility is to answer questions concerning proposed or existing legislation, financial administration, State and Federal government assistance, and many other matters of concern to local government officials. In addition to answering specific questions, the staff maintains large files of data which can be of great assistance in planning and managing public works programs. Sample ordinances, and various manuals on local government are among the kinds of data which are available to local governments through this section.

In addition to the services which have been discussed, there are other groups in DCA which offer assistance in specialized programs. Included here are:

Division of Housing & Government Services
Community Development Training
Housing Assistance
Tax Equalization

Division of Planning & Development
Community Planning
Urban Renewal & Neighborhood
Development
Grant Application Assistance
Capital Improvement Programming

Division of Human Resources Development

Division on Aging

Division of Administration and Program Management
Special Projects

The main point to remember with respect to Federal and State aid is to inquire. It costs little to make several telephone calls or personal contacts to discuss your proposed project. This can lead to a substantial flow of funds to your municipality, and at the very least you can assure your constituents that attempts were made to obtain financial aid.

DETERMINING THE NEED FOR PUBLIC WORKS PROJECTS

One of the responsibilities of the governing body of a municipality is to define needed projects and incorporate them into a set of priorities, a schedule, and a financial package making up a capital improvements plan. There are a number of available indicators which will assist you in determining needs which can be satisfied through initiation of a particular project. The chief sources of this information are described briefly in the following paragraphs.

ASSEMBLING PROJECT INFORMATION

Public Desires

Individual citizens of a municipality are probably the most direct and most vocal "indicators" for public works projects, whether it is for the resurfacing of a road, providing street lights, or building a new swimming pool. Although it would be impossible to satisfy everyone, as an elected official you must be responsive to the needs and desires of the people who have elected you as their representative. Often these desires will be expressed in letters-to-the-editor of a local newspaper, or they may become the basis for a series of editorials or background articles.

Municipal and State Comprehensive Plans

As was pointed out earlier, Master Plans or Comprehensive Community Plans contain a section on "Community Facilities" and "Transportation," and may also have a Capital Improvements Plan either as part of the overall plan or as a separate document. Road construction, sewage facilities, solid waste disposal, and other needs or problem areas will usually be identified, as well as possible solutions which may be undertaken. The construction activities of Federal or State Government in your local will also be outlined as bearing on the problem.

In Rhode Island, statewide comprehensive plans have been prepared in areas relating to public transit, highways, sewer and water, recreation facilities and others. These plans, while oriented to the needs of the state, form a framework within which localities may plan. The cost of providing many public works facilities has reached the point where more and more municipalities must consider regional solutions to their problems. State plans, in many instances, indicate to municipal officials how they can best integrate their public works programming with similar activities projected for the immediate region. Public works planning by local government must consider external forces which affect any individual project.

Elected Officials

The members of the municipal governing bodies will, by the very nature of their positions, be major public works "indicators." As representatives of the people, they are naturally the ones to whom the people turn when they have a problem since the final responsibility for developing public works policy rests with them.

Organizing Project Information

With all of the various sources discussed in the previous section, it becomes important to establish some simple method or system whereby the indicators are brought to the attention of the chief executive or councilmen

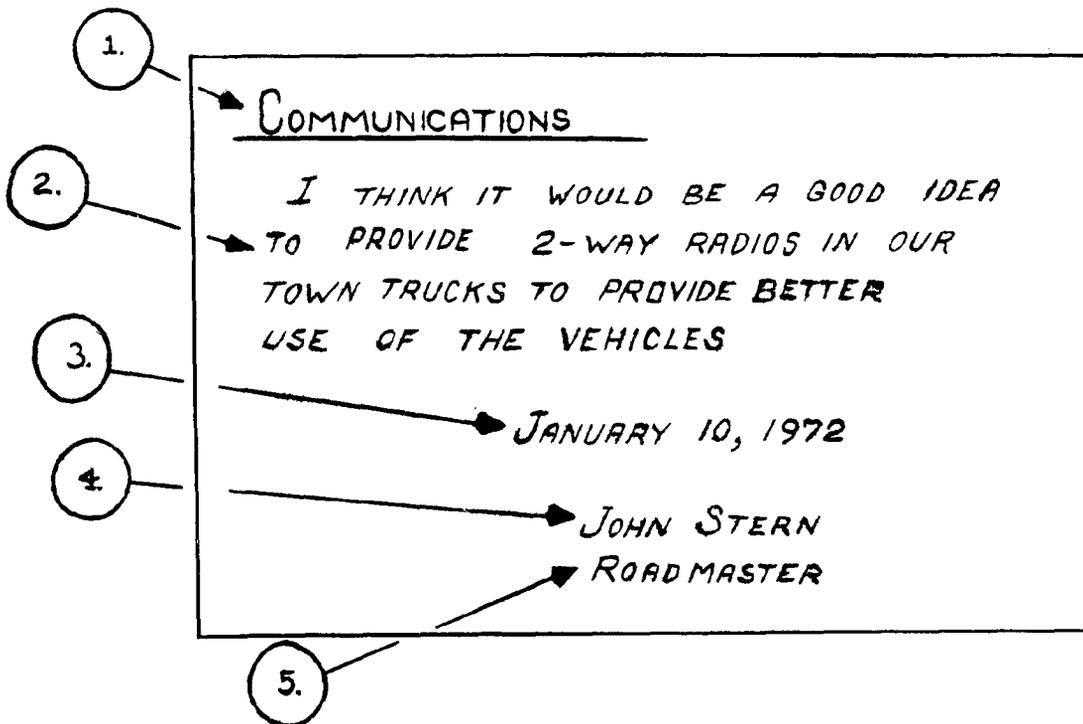
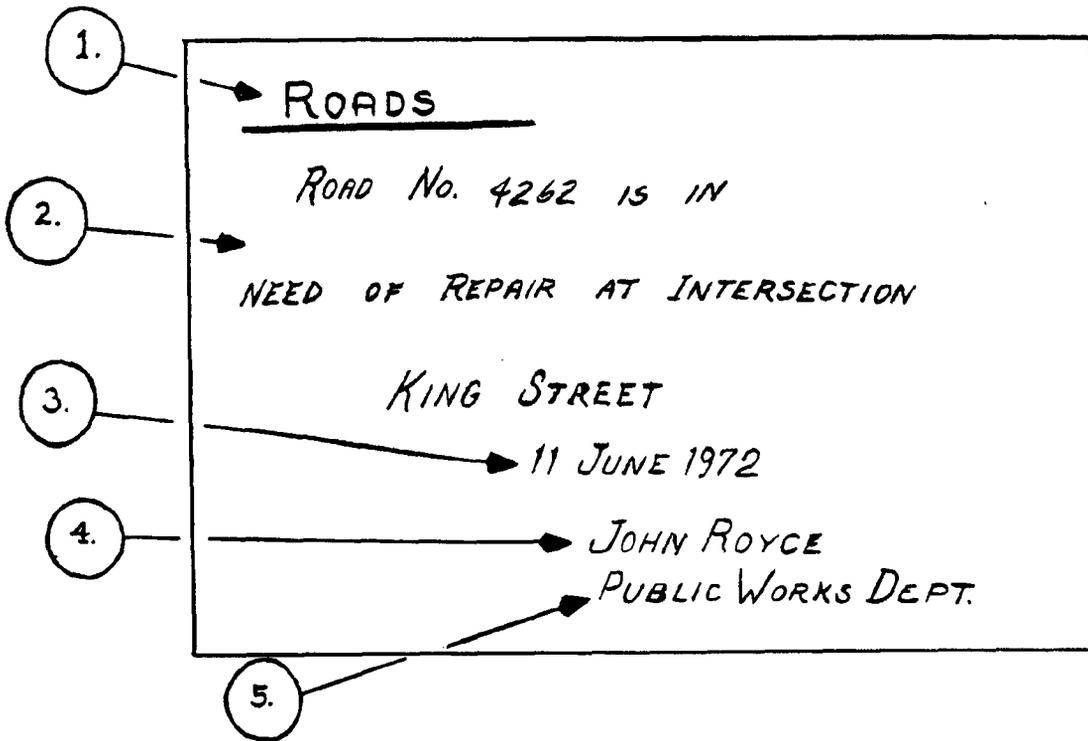
in an organized manner so that the recommendations will receive consideration. In the larger municipality, this is usually the responsibility of the mayor or director of public works. In smaller municipalities which do not employ a full-time management staff, it's conceivable the indicators will not reach the elected officials unless a method for collecting the information is developed.

A simple method which can be used by even the smallest municipality to collect public works program indicators is by using a set of 3 x 5 cards as a basic data-collection tool.

The people associated with municipal government who are in a position to provide indicators to the elected officials should be encouraged to do so. This includes the members of municipal boards and authorities, municipal employees, and the elected officials themselves. A mechanism for the transmission of these indicators to the elected officials is illustrated in Figure 1. Item 1 on the card is the general category heading to which the suggestion pertains, and Item 2 is the specific suggestion of either a program which should be initiated or a problem which needs solving. Item 3 is the date the card was completed, Item 4 is the name of the individual making the suggestion, and Item 5 shows that individual's job title.

The planning commission or board of the municipality should be requested to provide information concerning potential public works programs indicated by the community plan. The chairmen of all public authorities, boards, and commissions, as well as the president or chairman of the governing body of the municipality, should review the minutes of each public meeting to extract from the minutes the potential public works projects to be entered on 3 x 5 cards.

Public employees should be encouraged to carry 3 x 5 cards with them as they perform their duties and to submit their ideas on cards to their division leader, who will see that they reach the elected officials. The elected officials and individual members of municipal authorities,



boards, and commissions should be encouraged to prepare and submit cards containing their recommendations.

The elected officials should designate a central repository for public works indicator cards. Every two or three months the elected officials should meet in a work session to review the grants that have been received during the preceding period and form a gross categorization of the indicators in preparation for establishing priorities. To facilitate later analysis and intergration with the anticipated revenue and expenditures of the municipality, the cards can be grouped by any convenient method. One example is shown in Figure 2 where all cards dealing with activities that will require completion by the municipal work force are in one classification.

After collecting the data required to determine the public works needs of the municipality, elected officials are then prepared to move on to the next phase of public works management- that of establishing priorities and cost estimates.

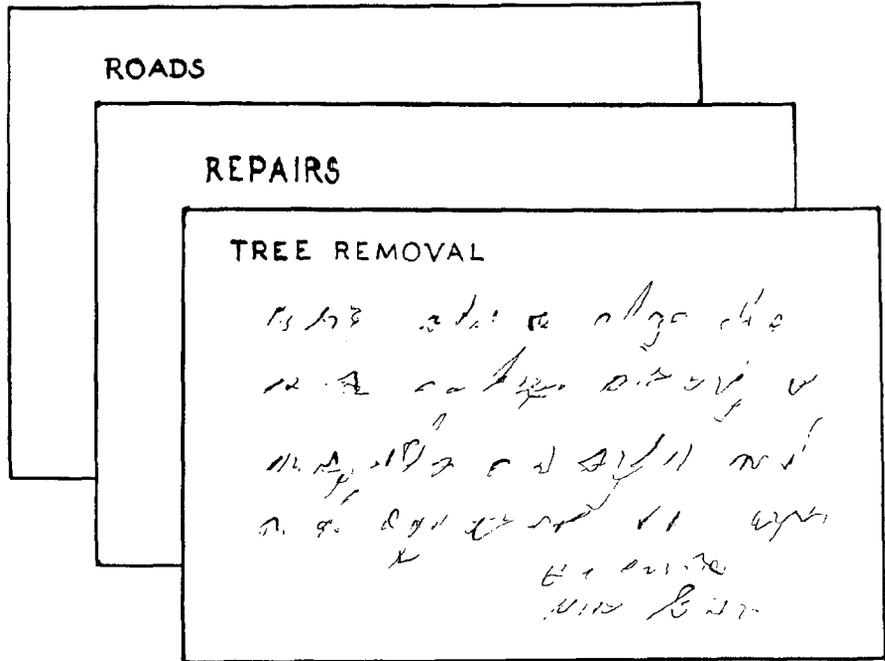
Establishing Priorities

Once a list of needed projects is in hand, the next step is to arrange them in priority order, identifying the most critical projects which must be undertaken first, and those which can be deferred to later years.

Priorities can be established in several ways. The simplest and most straightforward is through complete discussion by the elected officials of each project, the problems each project is intended to solve, and the urgency of the problem in terms of health, safety, and the specific benefits which will accrue. Of course, the gross or rough cost is also a factor, however, cost should be considered in more detail later, when the multi-year program is formulated. When priorities are set through

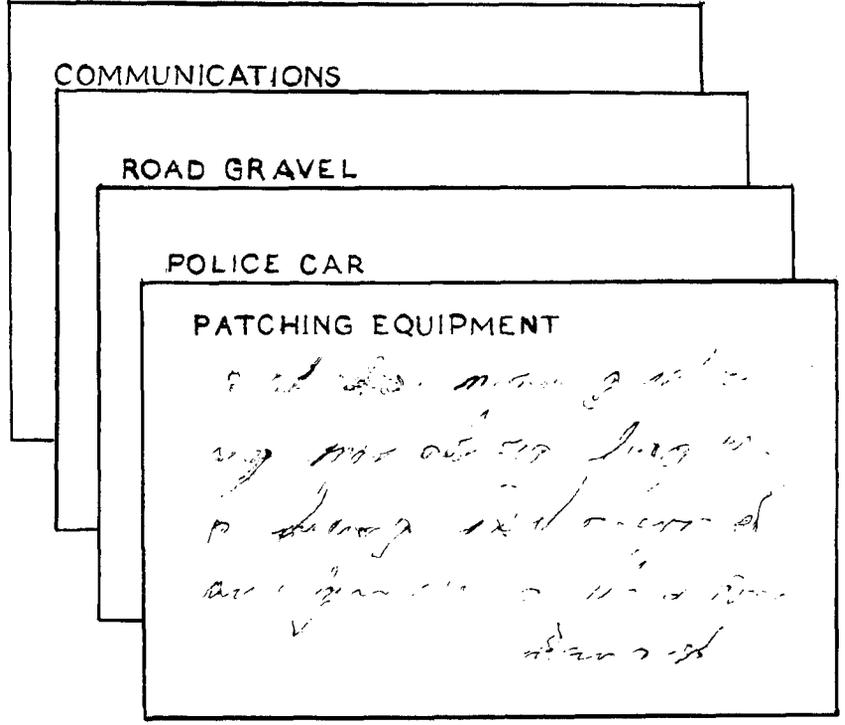
A.

WORK FORCE
REQUIREMENTS



B.

EQUIPMENT
REQUIREMENTS



C.

meetings and discussions, you should request advice from the municipal planning board or commission, from the municipal engineer and from key municipal employees.

It is usually desirable to establish several categories into which the projects can be placed, depending on how critical they are and how soon they should be undertaken. Typical priority categories might be defined as follows:

PRIORITY 1. A project should be placed in this category when:

It is necessary to correct a serious health or safety hazard.

It is necessary to supplement or complete another major project which is already underway.

The project will provide a major benefit to the people of the community or greatly increase the tax base.

In addition, the timing of a particular project may be such that it is placed in or removed from Priority 1, even if the other factors indicated otherwise. An example of this is a project which would normally be of lower priority, but which if undertaken immediately can receive large amounts of grant funds.

PRIORITY 2. This category represents projects which are definitely desirable and needed by the community, but have less importance or criticality to safety or well being. Included are projects which, although needed, may be started at a later date, after urgent Priority 1 projects are completed and regular allotments of funds may be made.

PRIORITY 3. When it is not clear that a need has been established, or when public support and requests for a particular project are not strong, such projects should be placed in this deferred category. Ordinarily, no specific fund allocations should be budgeted for projects in this category.

Once the proposed projects are grouped into the priority categories, and the rough cost totals are summed for each category, it is possible for you to begin to consider preparation of the multi-year project budget in which specific projects are scheduled, and the firm capital improvements budget is developed for the upcoming year.

