Chapter 4

Preparing a Capital Budget and a Capital Improvement Plan

Chapter Four Overview

One of the most critical responsibilities of a government is to provide citizens with a sound infrastructure and equipment capable of helping the government to be efficient and effective. There are two items that can be used to facilitate that goal: a capital budget and a capital improvement plan. This chapter is dedicated to discussing both of these items in detail. This includes a discussion of financing capital projects. Users of this text will learn how to write a: capital budget, capital improvement plan, finance structure for capital projects, and justify and defend capital projects.

Capital Budgets versus a Capital Improvement Plan

While there is a definite correlation between a capital budget and a capital improvement plan, they are not the same. A *capital budget* is merely an expenditure list of high cost items such as buildings, bridges, highways and other large-scale items that are expected to provide benefits and services over a considerable period of time. A *capital improvement plan* (CIP) on the other hand is a spending plan that will take place over a three to five year period. In some instances, the first year or current year of the capital improvement plan can become the capital budget. This decision is determined by a number of items, including the size of the budget and the size of the government. Some governments include the capital budget in their operating budget.[18]

Capital Budgets

Unlike a personnel and operating budget, a