PAIRED - COMPARISON PRIORITIES
(Example)

Projects

- #1 Municipal Building
- #2 Reconstruct Elm Street
- #3 Purchase Roller
- #4 Extend Maple Avenue
- #5 Develop South Park
- #6 TR 537 Storm Drainage

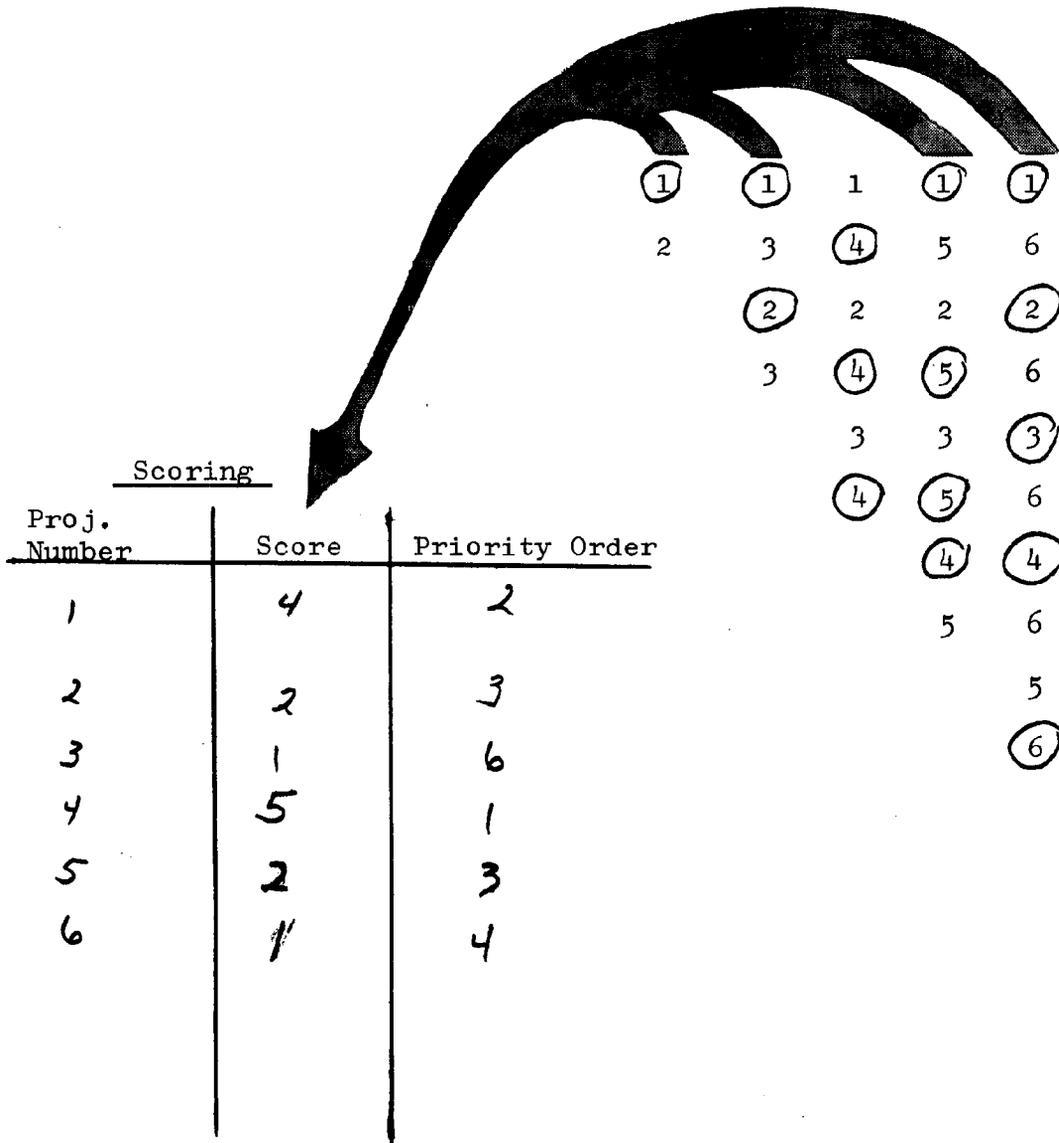


Figure 3. Setting Priorities by using Paired-Comparisons

Usually an informal procedure will suffice for setting priorities among a small number of projects. However, at times you may need to use a more organized approach. Organized comparisons may be useful to check the results of your discussions, or they may be used to get an initial priority ordering which will be later modified through discussions. Figure 3 illustrates an example of a relatively simple approach to orderly comparisons between each pair of possibilities. In this example, the projects are listed and given an identifying number. Then a "triangle" of pairs of project numbers is constructed which contains all projects. When this is done, each member of the decision making body will individually make a set of comparisons. He will ask himself the question:

"Which project do I feel is more important to the municipality,
Project #1 or Project #2 ?"

In the example, Project #1 apparently had the most importance and is circled. The process continues with #1 versus #3, #1 versus #4 and so on until every comparison has been made. Then to complete the scoring, the number of circles for each project is recorded as the score for each project. The project with the greatest number of circles would appear to be of most importance, the next larger number of circles would appear to be of most importance, the next larger number of circles of second importance, and so on through the list.

Any comparison method such as this must be used with considerable caution. The results should not generally be taken as a final answer, but should be discussed and evaluated. When you have a large number of projects to compare, or when discussions seem to be going in circles, a paired-comparison may help to organize your thinking. The example contained only six projects, however, it is obvious that the same approach can be extended to a large number. In fact, it is when many projects are under consideration that the paired comparison method may be most useful.

In the process of setting priorities, it is usually advisable not to let your concern about how to finance a project influence its priority. It may well be that your highest priority project cannot be undertaken for several years because of lack of the necessary amount of money. At the same time, several lower priority, less-costly projects may be undertaken. The high cost of a project doesn't directly effect its importance. If a particular project is of critical importance, its priority should not be lowered simply because you do not foresee an immediate method for financing it.

CAPITAL IMPROVEMENT PROGRAM

A capital improvement program is essentially a medium-range outline of the projects the municipality desires to undertake out to about five years in the future. It is generally formulated by the local planning board and includes estimates of project costs as well as the total costs expected to be encountered in any one of the five years. These expenditures are in turn matched against anticipated revenues over the time period and are scheduled in accordance with the needs and financial resources of the community with due regard for recommendations made in the Comprehensive Community Plan report.

MULTI-YEAR PROGRAM DEVELOPMENT

The following several pages outline how a capital improvement budget can be developed, using as an example, road improvements in a town or city. A similar approach can be applied to parks and recreation, public buildings, parking garages, or nearly any other category of public works projects.

In terms of the road improvement example, the objectives of the program are to:

Identify short and long range road improvements in order to meet the demands projected in the Comprehensive Plan, by citizen demands, by growth, and by other forces which generate a need.

Develop a method for accomplishing the required improvements out of anticipated revenue receipts, and

Schedule the required improvements over an adequate time frame, often five years.

The first phase consists of preparing an inventory of all roads.

This can be accomplished by supervisors, Superintendent of Highways or by the municipal engineer. The inventory consists of an examination of existing conditions and a description of the critical features of each section of road. The inventory can be conducted as part of the semi-annual road inspection. If this is done in the spring there will be adequate time to incorporate the capital improvements program into the next year's budget. A special form should be developed for evaluating the conditions of the road to assure that consistent data is obtained on each road section.

This form should identify the road section, describe existing conditions and critical features, contain space for comments regarding development, growth, zoning or other pertinent related data, and contain the set of improvement recommendations. The ultimate purpose of the inventory is to develop specific planning recommendations for improvements to the road or section of the road.

The municipal engineer will be able to assist the local officials in determining the estimated costs of various types of improvements which are recommended. When inventory forms are completed for each road and cost estimates are made for recommended improvements, the municipality will have a total picture of all improvements needed in the foreseeable future. When all of the costs are added up, it might be beyond the capability of the individual municipality to provide the necessary funds over a one-or-two-year period. Therefore, a plan must be developed which will enable the improvements to be made in the future when funds are available.

The next step is to conduct an analysis of the capital costs involved in improving the roads in the municipality as indicated by the inventory survey. This should be accompanied by an analysis of the receipts and expenditures of the municipality for highway capital improvement over the past six years to provide a basis for projecting the anticipated receipts. Of the total receipts, a projection should be made of the anticipated funds which can be allocated to the capital road improvement program, while at the same time maintaining other municipal government programs.

You do not have to be an economist or accountant to make the type of growth projection which is indicated here. Looking at the past pattern of receipts and expenditures of the municipality, one can project future receipts and expenditures. Figure 6 shows three curves which can be developed by the municipal officials, from readily available information contained in yearly audit reports or budgets, which will enable such a projection to be made. Curve A shows the amount of total revenue receipts for the preceding six years. The data has been extracted either from the budget or the annual Financial Report and plotted on a piece of graph paper. In the example used, a very conservative growth is projected based on increase in revenue through a normal increase in the assessed evaluation of new properties and the projection also assumes that economic trends of the last six years will be constant for the next six.

The same type of projection is made for estimated receipts from the State Highway Maintenance Appropriation (Gen Law 24-8-16) (Curve C), and for the amount of municipal appropriated funds allocated for highways from the general fund (Curve B).

These figures are the amounts the local government officials can reasonably expect to have available to apply to their overall highway capital improvement program during the next six years. Estimated capital

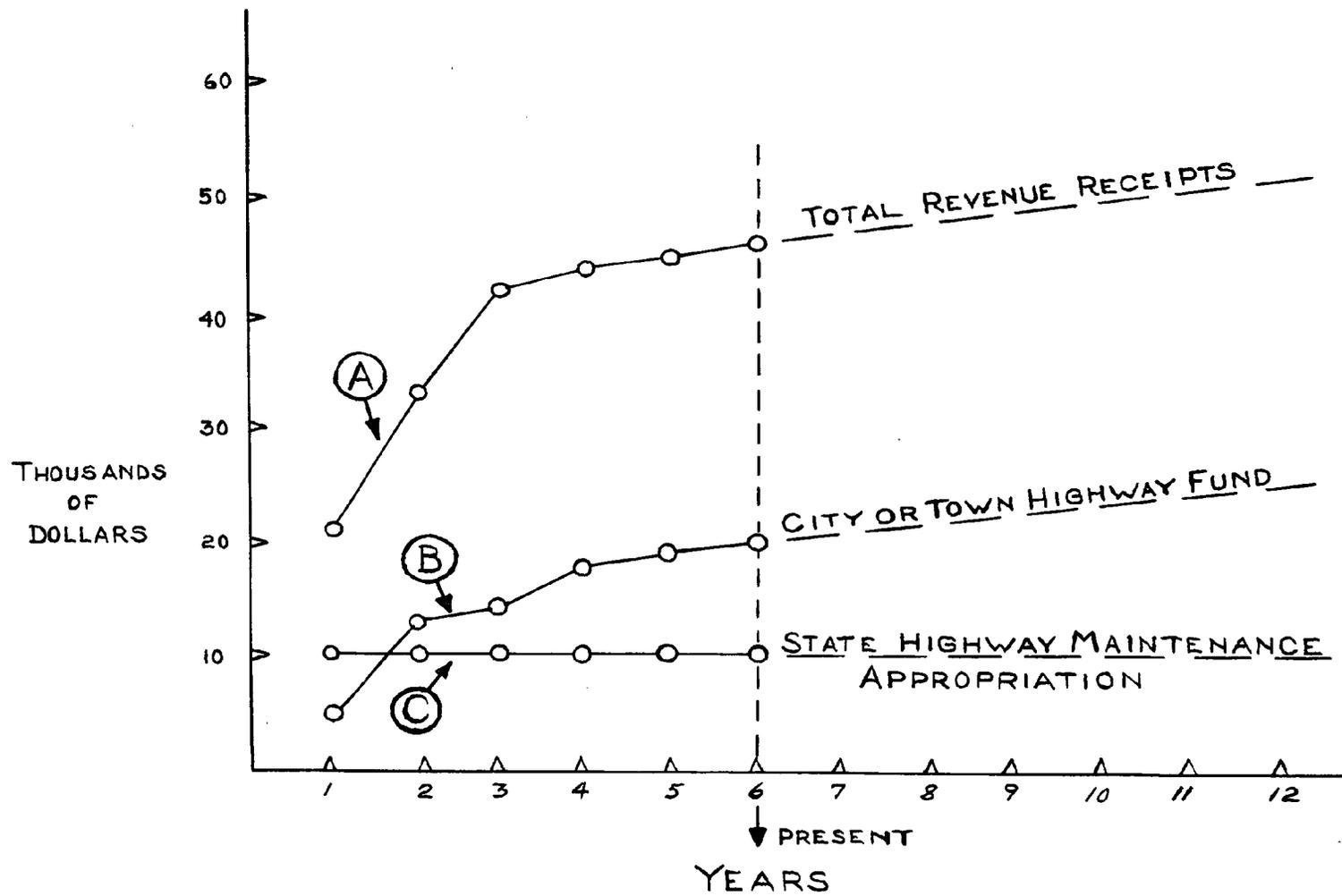


FIGURE 6

capital budget allocations are then made for each highway improvement project. In determining capital items for the purpose of the budget, it will often be desirable to consider highway repair and repaving as capital items in addition to new highway construction.

In general, the determination of priorities for timing of road improvements should be directed first to correcting existing deficiencies on roads that are most often used by municipal residents. A secondary priority would be the construction of new roads to encourage potential development.

For highway improvements, it is well to prepare a map of the municipality containing coded illustrations of all the improvements to be made, the nature of the improvement and the year in which improvement is planned. In addition to providing a visual reference for the municipal governing body, the map will provide a useful demonstration mechanism for presentation before civic groups, or to respond to complaints from citizens that their roads are being ingored.

MULTI-YEAR PROGRAM BUDGET REVIEW

As a standard procedure the multi-year public works program budget should be revised and updated on an annual basis, prior to preparation of the municipal budget. Special revisions should be made when necessary. For example, new state or federal laws mandating higher standards in the operation of landfills or sewage plants would be reason for reviewing and probably changing the multi-year program. Revision on an annual basis is necessary to take into account changing needs and financial resources, as well as to receive new views from elected and appointed officials, and to take advantage of lessons learned during the past year.

Each annual revision should drop the current year from the budget and add a new "sixth" year. For example, the current program budget

may cover the period 1972 through 1977; the next annual revision will be concerned with the period 1973 through 1978. At the time of the revision, all work scheduled for the current year should be reviewed and re-worked into the new program budget if time delays have resulted in loss of scheduled time. In addition, where certain projects have cost considerably more or less than budgeted, they should be studied to try and learn why the budget was in error.

Annual revision and review of the public works program budget is intended to insure that the process will become a continuing part of governmental procedures. The intent is to compensate for changing demands and financial resources so that a view of projected needs will always be at hand in a way which will facilitate municipal management.

SCHEDULING

In addition to the multi-year capital budget, it is often desirable to lay out more detailed schedules of the activities to be undertaken. There are several ways in which this scheduling can be done. Graphical scheduling methods illustrate when specific portions of a project should be begun, when tasks will be completed, and the inter-relationships among tasks.

Any schedule contains two basic elements-one is time, expressed in weeks, months or years; and the second is a listing of the tasks or activities to be carried out within the time period. In addition to these basic elements, it is often desirable to designate "milestones."

MILESTONES--

are critical points on the path to project completion

Milestones are the key intermediate points in an overall project schedule when critical accomplishments are to be completed. Milestones should be related to a specific part of the project, identified with a calendar date. For example, in a road construction project, major

milestones may be the projected dates when it is expected that (1) engineering will be completed, (2) contracts will be awarded, (3) road base will be completed, and (4) surface coat will be applied.

When drawing up a project schedule the milestones should be identified since they provide certain specific goals toward which the project is aiming. When a milestone date is missed, it is then possible to adjust future milestone dates and to determine what the effect will be on the completion date for the entire job. Milestones can also be related to the percentage of work completed and compared with the billings received from the contractor to determine the impact of the schedule on the total cost of the project.

WHAT PROFESSIONAL SERVICES ARE AVAILABLE?

WHAT SERVICES DOES THE MUNICIPALITY NEED?

WHEN ARE THEY NEEDED?
WHAT WILL THEY COST?

HOW IS THE SCOPE OF
SERVICES DETERMINED?

HOW IS A CONSULTANT CONTACTED AND SELECTED?

WHAT SHOULD THE CONTRACTUAL ARRANGEMENTS BE?

4

**PROFESSIONAL
ASSISTANCE**

Chapter

4

PROFESSIONAL ASSISTANCE

CONSULTANT SERVICES

As a municipal official faced with perplexing problems, you won't have to look far to find people who are familiar with the problems and willing to help solve them.

A wide array of consulting services is available to municipal officials. These services fall into two categories. The first category contains professional consultants who, by law, must be registered with the state in order to practice. These include engineers in all fields— for example, civil, mechanical, electrical, and industrial. Surveyors, architects, landscape architects, and lawyers must also be registered. The registration laws define registration procedures, qualification for registration, and the responsibilities of registered professionals. The various national professional societies have established codes of ethics, fee schedules and other rules for the professional conduct of their members. Some useful references to books concerning these national professional societies are contained in Appendix B at the back of this handbook.

The second and larger category of consultant services includes those technical financial and management fields in which people have acquired planning or problem solving capabilities useful to municipal officials. These consultants are most often engaged directly by the municipality to solve a particular problem, or they may be on the staff of, or under contract with, a registered professional who is providing the technical planning, design, and supervision of a public works project.

There are several ways in which you can determine whether or not a consultant is needed. A consultant is usually called in when the municipality does not have a required specialist on its staff, or when a special problem comes along which the municipal officials do not feel qualified to solve. Nearly all projects to be financed by the sale of revenue bonds require the professional design services of a registered engineer, architect or landscape architect, depending on the project, in order to issue and sell the bonds.

When the need for a consultant is being considered, you should perhaps contact the appropriate State municipal association for advice; for example, the Department of Community Affairs, Local Government Assistance Section, has on its staff several Community Development Specialists who can also give guidance in these matters.

Obtaining the services of a consultant is considerably different than entering into a contract for construction or to purchase large items of equipment. For construction contracts and expensive equipment, the "lowest qualified bidder" method is usually used. For consultant services, that method is not generally appropriate. Although it is almost always possible to clearly define acceptable standards and specifications to be met by a construction contractor, you will find the same is not true for consultant services. A plan may be good or bad, complete or sketchy; it may make sense or it may be impractical. The "quality" of services to be provided by a consultant is difficult to define, so simply accepting the lowest price can often result in loss of time and a low-quality product. For these reasons, the cost estimate or firm price offer for consultant services should be considered of secondary importance to a number of factors discussed later in this chapter

in the section on "Evaluating and Selecting a Consultant."

CONSULTANT'S DUTIES ON CONSTRUCTION PROJECTS

A professional consultant under contract with your municipality to provide services on a construction project must deal with phases of the project. The consultant may be an engineer, architect, or other professional qualified to help with a particular project. Usually you think first of the design and technical roles of the consultant; however, it is important that his business and legal roles also be considered, and that all of these roles are well defined and understood by both the consultant and the municipal authorities.

There are generally three parties involved in contractual arrangements on a municipal public works project- the municipality, the consultant, and the contractor. There is a contract between the municipality and the consultant, and another between the municipality and the contractor. However, the consultant is directly concerned with both his own contract and the contract for construction. In addition to furnishing technical and design skills in formulating the requirements of the project, the consultant has responsibilities for the administration and proper execution of the construction contract.

A professional consultant's role can be summarized as involving the preliminary and feasibility investigations; production of specifications, contract documents, final design or working drawings; and supervision of construction. The preliminary and feasibility investigations are intended to define the project in terms of the needed facilities, and to determine whether the project is feasible both from a construction and an economic point of view. This phase of the job is generally undertaken with a contract limited to the feasibility study only. As a municipal official, you must evaluate the results of this study and determine whether or not to go ahead with the project.

The feasibility study should contain figures and text describing the project, related background material on the region and financial data. Estimates should be made of total project costs and the amount needed to pay for the project from municipal funds or from assessments or fees charged to the users. For projects which will be supported from service charges, the amount to be levied against each person or family using the service will be an important indicator to help decide whether or not to go ahead with the project.

The feasibility study will either contain the preliminary design, or that can be undertaken as a separate task by the consultant. The preliminary design provides further information you can use to judge the suitability of the project, and to provide a basis for obtaining funds, either through Federal or State aid, or through a bond issue or loan.

When you decide to go ahead with a project, working drawings and specifications are prepared by the consultant. This material provides the basis for securing contractor's bids through advertisements and instructions to bidders.

After a contract is awarded, the consultant's role enters the supervisory phase. The consultant monitors the work being done to assure that the contractor is following the plans and that the amount and quality of work meets specification requirements. The consultant may provide clerks and inspectors to aid in monitoring progress, or you might wish to hire municipal inspectors and save the cost of the consultant's overhead charge. In the latter case, savings to be realized should be balanced off against the municipal overhead-type expenses such as preparing payrolls, fringe benefits, and other administrative activities. If your municipal staff already includes people who can handle these tasks, using your own employees as inspectors can often be

advantageous.

During construction, the consultant should prepare a monthly construction progress report defining the work that has been done to date. This report provides the basis for payments to the contractor. A specially designed form should be prepared for this report to assure that the data is presented in a complete and uniform manner. You will find suggestions for progress reporting forms and procedures discussed in Chapter 6, "Project Management."

Duties of the consultant may include preparation of a financial program- an essential step in any authority-financed project. The consultant works with the authority, its financial advisor, bond counsel, and bond trustee, mainly to specify the timing and amounts of money required during construction. Some other services which you may wish to specify in the consultant's contract are discussed in the next section.

CONTRACTS AND SCOPE OF SERVICES ON CONSTRUCTION PROJECTS

One of the most common problems you can have with consulting services occurs when the municipality and the consultant do not each understand what is required. The consultant may plan for, or design for, one set of conditions, while the municipality has something else in mind. The results of the misunderstanding may not be detected until the final report or plan is delivered and the municipality is faced with a large bill for services.

The best place to start eliminating confusion is in the preparation of your Request for Proposal (RFP) document. This invitation for qualified consulting firms to submit proposals should carefully, correctly, and in simple language describe exactly what you want a consultant to do. The RFP should include the name, address, and tel-

ephone number of a knowledgeable member of the municipal staff who is available to discuss and further clarify any points which might cause confusion. Every opportunity should be used to assure that both parties to the consulting agreement understand each other. These opportunities occur during preliminary discussions, during proposal evaluation, in the course of interviews with prospective consulting firm representatives, and at the time of contract preparation.

The two easiest ways to avoid misunderstandings are to define the scope of work so that all parties understand what is required, and to have review meetings and discussions during the course of the work. Consultant services for design and development work (usually by an engineer or architect) have evolved a fairly standardized terminology for defining scope of services. These tasks fall into the categories of "basic services" and "special or extra services." The basic services generally are defined in the contract document and compensation is arranged for under one of the methods discussed in the next section of this chapter. The special services, which cannot be clearly defined at project start time, are generally negotiated as separate items as the need arises.

The following illustrates the major parts of a typical consulting contract. Many government agencies, professional societies, and business firms have developed standard forms for consulting contracts which contain most of the legal information required. However, the Scope of Services and the Supplemental Agreements should be formulated and tailored to each individual set of needs. Among the items to be carefully considered in the Scope of Services are:

1. The role of the consultant in obtaining necessary aerial or topographic map data.
2. Responsibilities for obtaining approvals by State and other governmental agencies.

3. The nature of contract drawings to be prepared.
4. Preparation of detailed contract drawings, contract documents, and cost estimates, as well as the number of copies of all documentation to be delivered. Sufficient copies should be obtained for submission to State and Federal agencies for necessary approvals.
5. The role of the consultant in securing bids, analyzing bid results, and recommending contract awards.
6. Responsibilities in the preparation of construction contracts.
7. The nature of the inspection procedures to be followed and the inspection reports to be supplied to the municipality.
8. Responsibilities for inspecting the project in operation, and making reports of the completed project.

Be sure that your contract with a professional consultant clearly defines:

Basic Services
Special Services
Supplemental Agreements

There are also a variety of special services which may be incorporated into the Scope of Services. Not all special services need be listed in the contract; however, it is common to include several of them which are most likely to arise. Typical special services include:

1. Soil investigation, core borings, and related analyses.
2. Special tests or laboratory inspections which may be needed for certain materials.
3. Field surveys and aerial photography.
4. Technical inspection of construction, review and approval of contractor payments, "as built" drawings, certificates of completion. Care should be taken to assure that inspectors are qualified as required by State law or project insurance company.
5. Additional copies of reports, drawings, and other material beyond those specified in the basic services.
6. Preparation of rate schedules, grant applications, appraisals, audits and inventories, court testimony, and other related tasks.

The Supplemental Conditions contained in the contract documents generally deal with such matters as ownership of plans and drawings,

termination of the contract, arbitration, additional costs for change of scope, and provisions for interest to be paid if payments are delayed.

Generally, you will find that tracings and master specification sheets remain the property of the consultant and the contract will often state that his permission must be obtained to use or reproduce them. Permission to reuse drawings will generally require an additional fee to the original consultant who prepared the material.

The various professional organizations have established guidelines defining the relationship between the professional and the client which are intended to apply to the usual consulting services which will be required. However, these standards are not necessarily rigid in all respects and the municipality should attempt to negotiate rates, services, and contract conditions in its own best interests.

COSTS OF CONSULTING SERVICES ON CONSTRUCTION PROJECTS

You will find that the cost of consultant services is generally negotiated between the municipality and the consultant after you have investigated past performance and the proposed performance of the consultant through interviews and discussions. There are a number of ways in which compensation for consultant services can be established. Some of the more common methods are discussed briefly below.

PAYMENT OPTIONS FOR CONSULTANT FEES..

Lump Sum or Fixed Fee
Percentage of Construction Cost
Cost Plus-
Percentage or Fixed Fee
Retainers-
Lump Sum
Monthly
Daily (Per Diem)
Hourly
Combination of Above

For most consultant services for a specific plan, study or project not directly related to construction, the lump sum or fixed fee method is most commonly used. This method can be used when the desired scope of services can be specified in some detail in the consultant's proposal. In addition to the specific services to be performed, the delivery time and the method of payment (generally on the basis of monthly invoices from the consultant) should be specified. Lump sum fees are becoming more frequently used for compensating consulting professionals on construction contracts when the scope of their assignment is well understood.

Probably the most common method for compensation of consultants involved in the design and supervision of construction projects is the percentage of construction cost method. This method assumes that engineering services relate directly to the cost of construction. This relationship does not always hold true and basing the fee on cost of construction offers little incentive to the consultant to minimize construction costs. When this method is used, the municipality may wish to examine the percentages contained in current manuals and reports of the American Society of Civil Engineers, the Standards of Service and Fees for Professional Engineers in Private Practice and Surveyors, and similar documents available through the professional societies. In general, the fee for basic services varies from about 5% to 15% of construction cost, depending mainly on project complexity and total cost. In addition to the basic services, which include the preliminary phase, the design phase, and the construction phase, a fee schedule in addition to the percentage of cost will normally be established for extra services. The extra services may include soils investigations, land surveys, inspection of construction, additional copies of reports and drawings, provision of "as built" drawings, grant applications, and

additional travel or expenses beyond those normally required.

Another compensation method involves the payment of cost plus a fee. There are several variations on this method. The "fee" may be a percentage of the direct costs, or it may be a fixed amount. The "cost" may include only direct costs, or it may include overhead. Again, further information on these methods will be found in material published by the professional societies. Any of these variations are appropriate when it is impossible to firmly define in advance the scope of services which are required. The cost-plus-fee method of payment may be useful in the exploratory phases of a project or for small projects, but use this method with caution and only when necessary since you lose some control over the cost of the consultant services. Agreements for cost-plus-fee compensation should usually specify a maximum amount which cannot be exceeded without written consent of the municipality.

The use of annual retainers may be appropriate when you need a consultant service for small tasks which occur irregularly throughout the year, or when you wish to be assured of the services of a particular consultant. The retainer agreement should specify the general nature of services to be provided, the term of the agreement, and the maximum amount of time the consultant will provide during the on-call term. Payments may be made as a lump sum, on the basis of monthly invoices, or through per diem (daily) or hourly rates.

When you need a consultant only now and then, per diem or hourly payments are handy, and are often used for court proceedings, personal services, special investigations or reports, and for consultation at municipal meetings. The quoted per diem rate may or may not include travel or other direct expenses. Per diem and hourly rates often cost more than a lump sum or cost-plus-fee payment for equivalent tasks, so for jobs which are fairly well defined and scheduled, it is usually to your advantage to pay a lump sum or cost-plus-fee.

In addition to the discussed methods, a combination of them is often used. For example, preliminary work on a construction project may be on a per diem or cost-plus-fee basis, and then as the job becomes more clearly defined, the payment method might be changed to a lump sum or other contract agreement. See figure 8.

The graph indicates an approximate range of engineering costs which you should anticipate. These are the costs for the basic services. As has been indicated, special or extra services are normally negotiated and agreed to separately. The graph illustrates that the percentage of construction cost which represents the engineer's fee is likely to vary with the size and complexity of the project. For small or complex projects, the percentage will approach 10%, while for large projects it can be expected to drop into the range of 4% to 6%. As has been indicated, you may want to enter into a lump sum or cost-plus-fee arrangement rather than compensation based on percentage of construction cost. However, for your planning purposes, the costs shown on the graph represent reasonable estimates regardless of the particular compensation method to be used.

OTHER MUNICIPAL CONSULTANT SERVICES

In addition to the engineering or architectural consulting services in direct support of a construction project, there are many occasions when you may need other professional assistance in the planning and programming of public works. While the consulting services discussed in the preceding sections have dealt mainly with design and supervision, other forms of consultant services are generally obtained to produce plans or reports concerning economic, management, administrative or similar aspects of municipal government outlined on the next page.

Examples of these kinds of consultant services include:

1. A geologist engaged to evaluate the possibilities of locating a municipal well field for a water supply; or a geologist engaged to prepare and submit soils and geologic data for a sanitary landfill permit.

TYPICAL BASIC ENGINEERING COSTS AS PERCENTAGE OF CONSTRUCTION COST

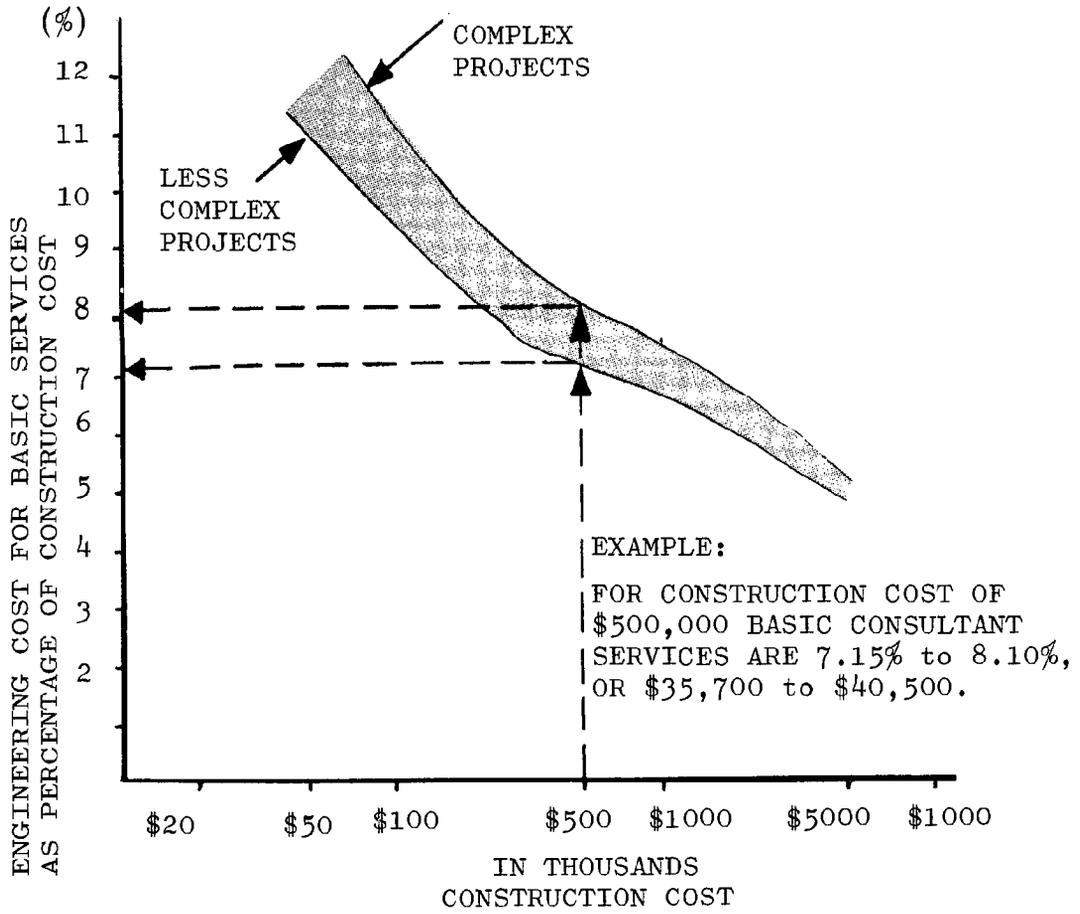


FIGURE 8

2. A municipal consultant obtained to study and make recommendations concerning the organization and management of the public works department of a municipality.
3. A specialist in computer services asked to investigate and prepare necessary computer programs for using automatic data processing in billings for public works services, inventorying equipment or roads, or for aiding in the purchasing functions.
4. A housing consultant utilized to aid in the administrative, management, and financial aspects of the development of public housing or urban renewal program.

These examples represent a few of the many areas in which public works related consultant services may be needed by your municipality.

You can obtain consulting services such as these through negotiated contracts, either on the basis of a proposal from a single consultant or through the evaluation of several proposals. Most of the contractual guidelines previously discussed for construction-related consultants also apply to other consultant services. For these other types of services it is often difficult to describe the exact nature of the services desired. It is therefore important that the scope of work as determined by the municipality and the scope of work as stated by the consultant in his proposal are in agreement. In such cases, you should refer in the contract to the consultant's proposal, making it by reference a part of the contract. Any amendments to the proposal agreed on during discussions should be written into the contract proper. This will have the effect of binding the consultant to carry out all activities, plans, and reports described in his proposal or agreed to in discussions.

Generally speaking, there are no fixed guidelines for the costs of these other types of consultant services. Costs are usually determined

case by case as a firm fixed price after the consultant and the municipality have discussed the proposed project in sufficient detail for the consultant to accurately estimate the amount of effort required for satisfactory performance. As an alternative to a firm fixed price, you may prefer to use a retainer or per diem method of compensation in circumstances similar to those discussed under construction-related consultant services.

EVALUATING AND SELECTING A CONSULTANT

Before engaging professional consultants for the support of public works projects, you should have as much information on hand as possible. Since subjective opinions concerning consultants are often based on hearsay or rumor, and are easily distorted by the background of those offering the opinions, it is suggested that you obtain factual information and firsthand impressions prior to making a selection decision. There are several approaches which can be used to gather the proper background for selection. In the following discussion these procedures are broken down into: General Selection Procedures, Interviews, and Reference Checks. Following these checklists you will find a proposal rating form which should be helpful to the consultant selection officials.

1. General Selection Procedure. The general procedure for the selection of profession consultants involves the following steps:
 - a. Review the general qualifications of a number of consultants who appear capable of performing the work.
 - b. Carefully examine qualifications, with emphasis on a check of references.
 - c. List the consultants in order of preference, based on qualifications, experience, reputation, personnel, existing work load, and philosophy.
 - d. Select from this list not more than five of the best qualified and interview them individually; provide each interested firm with a copy of your Request for Proposal document. Discuss the project and each firm's qualifications in detail to assure complete understanding of the project,

the firms's approach, and the requirements of the municipality.

- e. Evaluate proposals- interview again representatives of those firms whose proposals most nearly meet the needs of your municipality.
- f. Select the consultant firm which appears best qualified to carry out the assignment; agree on a detailed scope of work timetable, fee, and method of payment. Fees are normally discussed until final selection is made. The consultant may, if requested, indicate a general range of costs, but the selection decision should be based more on projected performance than on cost.

A CHECKLIST WILL HELP KEEP YOU ON THE TRACK DURING

Interview with consultants

Proposal evaluations

Selection of best qualified consultant

2. Specific Information from the Interviews. Some of the questions you should ask during interviews with the prospective consultants include:

- a. Who will be the Project Director?
- b. What programs has he completed?
- c. How similar were they to the proposed program?
- d. For whom were they done? (Names)
- e. What other references are available for checking?
(Are there objections to checking?)
- f. What other work load will the Project Director have?
- g. What is the extent of, and existing work load for, the supporting staff?
- h. What experience has the Project Director had in preparation of financial reports and applications for Federal monies?
- i. On the basis of what he knows of the project, does the Project Director see any approaches to further reduce the overall cost? Are costs underestimated? How much review will be needed?
- j. Would the consultant object to you hiring your own inspectors?

- k. Would the consultant be willing to work with other management consulting or administrative support firms if you chose to employ them?
- l. What is the general range of costs for the consultant's services (perhaps in terms of direct salary plus some figure)?

3. Reference Check Information. The kinds of questions you should ask of general references relate only to background and reputation of the firm and the Project Director. Those specific references for whom similar projects have been performed should be asked more detailed questions such as:

- a. What project was performed by the firm or the Project Director?
- b. Was the project done on schedule? Was the schedule realistic in terms of project objectives? How serious was any delay? When were you informed that the delay would occur?
- c. Was the project done within the budget? If not, how far was the total cost over estimate? How far was the consultant's fee over estimate? What reasons were given? How serious was the overrun? (If under budget, how far, etc.)
- d. Do you feel that communications between firm and municipality were adequate?
- e. What did you like best about the way the program was handled? What did you like least- what caused you the most frustration?

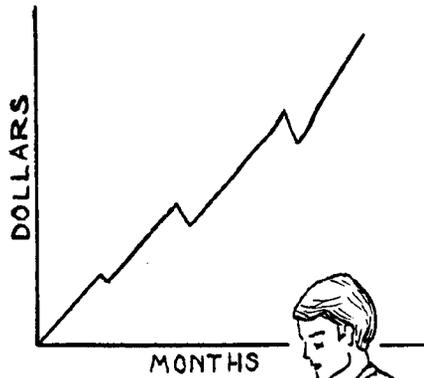
These are not necessarily the exact questions which need to be asked. The point is- establish the relevance of the firm's experience, and find out from people who have been in your situation, just what kinds of successes and problems they encountered.

In addition to the furnished references, it may be worthwhile to check with the R.I. Department of Community Affairs, Statewide Planning, the Department of Transportation, or other state agencies which may be familiar with the consultant's work. These offices may have suggestions to aid in defining the agreement with your consultant so that problems observed elsewhere can be avoided.

5

PROJECT FINANCING

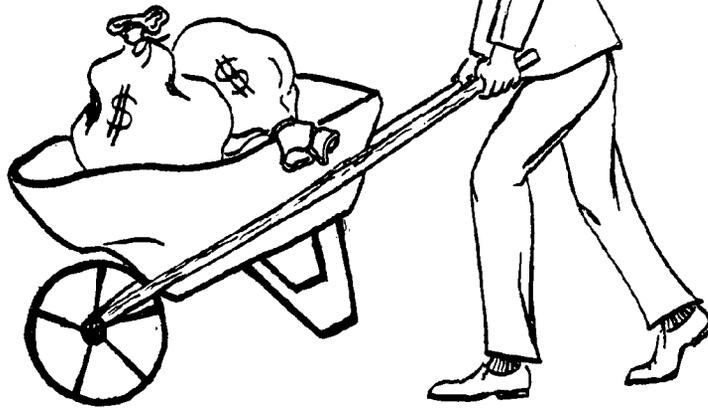
WHAT FINANCING
METHODS ARE
AVAILABLE
?



MUNICIPAL
AUTHORITY
?

SPECIAL FUNDS
?

BEST
METHOD
?



RECORDS AND
ACCOUNTING

ASSESSMENTS
?

SERVICE
CHARGES
?

CHAPTER
5
FINANCING PUBLIC WORKS PROJECTS

FINANCIAL METHODS

Previous chapters have discussed how you can determine the public works projects which should be undertaken, and how to assemble those projects into multi-year programs of activities. Your next set of tasks involves a study of the ways funds can be obtained and managed to finance the programs.

Public works financial management encompasses examining the various methods of raising money; choosing the most appropriate method for each project; reviewing sources of revenue including taxes, service charges and assessments; and providing methods to account for and control finance operations.

Although a municipal manager or staff may prepare much of your planning and proposed budget data, the governing body itself is ultimately responsible for the municipal financial program. This responsibility includes establishing a tax structure, a system of fees, service charges, assessments and other revenue sources; approval of a budget; and the control of expenditures and debt.

PAY-AS-YOU-GO

Pay-as-you-go financing should be used for recurring capital improvements- those that you need in some relatively constant amount every year.

Financing out of current appropriations is usually the least expensive method. It can be more expensive if a project is delayed for lack of funds, and, in the meantime, construction cost increases exceed the interest which would have been paid on borrowed money. Based on a public works program budget as described in Chapter III, a portion of your municipal funds are set aside each year for capital improvements.

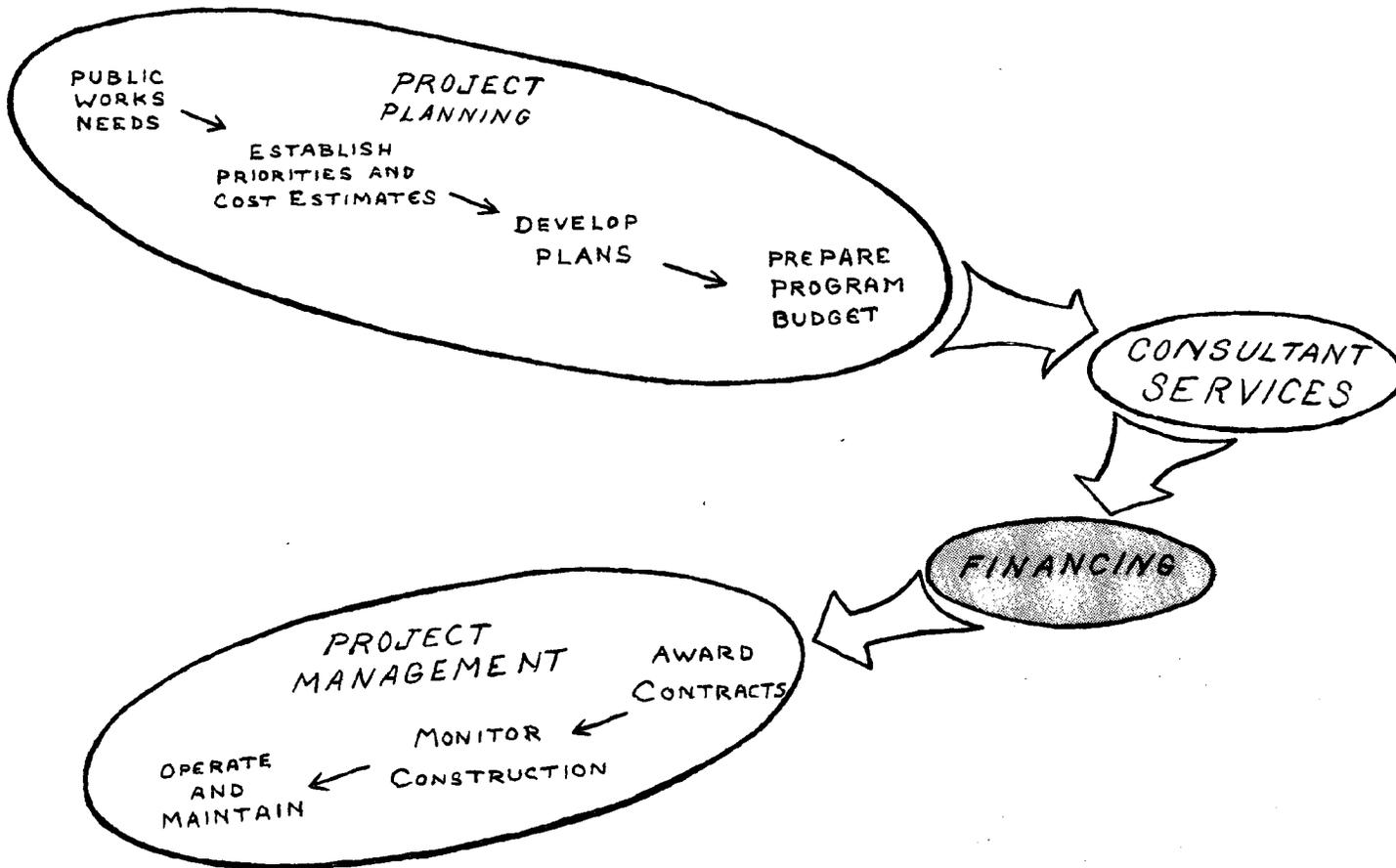


FIGURE 9

The amount budgeted should normally be a fairly consistent percentage of the total available revenue. This percentage will be influenced by the need for public works projects in a particular year as compared with the needs for other municipal services.

Most capital improvements based on a pay-as-you-go program will be supported by general tax revenues.

A capital reserve fund is similar in ways to the Revolving Fund discussed elsewhere in this chapter. However, a separate capital reserve fund is most often established for a specific purpose, where a revolving fund usually has more general uses. As many capital reserve funds may be established as are needed. When deciding how many future capital items can be combined into one fund, a major factor to keep in mind is the possible difficulty in administering a large number of funds. For example, if a bulldozer and two dump trucks are being planned for purchase within the next several years, it may be advisable to establish a single capital reserve fund for major rolling equipment. If you take this approach, your multi-year program budget and plans should reflect clearly when you will purchase each of the items, and this should correspond to the balance in the fund.

Year of Purchase Items Desired	1	2	3	4	5	6
Bulldozer					\$35,000	
Dump Trucks			\$11,000			\$11,000
Balance at start of year	\$ -0-	\$9,000	18,000	\$16,000	26,000	\$1,000
Plus transfers to Capital Reserve Fund	\$9,000	9,000	9,000	10,000	\$10,000	10,000
Less expenditures	-0-	-0-	11,000	-0-	35,000	11,000
Balance at end of year	\$9,000	\$18,000	\$16,000	\$26,000	\$1,000	\$ -0-

The chart above is an example of transfers, expenditures and balances in a typical capital reserve fund for rolling equipment. As can be seen, purchases are planned for the third, fifth, and sixth years. The fund be-

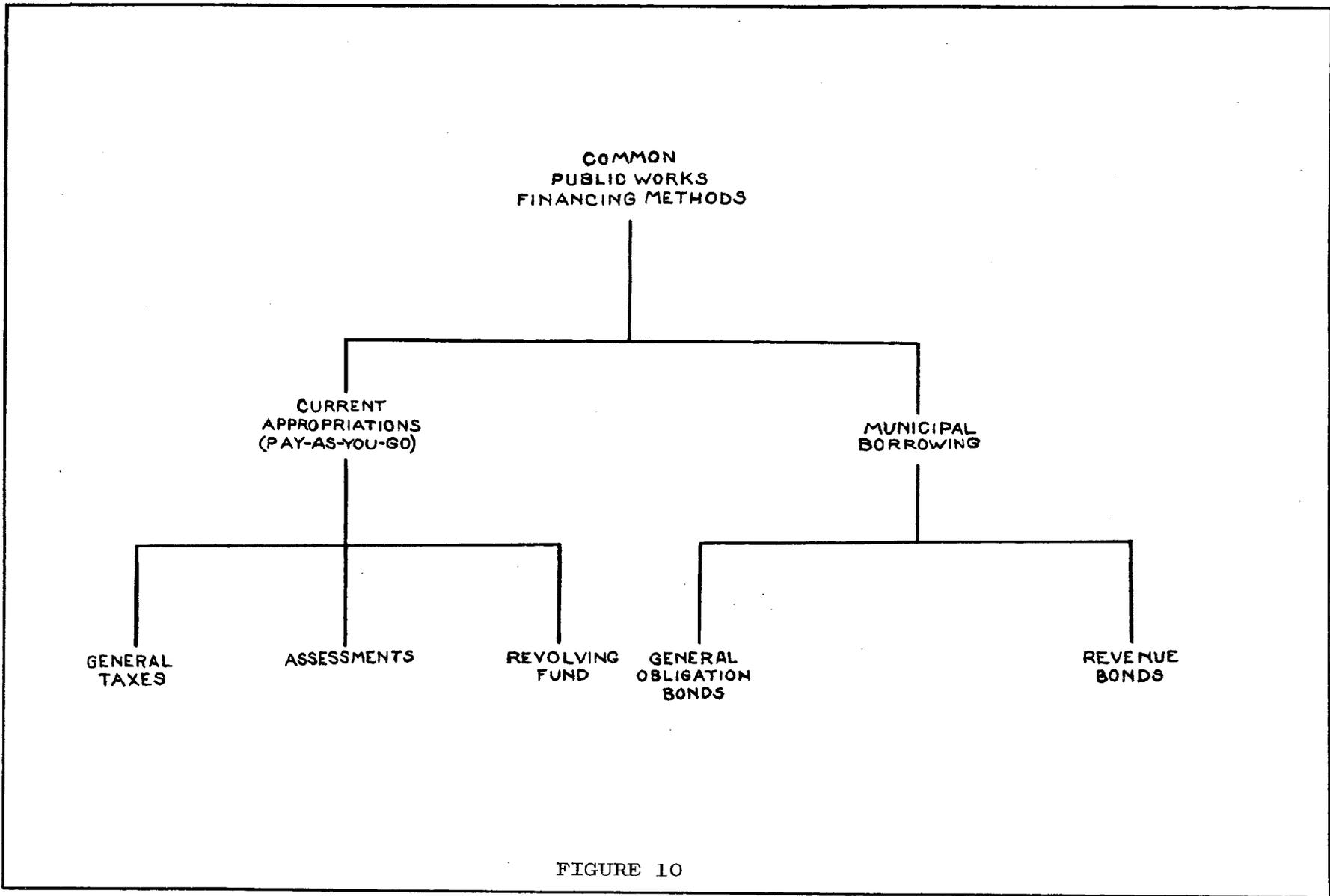


FIGURE 10

gins with a zero balance at the beginning of Year 1, and the transfer from the General Fund is \$9,000, resulting in a year-end balance of \$9,000 since no expenditures were made. This year-end balance becomes the new balance for the beginning of Year 2. As can be seen, in Year 3 the transfer is made, but an expenditure for one of the trucks is also made, leaving a year-end balance of \$16,000. This process is continued until the example shows a zero balance after six years.

The capital requirements and the amount of annual transfer to the Capital Reserve Fund should be examined each year when the municipal budget is being prepared. When you can project eight, ten or twelve years in the future, it may be possible to reduce the amount of the annual transfers from the General Fund. It is desirable to keep the annual transfers as constant as possible to avoid variations and strains on the overall municipal budget.

Although the simplified example did not reflect the effect of interest received, the Capital Reserve Fund should be placed in approved interestbearing accounts or investments to increase the purchasing power of the Fund. Since the withdrawal time is known, you may be able to make longer term investments, resulting in improved return.

It is well understood that as time passes, and your plans and program budget change in response to changing needs, excess money may accumulate in one or more Capital Reserve Funds. When this occurs, you may transfer money back to the General Fund. In addition, it may become desirable to transfer money between funds to meet changed demands. These procedures are completely proper when the transfer is between Capital Reserve Funds; however, careful bookkeeping and accounting are required.

The establishment of Capital Reserve Funds as pay-as-you-go mechanisms requires considerable self-control by the municipal officials because it is often tempting to defer or skip the payment of an annual tran-

sfer. Such deferment should be avoided unless made absolutely necessary by emergency municipal problems. The Capital Reserve Funds should be planned in close harmony with the multi-year program budget described in Chapter 3 since each is dependent on the other for success.

With the increasing demands for services and, therefore, increasing demands on the tax dollar, you should give particular thought to the increased use of special assessments and service charges for certain public works functions. Both service charges and special assessments are imposed for specific services or benefits realized by an identifiable part of the population of the municipality.

Service charges are defined by the Bureau of the Census as "amounts received from the public for the performance of special services benefiting the person charged." On the other hand, special assessments are charges levied against real property to cover all or part of the cost of public works improvements which are assumed to increase the value of the property. Neither special assessments or service charges are deductible from personal federal income taxes. This factor should be taken into account since, if the improvement or service were provided through a local tax increase, the tax would be a deductible item for the residents of the municipality.

Below is a listing of typical public works services and projects which can logically be financed through service charges or special assessments.

SERVICE CHARGES	SPECIAL ASSESSMENTS
Municipal Building Rental Sewerage Connection and Use Solid Waste Collection Parking Lots and Garages Library (Non-resident Users) Zoning and Subdivision Administration Removing Nuisances and Dangerous Structures	Sidewalk and Curb Construction Sewerage Lines Water Mains Storm Drainage

It should be pointed out that tax-exempt institutions such as schools, colleges, hospitals, and churches should contribute to the costs of the

service provided. When compared with services provided out of tax revenues, the charges collected from tax-exempt institutions should tend to lower the costs for the average householder.

The Tax Foundation, Incorporated, 50 Rockefeller Plaza, New York City, has published a booklet entitled "Special Assessments and Service Charges in Municipal Finance" which provides further useful information on the advantages, disadvantages, and methods concerning these subjects. In addition, you should study the appropriate State Laws which contain specific limitations and regulations on the use of special assessments and service charges.

REVOLVING FUND

The use of a revolving fund for financing public works projects is a combination of pay-as-you-go and deferred-payment financing. A revolving fund represents a pool of money set aside for permanent improvements or extensions of streets, sidewalks, water mains or sewer systems. You may establish the fund through a general obligation bond issue. When assessments are used to pay for improvements financed by the Revolving Fund, all money collected through the assessment procedure should be returned to the Fund.

The Revolving Fund provides a means to collect sufficient amounts of money to finance large projects, and once the Fund is established, the need to borrow money or issue bonds can be reduced. As illustrated, when the Revolving Fund is used for a particular project, a schedule of repayment should be drawn up and payments pumped back into the Fund on a regular basis. Just as in the case of a capital reserve fund, the money in the Revolving Fund should be invested in an approved manner so that interest payments will benefit the municipality. The investments must be such that funds can be withdrawn when needed to undertake specific projects.

In addition to the pay-as-you-go and revolving fund approaches to financing, there are other financing methods which involve deferred payments of one kind or another.

MUNICIPAL BORROWING

Municipalities may use several deferred payment approaches to funding public works projects. These deferred payment plans usually become necessary when needed projects exceed ability to pay-as-you-go.

Indebtedness of cities and towns are regulated by the General Laws of the State of Rhode Island (specifically Chapter 45-12).

A municipal debt through bond issues pledges the credit of the municipality, and the debt is backed up by the municipal taxing power. In other words, the debt agreement and the law guarantee that the municipality will provide sufficient tax revenue to liquidate the debt according to a definite schedule.

To assure this, the General Laws of the State of Rhode Island (Chapter 45-12) has placed a limit on the amount of money your municipality may borrow. Since the redemption of the bonds is based on tax revenue, the limit has been established as a proportion of the assessed valuation of property. At present the city and town borrowing law specifies the aggregate debt limit at 3% of the assessed valuation.

Any city or town may assess its ratable property in any one year in excess of $3\frac{1}{2}\%$ of its ratable value, provided such excess shall be used wholly and exclusively for the purpose of paying the indebtedness of such city and town; provided, further, that whenever it shall appear that the valuation of the ratable property of a city or town as fixed by the assessors will not yield the amount of tax legally ordered by the electors.

For this purpose the State Director of Administration may, upon petition by the city or town council authorize such city or town to incur

indebtedness in excess of the limit of three percent (3%) upon presentation of satisfactory evidence that such a course is warranted.

Municipal borrowing brings to mind "credit ratings" and it is worthy to note prudent fiscal policy can be beneficial to a community's ability to borrow at lower rates of interest.

It is suggested that three (3) criteria be established in order to maintain a prudent debt limit. Three criteria can be stated as ten percent (10%) of the total assessed valuations, fifteen percent (15%) of the valuation of real property and up to \$375 per capita of bonded indebtedness. All three criteria should be weighed in order to establish a prudent debt limit for the community.

Municipal Bonds

Municipal bonds are issued as certificates having face values such as one, five or ten thousand dollars. The certificates promise to pay a specified amount of interest, usually twice a year. At the end of a number of years, also specified in the certificate, the bond must be redeemed, or "bought back" by the municipal bonds are underwritten or purchased by investment banks which, in turn, offer them for sale in the open securities market.

General Obligation Bonds

General Obligation bonds pledge the full faith and credit of the taxing powers of the municipality. Other major characteristics of general obligation bonds include:

A maximum term of thirty years, and the term should not exceed the life of the capital improvements being financed.

Serial bonds, in other words, a certain proportion of the bonds, must come due every year.

A sinking fund (described below in this chapter) must be established, into which money is paid for further disbursement for interest and principal on the bonds.

Bonds must be sold through advertisement to the highest responsible bidder, and the price may not be less than the par value of the bonds.

Denominations of the bonds must be at least \$100, with \$1,000 to \$5,000 per bond more common and desirable.

A tax sufficient to pay the interest, principal, and taxes must be levied by the municipality.

To facilitate the sale of bonds, it is a good idea to obtain the services of an experienced bond counsel. His duties include preparation of the bond certificates and legal opinions. He may also aid in preparing a "prospectus" which is a small booklet containing the background and facts surrounding the sale of the bond issue. A prospectus will often aid in the sale of the bond issue. The use of qualified counsel will generally make the bonds easier to sell at good terms. Acquiring good legal advice from the beginning is the best way to avoid costly mistakes.

As mentioned above, a sinking fund, similar to a capital reserve or revolving fund, must be established. The Sinking Fund becomes a "pipeline" through which the interest and principal payments are made on the bond issue. Each year the municipality must place in the sinking fund an amount adequate to cover the interest and principal bond costs for the current year. Payments into the Sinking Fund may be from taxes collected for the bond issue purposes, from assessments, or the payments may be made from the General Fund. After the annual disbursements are made from the Sinking Fund, any excess money may be invested in Federal, State or municipal bonds, or in approved banking or savings and loan institutions.

The money received from the sale of general obligation bonds must be used for the purpose originally stated in the initiating ordinance. Any excess funds not needed for the project must be placed in the Sinking Fund.

Other Bonded Indebtedness

Although general obligation bonds are the most common method of financing long-term debt, the law provides for several other methods.

Since the other methods are not used frequently, they will be mentioned only briefly.

Non-debt revenue bonds are similar in some ways to utility bonds; however, the municipal codes allow a wider range of applications. Non-debt revenue bonds may be used for construction, acquisition or improvements to:

Water Systems	Airports, terminals, hangars
Sewer Systems	Park and recreation facilities
Sewage disposal systems	Parking lots and facilities
Gas plants and lines	Solid waste disposal systems
Electric light or power plants and distribution systems	

The interest and principal payments on non-debt revenue bonds are made from rents, tolls, service charges or other forms of revenue realized from operating the project. The municipality must pass the required ordinances imposing the service charge, rent or other costs, as well as an ordinance authorizing the bond issue.

Since non-debt revenue bonds are secured by expected revenue from the project rather than from the taxing power of the municipality, they are not counted as part of the municipal debt. On the other hand, since these bonds are less secure than municipality-backed bonds, the interest rate is likely to be higher and the bonds may be more difficult to sell.

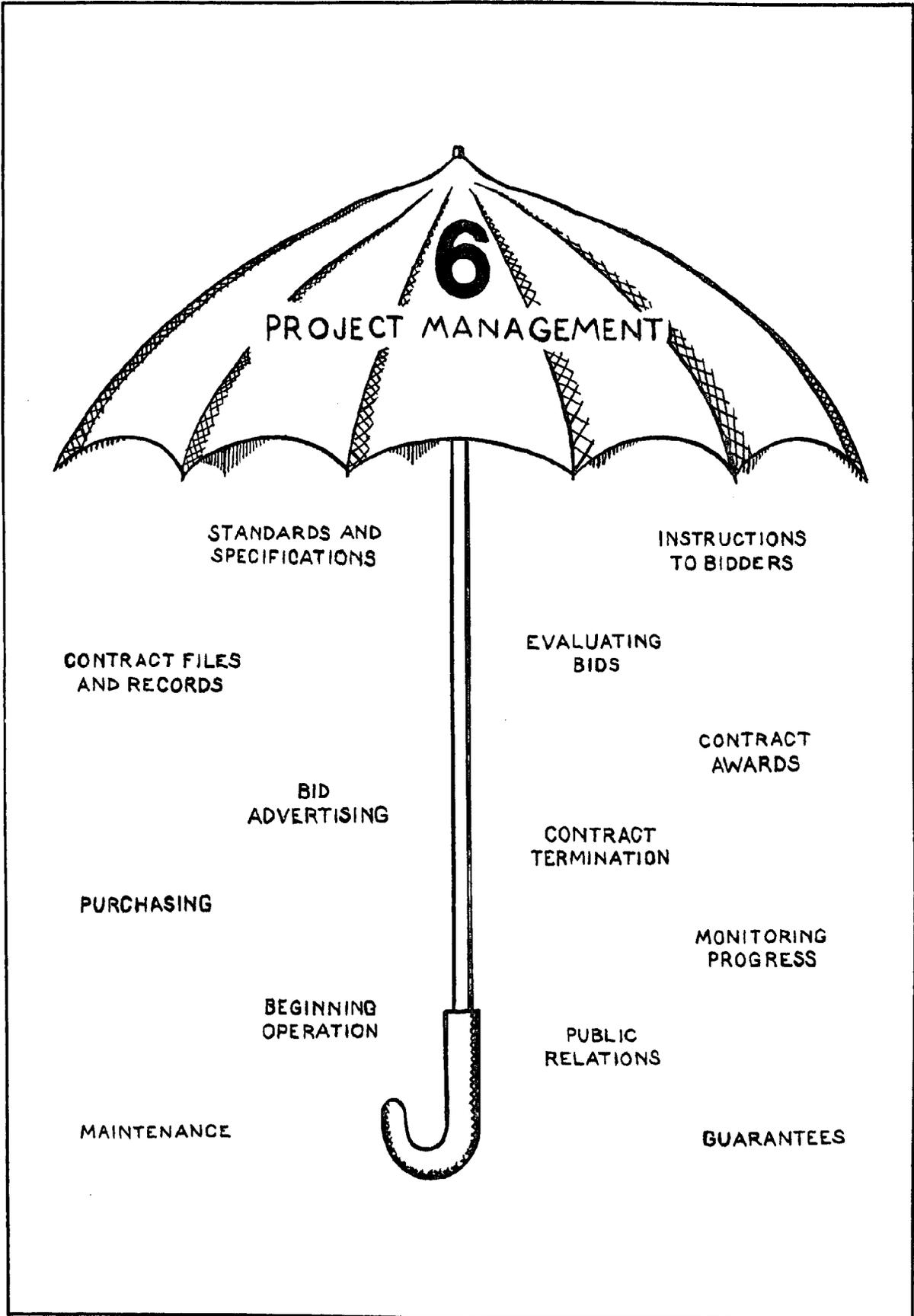
Project Costs

When an estimate is made for the cost of construction of a project to be financed through a bond issue, you should keep in mind that there are a number of other expenses which accompany the basic construction cost. These will include legal fees, trustees fee, insurance, interest during construction, printing costs, engineering and surveying fees, and

others. Thus the money to be raised through a bond issue is likely to be considerably more than the actual cost of construction. Although these extra expenses vary considerably, typical values as a percentage of construction cost are shown below:

Construction Cost	100%		100%
Engineering, Legal, Administrative	17%	to	23%
Financing Cost	3%	to	6%
Interest During Construction	5%	to	9%
Contingencies	8%	to	12%
Total Cost	133%	to	150%

The total cost is approximately the amount needed for the bond issue, although costs for operating the project for several months or a year after construction may be also included. As an example, for a typical \$500,000 project, the total costs, including the expenses indicated above, can be expected to range from \$665,000 to \$750,000. During preparation of the project financial report by the consultant, the extra expenses will normally be estimated and included in the report to provide you a complete picture of the total costs.



This chapter provides information and guidance with respect to your responsibilities and duties after a project is designed and financed. By then the remaining tasks are to enter into a construction contract and get the job done. At the end of the chapter there are short sections on the management of public purchases and other project-related duties.

The management of municipal public works projects involves the same major elements as any other management role. To get things done you must:

Assure that contract documents contain all desired elements of the project.

Make sure that contract documents properly spell out the technical, financial, and time schedule responsibilities of the contractor.

Review project progress and assure that actions are promptly taken to correct problems which arise.

Be certain that, upon completion, the contractor has fulfilled his obligations before final payment is made and the project accepted.

In this chapter, each of these tasks is described and guidance for accomplishing them is presented.

PUBLIC WORKS CONTRACTS

TYPES OF CONTRACTS

There are generally two categories of construction contracts-negotiated and competitive-bid. A negotiated contract is entered into with one or more selected contractors. A competitive-bid contract is open to all appropriate contractors, and is awarded to the lowest qualified bidder.

Negotiated Contracts

Negotiated contracts are permitted for small purchases, and in obtaining services, since competitive bidding is required by law for most public works construction. When the level provided by law will be exceeded, competitive bidding procedures must be followed.

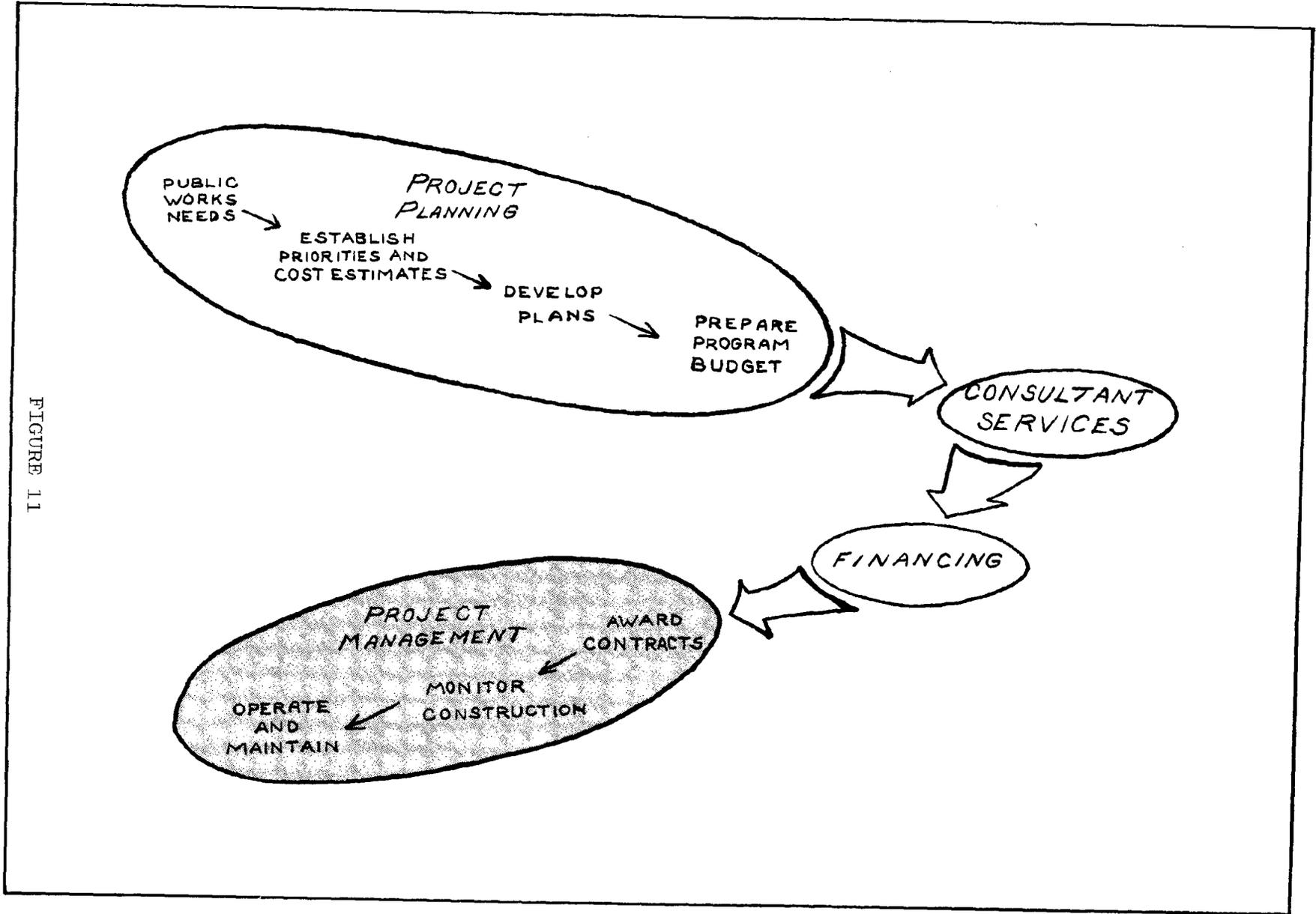


FIGURE 11

Competitive Bid Contracts

There are two basic types of competitive-bid contracts. One is known as the Lump-Sum Contract and obligates the contractor to perform the work according to the plans and specifications for a specified sum of money. The main use of this type contract is on projects for which the plans and specifications are complete in detail before requesting bids. This procedure allows the municipality to know the cost of the project in advance. This type contract is not advisable when plans and specifications are incomplete because the resulting bids will generally be excessively high. Change orders after construction has begun can be costly and lead to disputes.

The second competitive bid contract type is known as the Unit-Price Contract and is advantageous when the work requires quantities of relatively few types of construction and the quantities cannot be accurately identified in advance. The contract is based on an estimate of the number of units needed and a price per unit. The contract provides for compensation to the contractor for each actual unit constructed at the agreed upon price. The estimated quantities at the proposed unit prices submitted by bidders are used in comparing the bids. A great deal of variation is permitted in this type contract without the need for formal change orders as long as the items of work remain generally the same as indicated in the initial contract. The magnitude of the project need not be delineated at the beginning of construction; however, the detailed plans and specifications per unit must be complete before the bidding process begins.

Another type contract is available which is a combination of lump-sum and unit-price contracts. It is advantageous when a definite number of items can be covered by the lump-sum feature and an indefinite quantity of items, fixed in detail, can be included in the unit-price method.

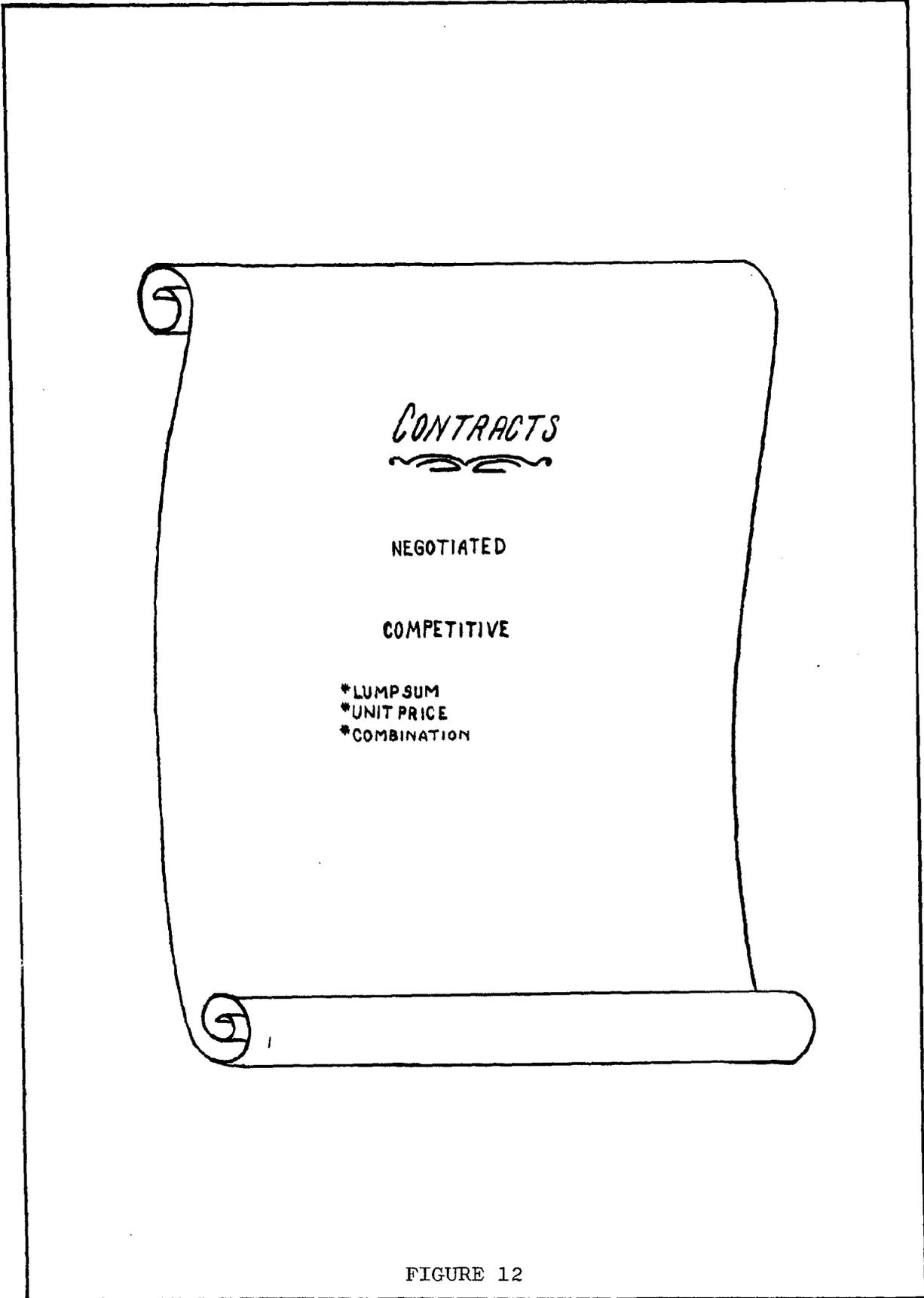


FIGURE 12

OBTAINING AND EVALUATING BIDS

For most public works projects undertaken by municipalities, ordinances of the community require a formal advertising for bids and subsequent invitation for bids. Normally the advertisement and invitation to bid will be prepared by the municipal consultant or Solicitor; however, it is advisable that the elected officials take part in this process or review the documents to assure that their particular requirements have been fully interpreted and incorporated.

Bidding Procedures

The first step is the formal advertisement. The appropriate municipal codes specify the number and timing of the advertisements with response to the bid opening time. It is desirable to allow at least two weeks for small projects, and up to several months for large and complex projects. In addition to the legal requirement of advertising in local newspapers, on large projects it is often desirable to advertise in trade journals with a general readership among the contractors, manufacturers or dealers who provide the material or services required.

The advertisement should be brief and clearly written. It must contain, as a minimum, the following items:

1. Name and address of the municipality requesting the services or material, and the name and address of the person authorized to receive the bids.
2. The time, date, and place set for the opening bids.
3. A brief description of the desired work, its scope, and its location. This description should be prepared so as to attract only capable bidders.
4. Restrictions relative to submission, change or withdrawal of bids.
5. The amount and form of the bid bond and the method of its return to unsuccessful bidders.
6. The amount and type of performance bond which will be required, as well as insurance requirements.
7. The location and time at which plans and specifications may be received by the contractors and the provisions for a deposit on the plans, and recovery of the deposit when the plans are returned.

OBTAINING AND EVALUATING BIDS

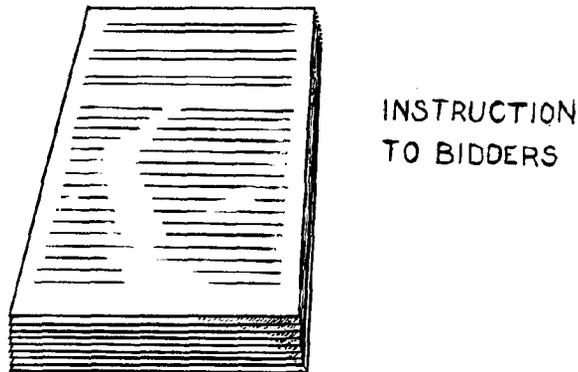
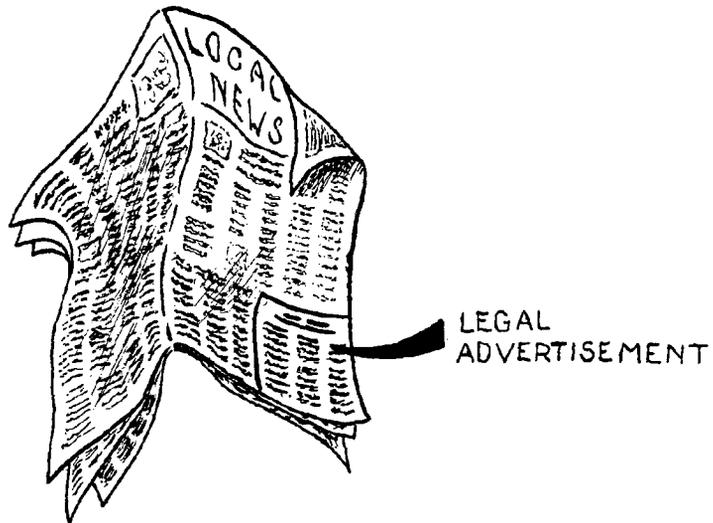


Figure 13

8. Name and address of the engineer, architect or other professional consultant responsible to the municipality for the project.

Following advertisement of the upcoming project, a set of Instructions to Bidders is supplied to those firms or persons responding to the advertisement. The Instructions to Bidders are intended to provide each bidder with identical information to define for him what is expected in his bid. The Instructions to Bidders follow the same general format as the advertisement, but go into considerably more detail in the requirements, and include as a part of the Instructions a standard set of bid forms to be used by each bidder. In addition to the information for the advertisement, the following topics should be addressed and reviewed by the municipal governing body.

1. Preparation of Proposal. In order to eliminate confusion and assure that all bids are consistent, it is usual to insist in the Instructions that blank bid forms furnished with the Instructions must be used and all blank spaces filled in.
2. Qualifications. It is often desirable to insert a clause in the Instructions to the effect that the municipality may wish to examine the qualifications of the bidder and that the bidder may be requested to provide such information and data as the municipality may require. If such information indicated lack of skill, ability or integrity on the part of the bidder, this becomes the basis for rejection of the bid.
3. Withdrawal. This deals with the right of the bidder to withdraw his bid as long as his written request for withdrawal is received by the municipality prior to the time and date of the bid opening. The bidder is held responsible that the withdrawal notice is received prior to the bid opening.
4. Naming of Subcontractors. To avoid unforeseen changes, it is advisable to require the bidder to identify his principal subcontractors, and to prohibit changing subcontractors without approval of the municipality's consultant engineer or architect.
5. Interpretations. All bidders must be treated as equally as possible. To aid in this, the Instructions should contain a clause indicating that any questions on interpretations of the plans, specifications or other documents must be given to the municipality consultant in writing prior to a specified date. Written responses to the questions should be provided to all bidders in addition to the bidder making the request.

6. Bidder's Obligations. The Instructions should include a statement that the bidder is presumed to have investigated and examined the plans and all other contract documents, as well as the site, and that it is assumed his bid is made with full knowledge and understanding of the conditions of work. The municipality should also state that previous test data, core borings or similar information is for information purposes only and that the municipality is not responsible for correctness or completeness of the data.
7. Lowest Qualified Bidder. The municipality should specify that the lowest qualified bidder will be awarded the contract.

Plans and Specifications

In the preparation of plans and specifications for contracted work or materials, there are two basic problems-

1. The specifications may be so loosely drawn that the municipality fails to receive the desired results.
2. The specifications may be so unnecessarily restrictive that all contractors will bid high in order to protect themselves at the expense of the municipality.

The aim of good specifications and standards is to provide the bidders directions which will enable the successful contractor to complete the project as desired by the municipality at a reasonable cost. The only basis a contractor has for judgement is through his reading and interpretation of the plans and specifications.

There are several characteristics of good specifications which municipal officials should look for and expect from the person who prepares the plans and specifications.

Clarity. The contractor must be able to understand what you want, and he can do so only from clearly defined requirements in the specifications. When a project is underway, inspectors are responsible for fulfilling the letter of the contract. If the requirements are not clear to the inspector, you can expect disagreements and friction with the contractor, requiring excessive consulting engineer time in clearing up disputes over details.

Definite Requirements. Once in a while it is necessary to include a statement that some portion of the labor and materials in a project are to be furnished "as the engineer shall direct." However, such a statement gives contractors little or no basis for making a bid, and can only increase the cost of a project. Sometimes specifications may appear to be definite requirements when, in fact, they are not. Consider, for example, a specification for 100 cubic yards of earthfill. The amount of earth involved varies greatly, depending on whether the fill is measured before or after compaction at the delivery site, or measured by computations made at the burrow area.

Standard Specifications. The use of standard specifications is encouraged wherever possible. The American Society for Testing Materials (ASTM) publishes a multi-volume set of standards for nearly every category of construction materials. There are also various trade groups such as the Asphalt Institute, Cast Iron Pipe Research Association, Portland Cement Association, and the National Corrugated Steel Pipe Association which will provide standard sets of specifications for their particular products.

The specifications produced by trade associations and technical societies have generally been well thought out after years of testing and experience. Because of their technical quality and the fact that bidders are generally familiar with them, the use of standard specifications will usually benefit a project by reducing uncertainties and generating a more favorable set of bids.

Another convenience of using widely known standard specifications is that you can refer to them rather than reprint them in the bidding documents.

In addition to the associations mentioned above, nearly all large manufacturers have developed and are willing to supply standard specifications

for their products. If you wish to use them, you should request specifications from several of the larger manufacturers and combine the best from each. It will usually be necessary to broaden the specifications so that a minor but unique feature of one particular product will not eliminate all competition. For example, a specification received from a manufacturer for a lighting standard may specify that "the arm shall be fastened to the pole by means of hex head bolts and nylon insert lock nuts." Including this statement in the specifications might eliminate all competition, thus a better specification in this example might state the required strength and vibration resistance of the mounting rather than the specific nuts and bolts to be used.

Brand Names. You may wish to include one or more preferred brand names in the specifications; these brand names should be accompanied by an "or equal" clause. It is unlikely that you or your consultant will be aware of all possible appropriate items for a particular job. Permitting the contractor an opportunity to express his own ideas is good practice and could improve the overall project. However, the specifications should state that the contractor shall name in his bid the brands he intends to use. This becomes a commitment on his part that cannot be changed after the contract is signed. This procedure will have the effect of causing the contractor to get best prices beforehand and incorporating them into his bid. If he is able to "shop around" after contract award, the contractor, rather than the municipality, usually benefits from the shopping.

Bid Evaluations

Remembering that competitive bid contracts must be awarded to the lowest qualified bidder, you will find it advisable to define the term "qualified." The definition should include such considerations as the quality of previous work, record of completing projects on time, history of payments to subcontractors and suppliers, maintenance of a permanent

place of business, adequacy of equipment and plant to do the job, the adequacy of technical experience, and, finally, whether the bidder has a solid financial base to assure contract completion.

If the outcome of the bid opening is not satisfactory in terms of price, bidder's characteristics or for other reasons, it may become desirable to modify the contract specifications and rebid the project. Before taking this action, your legal, financial, and technical advisors should be consulted. Changes in equipment specifications, bonding requirements, schedules or timing and other project requirements may be modified to obtain a more suitable set of bids.

CONTRACT CONTENTS

This section highlights several specific articles of typical public works contracts which you should carefully check before entering into a public works contract. The standard preamble and other legal material will not be treated since the municipal Solicitor or legal advisor should routinely handle that part of the contract. The items discussed here relate to the scope of work and the degree of operational control and management to be exercised by you and your consultant through the contract document.

Standard Forms

The rights, duties, and responsibilities of the contractor and the municipality are defined in the contract. Standard contract forms are generally available from professional associations and from the government. However, in addition to the standard form a number of supplemental articles must be drafted and attached. There is no particular order for including the supplemental articles. The following articles are typical of those often contained in public works construction contracts and are of the type which should be reviewed by the municipal officials.

Supplemental Articles

Statement of Work. This article is particularly important since the contractor is bound to do only the work specifically defined and referred to in the statement of work. All desired items must be included, either by describing them or by referring to descriptions in other supplemental documents such as the plans and specifications.

Extra Cost Claims. An article should be included which indicates the method by which changes in the scope of work are made. Such requests for changes should be made in writing and approved by the consultant before the change is undertaken. You may alter, add or subtract portions of the work without invalidating the original contract as long as the contract sum is adjusted accordingly. The amount of change costs should be limited usually to no more than 15%. All changes should be executed under the conditions of the original contract except that claims for extensions in construction time should be adjusted at the time such changes are ordered. The consultant should have the authority to make minor changes which do not involve extra cost.

Holdback of Payments. In order to protect itself from damages not evident during the construction, the municipality should include an article defining a percentage of cost (often 10%) to be withheld until such time as all claims have been satisfied. In addition to possible claims, the holdback provision may be used if there is some question as to whether the contractor can complete the job with the balance of payments due. Typical damages against which the municipality can protect itself include: Failure of the contractor to pay subcontractors or pay for materials; defective work which must be corrected; property damage claims by individuals; or damages to another contractor.

Authority of the Consultant. It is advisable to define in the contract the role of the consultant (engineer, architect, landscape architect, etc.) relative to the contractor. The consultant should have the

power to stop work, to redirect the use of labor and materials, to increase or decrease the work force, and to accept or reject materials and work which do not conform to the conditions of the contract. The consultant's decision concerning technical aspects of the work should be final.

Subcontracts. The article concerning subcontracts should specify that the contractor must identify all subcontractors and that the competency of all subcontractors shall be determined by the consultant. The contractor should be held fully responsible for the performance of his subcontractors. The article should also prohibit the contractor from subcontracting more than a stated portion of the work.

Final Clean-Up. The contractor should be required to remove, at his expense, within a specified time after completion of the project, all equipment, excess material, rubbish, trash, and other material which he or his subcontractors brought to or created at the site during construction.

Contractor Liability. The contractor should be required by the contract to maintain insurance that will protect his firm, the municipality, and municipal officials from claims arising from workmen's compensation or other damage claims which may arise from operations under the contract, whether the operations are performed by the contractor, a subcontractor or anyone directly or indirectly employed by either of them. The amount of insurance may vary by area or contractor, however, minimum amounts should be specified, such as \$50,000 public liability and \$20,000 property damage. The company underwriting the insurance should be approved by the municipality and certificates of such insurance should be filed with the municipality if so desired.

Licenses, Permits, Regulations. The contractor should be made responsible for obtaining all licenses and permits that may be necessary

for the execution of the work, such as water tap-in or State highway cut permits. He should be required to give all notices and comply with all laws, rules, and regulations pertaining to conduct of the work. If the contractor performs any work knowing it to be contrary to regulations, rules, etc., and without written notice, he should be responsible for all costs arising from the violation.

Bonding. Performance bonding is required on most public works projects. The contractor is required to deliver an executed bond, generally for 100% of the contract amount. The bond insures faithful performance of the contract and payment of all persons performing labor or furnishing materials for the contractor.

PROJECT MONITORING AND REVIEW

When a project contract is awarded and work begins, your role as a municipal official is not over. Projects which are successfully designed, specified, financed, and bid can get into serious trouble during construction. Poor quality of work, excessive costs, and delayed time schedules are typical problems. Although you can probably recover damages or have work corrected by the contractor, it is far better to maintain adequate visibility and control over the project as it progresses, in order to prevent problems from occurring in the first place.

The engineering or architectural consultant generally has basic responsibility for inspecting and monitoring the contractor's work. It is important that the municipal officials receive, understand, and react to the consultant's reports. The members of the governing body must be kept fully informed since they are ultimately responsible for properly spending the public money. Being kept fully informed depends on the use of a good progress reporting scheme which contains concise and essential information. You also need an effective inspection system and knowledge of how to correct problems once they have been detected.

PROGRESS REPORTS

It is essential that the municipal officials or the authority are supplied with factual progress reports. It is also important not to be burdened with too much data, or with information which is not clear and understandable. The municipal officials and the consultant should agree on a report format, report contents, and how often the report should be submitted. There is no firm rule concerning how often progress reports should be submitted; in general, the reporting periods should be short enough so that problems can be detected and corrected before they become serious. For projects of a year or more, monthly reporting periods are often appropriate. For projects of four to eight months, you may want a report every two or three weeks.

The reports should be brief but complete, and should be so designed that they can be quickly prepared and reviewed.

A portion of the form should contain data identifying the project and its major characteristics. Following that a status summary for the current month and the previous month in terms of cost and schedule. If no trouble is indicated, it may not be necessary for the municipal official to continue the review in detail.

The "milestones" section of the report is particularly important. Milestones should always be established as the points in time at which specific and identifiable parts of the project are to be completed. As these milestones are reached, they are so indicated in the report. Failure to meet a milestone can be readily evaluated in terms of what the total effect on the project is likely to be. By investigating this problem, it can be determined whether or not the delay is likely to affect the total project.

For large projects (e.g., sewage collection and treatment), it will often be helpful to use separate reporting forms for different parts of

the overall project. In the sewer example, separate reporting may be needed for the interceptors, collection lines, laterals, pumping station, and treatment plant. The need, if any, for dividing a project into parts, should be determined through discussions with your consultant.

When several forms are used, a summary sheet may be needed to provide an overall status report of the total project. The summary should include the major points from each progress report so that you can quickly identify if and where problems are developing in time to take corrective action.

INSPECTION PROCEDURES

One of the important keys to the proper construction of a project is the quality of the inspection services.

THE INSPECTOR'S BASIC DUTIES ARE TO--

-
1. Insure that the construction methods and materials are in accordance with contractual requirements.
 2. Check and record daily progress on all parts of a project.
-

The inspectors are directly under the supervision of the municipal or consulting engineer and their reports should be turned over to him. The engineer will also assign specific inspection tasks to the various inspectors.

The inspectors, although supervised by the engineer, may be hired and paid either by the consultant engineer or by the municipality. Although it is common practice for the consultant to hire inspectors, there may be advantages to the municipality hiring its own inspectors. These can be summarized as follows:

1. The consultant's overhead costs are not added to the inspectors' salaries and passed on to the municipality. If you have payroll and administrative services, municipal overhead costs will be small and considerable savings may accrue. These savings should result even when the municipality pays somewhat higher salaries.

2. The municipality can hire local people who should be more conscientious inspectors since they have a future stake in the project. Hiring local people is also an economic benefit to your community.
3. Inspectors should be well paid. It is more likely that a poorly paid inspector will get involved in conflict of interest with a contractor than a well-paid one. In addition, the job of an inspector requires a certain amount of technical skill and understanding, and it also requires that he carry out his job in a complete, firm, and careful way. To obtain men with the needed capabilities, pay should be adequate. A few thousand dollars in additional salary is generally a small amount compared with the total construction cost.
4. When feasible from a technical standpoint, inspectors should be rotated periodically to different parts of the job. This gives the inspectors a broader basis for comparison of work quality and progress, and discourages the development of close personal relationships with construction crews.

In addition to the usual tasks of checking the contractor's work, the inspector will often be a contact point between the municipality and citizens, traffic police, utility companies, businessmen, and other. For this reason, he should present a good municipal image and be able to deal with the problems of people who are temporarily inconvenienced by the project.

PROJECT REVIEW

Correcting Problems

The key to correcting construction project problems is to detect them as early as possible. It is generally up to the consultant to take corrective measures necessary to reduce excessive costs, or to improve time schedules and quality of work. However, as a municipal official, you also have a responsibility to be aware of project status. The reporting forms which have been discussed provide a way to maintain this awareness.

Some of the ways construction problems can be corrected by the consultant are to:

1. Make minor redesign or adjustment of the plans.
2. Direct the contractor to change methods, equipment or manpower levels on particular segments of the project.
3. Direct the contractor to change subcontractors or to improve performance and control of subcontractors.

4. Adjust the work force applied to different segments of the project in order to improve the overall completion schedule.

As an example, when sewerage system construction begins, it is desirable to connect users as soon as possible in order to begin receiving rental revenue. Often the completion of one or more parts of a sewer project will fall behind the others. If that happens, it is important that the contractor adjust his work force to correct the situation. For example, if a pump station is behind schedule, then none of the system above the pump station can be connected to the users. Shifting construction emphasis to complete the pump station will result in earlier collection of rental revenues.

When construction problems which appear to be the fault of the contractor become serious, the engineer, the solicitor, and the municipal officials should carefully consider the possibility of terminating the contract. This step should be taken with great care, however, since rebidding a partially completed job may be costly in both time and money. These costs may well exceed that of remaining with a faulty contractor. Before seriously considering contract termination, all possible actions should be taken to correct improper work procedures or the use of substandard materials. If you have a good contract document, a careful evaluation of the contractor's reputation and capabilities before award, and a good inspection and progress reporting program, chances are construction problems will be reduced to a minimum.

Contract Disputes

Disputes between a municipality and its contractors are probably inevitable at times despite care in selecting a qualified consultant and in preparation of the contract documents. When you and your contractors are not able to negotiate a settlement among yourselves, there are generally two courses of action either of you may take- either arbitration or court judgments.

Arbitration is required only if and when it has been provided for in your contract document. If you choose not to include an arbitration clause, court settlement of disputes can be brought by either party. Whether or not you include an arbitration clause in your contract can be influenced by the following factors:

If your municipality is in an area where court costs and court delays are not excessive, perhaps arbitration is not needed- and in fact it may place you at a disadvantage particularly with large and expensive contracts.

Arbitration is normally a matter strictly between your municipality and the contractor. When disputes go to court, the responsibilities of other parties involved in the project (e.g., your consultants) may be pertinent and may be included in the settlement of the dispute.

An arbitration decision is often binding and appeals may be limited or non-existent. When an arbitration clause is not included and disputes are settled in court, the decisions can usually be more effectively appealed.

If arbitration is included, methods for payment of the arbitration cost should be included in the clause, directly or by reference.

If the project is so highly technical that disputes may require specialized technical capability to make a judgment in a dispute, perhaps arbitration using technical arbitrators is in your best interest.

For potential small claims (up to \$3,000 to \$5,000) every County in the Commonwealth has established a compulsory arbitration method.

The desirability of an arbitration clause in your contracts should be discussed fully with your consultant and your solicitor during contract preparation. Oftentimes a standard arbitration clause is routinely inserted in every contract. You should realize that this is not always desirable for your municipality. Whether to include such a clause should be considered fully by you and your advisors for each particular type of contract you intend to let.

Termination of a Contract

Situations will occasionally arise when it becomes necessary to terminate a construction, consultant or other contract prior to full completion of a job. The contract should contain provisions for termination under the following circumstances:

1. Inability to perform
2. Breach of contract
3. Unacceptable performance
4. Mutual agreement

The inability to perform a contract may develop through loss of key personnel, extreme financial difficulties, damage to buildings, equipment or files, or other acts which place the contractor in such a position that he can no longer work effectively on the job. Death, disability or serious illness may be the basis for an inability to perform consulting contracts, or contracts for personal services. When considering termination of a contract on the basis of inability to perform, the basic factor is whether the contractor has lost, possibly through no fault of his own, the element essential to his performance.

A breach of contract comes about when either the municipality or the contractor refuses or fails to carry out his contractual obligations. The possibility of breach of contract is one example of why it is important to have a performance bond clause in the contract. Breach of contract may simply be the basis for contract termination, or it may cause losses sufficient to bring suit for damages. Where a bond exists, this will provide a source of funds to pay any damages won in a lawsuit.

Unacceptable performance differs from inability to perform in that the contractor has the capability to fulfill the conditions of the contract, however, for some reason performance does not meet the standards established in the contract. The unacceptable performance may be related to quality of work, materials or to some other factor such as seriously falling behind the time schedule. Unacceptable performance should be judged in terms of whether the contractor has attempted to perform within the plans and specifications, or whether his work has been performed in a careless or negligent manner.

There are occasions when it becomes necessary to terminate a contract through mutual agreement between the municipality and the contractor. Provisions for this possibility should be written into the contract so that both parties will know how final costs are to be settled in the event of such termination. Termination through mutual agreement may result from a change in the nature of the work which is required. If so, a new contract will be needed to replace the one being terminated. In a termination by mutual agreement, when all obligations have been settled, it is advisable to obtain a written agreement between the municipality and contractor stating the date of termination and the end of all charges, and that the parties waive all rights and obligations which had existed under the terminated contract.

Along the same lines, it is wise to use care in all correspondence and records leading up to and during the termination process. Since the termination may result in court action by either party, the actions and intents of the municipality should be clearly recorded for possible use as evidence. Termination cases other than by mutual agreement almost always involve strong differences of opinion. Therefore, you may find it wise to attempt third-party arbitration before arriving at a final termination decision.

CONFLICT OF INTEREST

This topic is subject to many detailed and specific legal interpretations. The town and city municipal codes each specify detailed requirements to be met by their governing bodies to avoid conflict of interest. In simple terms, a conflict of interest arises when a municipal official faces a decision concerning purchasing or leasing some service or material for the municipality when he has a personal financial interest in the choice.

CONFLICTS OF INTEREST ARISE WHEN--

A municipal official is the owner of property being considered for purchase by the township.

The municipality is contemplating a purchase and an appointed or elected official is a salesman or manager for the firm.

A municipal official offers to provide some service such as surveying to the municipality.

The municipal codes specify, generally, that when the amount of money being spent for property or services exceeds a certain figure, any elected official in a position to gain financially from the transaction must notify the other members of the governing body of his interest and refrain from voting on the issue. However, products or services of a corporation or firm may be voted upon and purchased by the full governing body even though one or more of the members are employees of the firm, as long as it is clear that he will receive no financial or other benefits from the transaction. Each elected or appointed municipal official must keep his business and governmental roles strictly separated in the conduct of day-to-day activities. There may arise cases in which the legal aspects are fully accounted for, but the appearance to the community might tend to indicate some conflict. This will require particular care and may require a sacrifice of your business interests to avoid harmful publicity to yourself or to your municipality.

MANAGEMENT OF PUBLIC PURCHASES

ANNUAL CONTRACTS

Many supplies and materials needed for your public works program can be obtained through "annual contracts" in which you request and receive bids for the approximate quantities you expect to need during the year. As the requirements develop, your municipality simply orders the needed quantities. The order may be for all or part of the annual requirements. Annual contracts should be advertised and let at a specific time of the

year, usually at the end of a given fiscal year effective for the following fiscal year.

A listing of typical materials which may be obtained under annual contracts is shown in Figure 15. The main advantage of annual contracts is that you don't have to go through the complete advertising, bidding, and contract award procedure for each purchase- you do that only once each year. In addition, since the contract amount over a one-year period may be quite large, quantity cost advantages should be realized.

FIGURE 15
ROADWAY CONSTRUCTION MATERIALS AND SERVICES

- Emulsified Asphalt, Paving Asphalt, and Liquid Asphalt
- Construction of Asphalt Concrete Pavement
- Asphalt Concrete- Discharged into Trucks
- Asphalt Concrete-Furnished, Delivered, and Stockpiled or Truck-Spread
- Rock, Sand, and Crushed Aggregate Base-Furnished, Delivered, and Stockpiled or Truck Spread
- Ready-Mixed Portland Cement Concrete

PRINTING AND DUPLICATING SERVICES

- Printing Official Advertising
- Reproduction of Prints, Drawing, Maps, Plans, and Other Documents

EXPENDABLE MATERIALS FOR MECHANICAL EQUIPMENT

- Kerosene and Cleaning Solvent
- Gasoline, Diesel Fuel, and Fuel Oil
- Engine Lubricating Oils, Oil for Hydraulic Systems, and Chassis Lubricants
- Lead-Acid Type Storage Batteries
- Pneumatic Tires and Inner Tubes
- Retreading and Repairing Pneumatic Tire Casings

MISCELLANEOUS MATERIALS

- Reflective Coating Materials for Roadway Traffic-Line Striping
- Traffic Control Signs

Incandescent, Fluorescent, Quartz-Iodine, and Mercury Vapor Lamps-
Light Standard Assemblies

Electrical Conduit and Tubing

Electrical Wire and Cable

PURCHASE ORDERS SHOULD BE IN WRITING AND INCLUDE--

Name of article being ordered

Quantity

Date and purchase order number

Unit price and total price

JOINT PURCHASING

When several communities (particularly smaller communities) get together in a joint purchasing program, they are likely to save a considerable amount of money. The basic reason is that many items are simply "cheaper by the dozen." Each time a vendor receives a request for bid he must prepare separate bid documents, maintain separate records, and be prepared to handle small orders individually. With a large contract, his administrative costs are reduced, and he will often be willing to take a smaller profit per unit if he is assured of selling many units.

JOINT PURCHASING HAS BEEN SLOW TO CATCH ON BECAUSE OF:

Fear by some municipalities that they will lose control of their purchases.

Lack of understanding of what joint purchasing really is.

Uncertainty about how to set up a joint purchasing program.

Very briefly, a joint purchasing program involves the following steps:

1. Representatives from two or more municipalities sit down together and estimate the quantities of certain items which each municipality will need over the next year. These quantities are recorded as shown in Figure 14. It may be that one or more municipalities want specialized items, different in some way from others. Those specialized items are removed from the list and purchased separately. The end result is a list of requirements for each participating municipality, and the total quantities required.
2. The next step is formal advertising for the quantities requested

JOINT PURCHASING

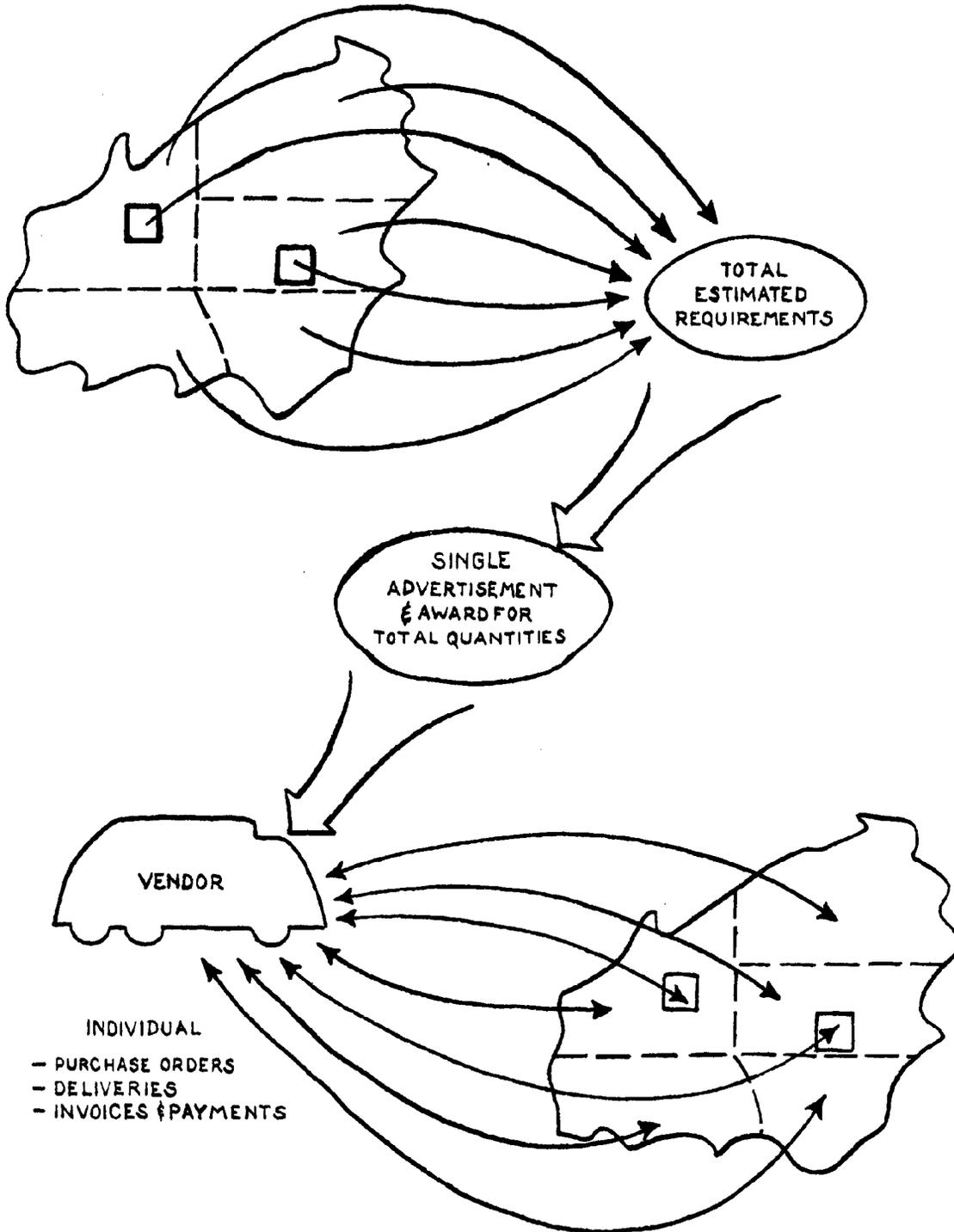


FIGURE 14

by the cooperating municipalities. Advertising costs are reduced since only a single advertisement is required. Each municipality keeps a file copy of the specifications for materials being purchased. Instruction to Bidders should specify that although a single bid is being requested from the vendors, each participating municipality will submit purchase orders. Deliveries will be made to each municipality; and the invoices and payments will be handled by each participating municipality. In this way, each municipality controls the timing, quantities, and delivery of purchases.

3. The bids are opened at a meeting attended by representatives from all participating municipalities who jointly determine the lowest qualified bidder. The municipalities then prepare a joint letter notifying the successful bidder of the award.

In order to simplify the administration of a joint purchasing program, it is desirable that each governing body appoint one of its members to a Joint Purchasing Committee. This committee, should meet regularly to determine needs, to review how the system is working, and to plan for streamlining the process. The committee, with the help of a solicitor, should prepare schedules, quantity estimates, and the necessary bid documentation.

A properly administered joint purchasing program can result in considerable savings and can serve as a joint forum where municipal officials have the opportunity to trade ideas and experiences on a variety of common municipal problems. It is likely to lead to other areas of municipal cooperation and more effective solutions to area-wide problems. At the same time, each municipality retains autonomy and local control. The Rhode Island Department of Community Affairs affords communities many opportunities to participate in Joint Purchasing and does have a program in effect.

COOPERATIVE PURCHASES

Another advantage is that when items are purchased in accordance with the terms and conditions of the above mentioned acts, co-operative purchasing is also advantageous in that the municipality is provided with a list of F.O.B. destination prices. Thus, they know in advance what an item will cost at F.O.B. destination.

Some DISADVANTAGES in the program as this handbook goes to press are:

The list of materials, supplies, and equipment (the commodity list) does not contain all the items that may be required by the municipality.

Commodity list items may not meet the exact municipal specifications.

Cost of transportation from the F.O.B. destination, plus the cost of the item, may exceed the "delivered item cost" from a local vendor.

When the Purchasing Division of the State of Rhode Island has received your ordinance or resolution, you will be furnished a list of contractors who, for a specified period of time, have agreed to sell to municipalities at the same price charged to the state. Following the receipt of the list, your municipality will be required to:

1. Review the list, check those classes of items in which you are interested, and return the "interest list" to the Purchasing Division. Upon receipt of the "interest list," the division will forward all available information regarding specifications, cost, destination points, etc.
2. Place all orders for desired items directly with the contractor, referring to the contract commodity number.
3. Forward a copy of all purchase orders to the Purchasing Division in order that they may record the dollar value of commodities purchased on each contract.
4. Make payments directly to the contractor who supplies the commodity. The state assumes no obligation for the payment of bills.
5. Be responsible for the vendor's compliance with all contractual conditions of delivery and quality as established by Purchasing Division.

GUARANTEED MAINTENANCE PURCHASING

Most communities require that municipalities award a contract to the lowest qualified bidder. This can result in a situation where the purchased equipment has the lowest initial cost, but proves more expensive in the long run because of higher-than-average operation and maintenance costs. Sometimes this can be remedied by requiring guaranteed maintenance bids. Specifically, the Instructions to Bidders may require a price for the pur-

chase of the equipment, and a guaranteed maintenance cost for the expected useful life of the equipment. Entering into contracts of this type is usually more complex and requires a considerable amount of municipal record keeping, but in the long run this approach often results in substantial savings.

The major factors to be considered in a guaranteed maintenance purchase can be summarized as follows:

1. The bid should be in two parts- one bid for the equipment and the other for the guaranteed maintenance cost. The bidder with the lowest total of these two amounts is normally considered the lowest qualified bidder.
2. The bidding specifications should carefully state which repair expenses are covered by the guarantee.
3. Normally, the municipality must assume responsibility for day-to-day operational expenses such as oil, lubricants, filters, anti-freeze, batteries, headlights, brake linings, and other normal wearout items. The agreement will often specify that the equipment will be operated only by municipal employees and it may limit the uses of the equipment.
4. Any cost over the guaranteed maintenance amount will be paid by the vendor to the municipality at the termination point of the contract. The cost of down time is included in the guarantee, and if it exceeds a specified number of hours, the vendor will pay for it unless he supplies a substitute piece of equipment.

There are several negative aspects to guaranteed maintenance purchasing. A complete record of maintenance costs and down time for the guaranteed equipment is necessary to support claims. Maintenance cost records are desirable in any case; however, the expense of developing or modifying present records systems to support a guaranteed maintenance plan should be considered. In addition, the contractor will generally insist on access to all municipal maintenance records as part of the contract agreement. Generally the vendor will contest any large claims by the municipality, and the expense and time lost in settling claims through agreement or in court can be significant.

Guaranteed maintenance purchasing should be investigated before

buying large quantities of rolling equipment. It can be a method for cutting down on expensive maintenance costs which often seem to occur immediately after the warranty expires. The plan can be tailored to incorporate parts, parts and labor, a buy-back clause, and various penalties for late delivery or other responsibilities of the vendor. The guarantee in this kind of purchasing plan provides firm cost projections which can aid in the overall public works programming and budgeting process.

EMINENT DOMAIN

When land is needed for highway projects, you should first attempt to purchase the property from the owner. However, if the landowner refuses to sell, or the asking price exceeds the value of the land, and the municipality can find no other suitable property, it may be acquired through eminent domain.

Eminent domain procedures are complex and the municipality will require the advice and services of the Solicitor. In general, the major steps to be taken include the following:

1. Preparation of plans of the properties to be obtained.
2. Preparation of a petition to be submitted to the court.
3. Appointment by the court of viewers who will examine the property and establish the fair compensation to the owners.
4. The court hears all testimony and sets the amount of compensation to be paid the owners.
5. The municipality makes full payment to the court; the court uses the money to clear any liens or tax debts, and pays the balance to the owner.

In addition to the steps outlined above, there are provisions for the owner to request that the amount of compensation be established by a jury rather than the court; and for the owner to appeal the decision to higher courts. The municipality pays all costs for the proceedings, except for compensation of the viewers.

Eminent domain is recognized as a legitimate power of local govern-

ment in R.I.; however, it should be used with caution and only after exhausting all other possibilities. After land is acquired by eminent domain if the purpose or project for which it was obtained changes and the property is no longer needed for that purpose, the municipality may use it for any other purpose, or the land may be sold or leased.

HIRING AND TRAINING EMPLOYEES

When you have built a public works operating facility such as a water works, sewage treatment plant or solid waste disposal area, it is essential that you hire qualified operating personnel.

SUCCESSFUL PERSONNEL MANAGEMENT REQUIRES:

A sound compensation program.

A set of well-defined jobs.

Opportunities for training and advancement.

Impartial personnel procedures regulating promotion, pay increases, suspension, and other personnel actions.

The well-designed and properly constructed facility which you have built at a cost of probably millions of dollars will not perform at its designed efficiency without good people to operate it. It's poor economy to try and save a few dollars in salaries at the expense of providing poor services. Compensation of employees includes salaries, hours of work, and such fringe benefits as vacation, sick leave, health insurance, and pension plans. However you figure it, the total compensation package offered for municipal employment should be soundly competitive with the wages paid by private industry in your area for comparable work.

In addition to reviewing initial salaries, you should insist on a municipal policy which establishes a scheduled time for periodic salary review and adjustment. In most cases, as your employees accumulate experience, their productivity and value increase, and you have a substantial

investment in their development. It is in your best interest to hold good employees by assuring that their compensation remains competitive.

You should be sure that in the process of organizing the work force, job titles and job descriptions are prepared. The job descriptions should spell out supervisory responsibilities, the work requirements, the levels of education desired or required for the position and the salary range. The job description and assigned job title help the employee define his role in relation to his supervisors, subordinates, and co-workers.

For some jobs, such as sewerage treatment plant operator, state certification is required. Either through on-the-job training or special schooling, you should provide opportunities for your attendants and laborers to become certified, and qualified for advancement to better positions. Encouraging personnel development should result in a higher quality of labor in your plant and will certainly contribute toward better employee satisfaction.

A set of municipal personnel action procedures should be published in easily understandable language and either given to, or made readily available to, each employee. In addition to personnel actions, the document might well be expanded to describe any fringe benefits which are provided.

Finally, the public image of your operations will influence the kinds of employees you will be able to obtain and hold. If sanitary landfill operators are considered to "work down at the dump," if wastewater treatment operators are identified as "sewage workers," or if solid waste collectors are termed "garbagemen," the public attitude will discourage young men from entering into these jobs. Good and pleasant working conditions are essential to attract qualified employees. Developing job titles which are publicly acceptable will aid in getting qualified applicants into your job openings and keeping them there.

PUBLIC EDUCATION AND PUBLIC RELATIONS

An elected public official at any level of government soon realizes that he must have the support of his constituents before launching an expensive public works improvement program. Too many times, local officials proceed to plan and execute plans in isolation from the people. A likely result is that these officials will be replaced in office, and their projects will fail to be completed.

To gain and maintain public support for your public works program, positive actions should be taken to keep the people informed.

1. Institute a public education program to acquaint people with the seriousness or importance of finding a solution to a particular municipal problem.
2. Conduct a continuing public relations program which informs and explains why the municipality is taking the particular approach it has chosen and the progress which is being made to solve the problem.
3. During construction and early operation of a new facility, provide a public service program which illustrates to the public that the project is being constructed, managed, maintained, and operated in an efficient and responsible manner.

PUBLIC EDUCATION PROGRAM

Obtaining public support for a public works project essentially involves presenting an effective argument to show the need for the project and developing responses to objections which are likely to be raised. You may expect that road improvements, a municipal building, or other improvements which can be financed out of general tax revenues will meet little opposition. Sewer, water, sidewalk, curb and gutter or other projects which will be financed largely out of special assessments or special tax millage are likely to require a deliberate public education effort in order to gain popular support. Newspapers are generally the most effective medium for reaching the greatest number of people. It is often possible to request the newspaper to run photographs and articles which illustrate or describe polluted streams, unsanitary garbage dumps, dangerous walkways along busy highways or other information which clearly points out

the problem you are trying to solve. Often you will need a campaign which keeps the problem before the people every few days for up to several months. Small local papers will usually have more impact in your community than outlying metropolitan papers. The newspaper articles should contain quotes from local officials or their consultants pointing out that you recognize the problem and are preparing to solve it. Editorials in the press supporting the municipal position can be extremely helpful.

To gain effective newspaper support, you must develop an open and respectful relationship. It may be a good idea to provide municipal photographs and to prepare written background information which the newspaper can translate into useful articles.

Radio and television should be dealt with much the same as the newspapers. Federal broadcast regulations specify that the stations must provide time for "public service" programs. Thus, in addition to aiding radio and TV stations with news items highlighting your public works program, you may be able to make arrangements to participate in these programs, or to take part in scheduled round-table or panel discussions.

In addition to using the news media, you may find it worthwhile to have brochures or other printed material prepared for distribution at public meetings or through the mail.

It is important that the public education program be timed to peak at the crucial moment such as the time a bond issue is planned, or when the special referendum is scheduled. The public education campaign is really an intense segment of a continuing public relations program, designed to gain popular support for a needed project.

PUBLIC RELATIONS PROGRAM

When you have determined that a particular transportation, sewer, water, solid waste or other problem requires a solution through a public works project, the next set of issues involves how to get on with the

program. With sewer or solid waste projects, the strongest negative arguments revolve around where the treatment plant or disposal facility will be located. This kind of problem also sometimes arises with water storage reservoirs or the corridor for a new road (particularly when some houses must be taken). To combat these objections, it is best to provide clear, valid, and truthful information explaining the financial, technical, and other reasons to respond to these objections. It may be advisable to ask your engineering or other consultant to participate in the meetings or to make statements for the news media explaining the technical reasons for a particular choice of location or technique.

Much opposition to sewer or solid waste facilities results from erroneous information about odors, litter, traffic, construction inconveniences or other supposedly unpleasant effects. It is essential that these misconceptions be countered. It should be made clear that there are State and Federal laws (for example, the Rhode Island Wetland Act), which lay out strict requirements to avoid pollution of the water or air, and which require certified procedures to alleviate public nuisance and health hazards. Both the Rhode Island Department of Natural Resources and equivalent agencies at the Federal level have brochures and information booklets which explain the control procedures which must be followed. It is recommended that you obtain this kind of information and make it widely available to the public.

In general, a set of straightforward assurances should be made by the local government that inconveniences and nuisance will be minimized. These assurances might include such statements as the following:

No construction work will be permitted on Sundays or holidays or before 7:00A.M. and after 6:00P.M. on work days.

All property will be restored to the same condition it was in before the construction was begun.

Dust control measures will be applied and trenches will be open for a limited time only.

A landscaping plan has been prepared and is available for inspection at the municipal building.

You should be able to back up these statements with design plans, specifications or contract documents.

In spite of all efforts, there is bound to be some opposition to your public works program. A thoroughly documented case and an expression of concern for the objections, presented in a clear and interested manner, will go a long way toward easing the complaints.

PUBLIC SERVICE PROGRAM

During construction and the early operation of a completed project, there are bound to be inconveniences to the public and complaints about the set of fees, assessments or other new costs involved.

Complaints should be given prompt consideration. Fairness in billing is a common issue. A particular attempt should be made to assure that all persons receiving benefits from the new project are paying their fair share. If public education and public relations have been successful, most people will take the project for granted- unless they see apparent inequities or are subjected to an inefficient and error-producing billing system. Letters reminding persons of overdue bills should be carefully worded and the first letter mailed should be in the form of a polite reminder rather than a letter containing threats. The payment of any new bill is an unpleasant and sometimes easily forgotten chore. Strong threatening letters are likely to rekindle earlier opposition to the project.

It may be desirable to conduct an "open house" at the new facility, and to assure that the newspapers carry pictures and articles describing the features of the newly completed project.

Finally, the employees of new facilities should be instructed to maintain friendly, helpful attitudes with the public. It may be worthwhile to provide uniforms or some other means to identify these municipal employees.

APPENDIX A

GLOSSARY OF COMMON TERMS RELATED TO PUBLIC WORKS MANAGEMENT

The following glossary contains a number of terms which often arise in the implementation of public works projects. The glossary, while not intended to be all-inclusive, does contain terms which are often used by financial, legal or technical specialists in their dealings with a municipal official. Various other terms have been defined as appropriate throughout the text.

Agency and Trust Funds- Such funds are established to account for cash and other assets held by a municipality as agent or trustee. The two classes of funds are similar in that the resources of the funds are not assets of the municipality but, through the operation of law or by agreement, the municipality is responsible for their accountability.

Allocation of Funds- To set aside funds for a specific purpose or program.

Amendment- A change or addition which changes the meaning or scope of an original formal document. Often these are laws or regulations. However, plans or specifications can also be amended.

Capital Outlay- Expenditures made to acquire fixed assets or additions thereto are called capital outlays. These expenditures are recorded in the General Fund or Utility Fund where the assets are to be used. Ultimately, under good property accounting, such assets acquired through the General Fund should be reflected in the general fixed assets group of accounts.

Capital Reserve Fund- Established to account for resources legally set aside for anticipated capital expenditures, including construction, purchase or replacement of, or additions to, municipal buildings, equipment, machinery, motor vehicles or other capital assets.

Certification- A formal, written declaration that certain facts are true or valid.

Cluster Development- A type of residential development where the overall density conforms to typical standards, but allows for the concentration of structures on a portion of the tract while leaving the remaining open space for common resident usage. This type of development should be sympathetic to environmental conservation and protection.

Easement- A right-of-way for public or quasi-public use. Normally, they are used for public utilities, bridle paths, parkways, floodways, scenic uses, and other purposes. The fee title to land in the easement areas remains tied to the adjacent land, and the easement rights are relinquished when the public or quasi-public use ceases.

Effluent- A term applied to the water discharged from a sewage treatment device.

Eminent Domain- The concept of the power of the state to acquire, for public use, privately owned real estate, by means of legal processed and adjudicated compensation to the private owner.

Feasibility Study- A preliminary survey to determine the design, aesthetic, construction and economic aspects of a proposed project.

General Fund- Used to account for all revenues, and the activities financed by them, which are not accounted for in some special fund.

General Obligation Bonds- A financial instrument which gives borrowing power to a municipality, based upon pledging of taxing power to retire the debt and pay interest.

General Obligation Bond Funds- Established to account for the proceeds from bond sales and other revenues properly allocated to these funds and the costs of projects financed by them. Cost for public improvements are recovered from general revenues.

Highway Aid Fund- As provided by law, this fund is created to account for the receipt and use of State Fund grants and is subject to the regulations of the Department of Transportation.

Industrial Park- A planned industrial area where consideration has been given to human and esthetic values, vegetation, open space, buffer zones, etc.

Planned-Unit Residential Development- An extension of cluster development that includes detached, semi-detached, attached and multi-storied structures, and may include land uses other than residential to the extent that they are designed to serve the residents.

Planning Board (Commission) - A planning agency, authorized by law to prepare and recommend plans for the development of physical, social, economic and cultural resources and facilities within a political unit of government.

Regulation- a rule, procedure or other formal requirement passed to carry out the purpose of a law. It carries the same legal power as the law. However, the rule or formal requirement may only be used to carry out the purpose of the law under which it is passed.

Revenue Bonds- A borrowing tool that has higher interest rates than general obligation bonds, but does not need voter approval. Based on revenue-producing project and not municipal taxing power.

Revisions- Written or added changes, corrections or improvements to a plan, specification or drawing.

Revolving Funds- Special purpose funds which have considerable value in providing a constant source of funds for assessable public improvements. General obligation bonds, repayable from general revenues, as well as assessed taxes, may be used as sources for establishing such a fund.

Right-of-Way- Any area which is reserved by law, or by common consent, to a public or semi-public use. Streets and easements are typical examples.

Scenic Easement- An easement for the protection of the environment or of scenic values. On this easement, the land owner is not permitted to alter the vegetation or change the use of the land without governmental consent.

Shop Drawings- Additional drawings prepared by the contractor or supplier of materials after the contract has been awarded.

Sinking Fund- Established to account for the accumulation of money providing for the retirement of bonds and the payment of interest.

Special Assessment Bond Funds- Similar to general obligation bond funds, however, the cost of public improvements provided by the bond proceeds are assessed against owners of properties benefited by the improvements.

Specifications- The written instructions which accompany and supplement the drawings in a contract.

Strip Zoning- The practice of zoning all parcels of land and fronting on a principal street to commercial or industrial land uses.

Subdivision- The division of a single tract or other parcel of land into two or more lots. (Specific definitions will vary in specific ordinances or regulations.)

Temporary Funds- Created to accommodate a specific need that may arise. Must include a system for complete accountability and be closed promptly upon completion of its purpose. Remaining assets should be distributed in accordance with the intentions of the elected officials as set forth at the time the fund was created.

Utility Funds- These funds account for the financial transactions of utility services rendered to the general public for which specific user charges are made. (Water Fund, Sewer Fund)

Zoning- The restriction of certain land areas for specific uses, and the control of these uses by legal restrictions.

APPENDIX B

Recommended Reading

The following books and periodicals are listed to acquaint you with a number of the many sources of general information or reference data for municipal officials.

The publications have been categorized as general, reference or periodical. It is recognized that probably no community will obtain all of the listed documents or books.

GENERAL:

Community Action Program for Public Officials- Outdoor Recreation, Bureau of Outdoor Recreation and the National Association County Research Foundation, Washington, D.C.

Drucker, F. Peter, The Practice of Management; by Harper and Rowe Publishers, New York, 1954.

Local Planning and Zoning; Office of Planning Coordination, Albany, New York, 1969.

Municipal Index- The Purchasing Guide for City Officials and Consulting Engineers; Bittenheim Publishing Corporation, New York, New York, Annual.

Schoderbek, Peter, T., Management Systems; John Wiley and Sons, New York, 1967.

Special Assessments and Service Charges in Municipal Finance; Tax Foundation, Inc., 50 Rockefeller Plaza, New York, New York, 1970.

REFERENCES:

Municipal Finance Administration; International City Managers Association.

Municipal Public Works Administration; International City Managers Association, 1313 East 60th Street, Chicago, Illinois, 1970.*

Public Works Information Systems: The American Public Works Association, Chicago, Illinois, 1970.

Street and Urban Road Maintenance; the American Public Works Association, Chicago, Illinois, 1963.

The BOCA Basic Fire Prevention Code; The Building Officials Conference of America, Inc., Chicago, Illinois, 1966.

Standards of Practice for Consulting Engineers; Consulting Engineers
Council of Greater Pittsburgh, Pennsylvania Society of Professional
Engineers; Harrisburg; 1970 Edition.

PERIODICALS:

The American City; Battenheim Publishing Corporation, Stamford,
Connecticut, Published Monthly.*

The APWA Reporter; The American Public Works Association, Chicago,
Illinois, Monthly.*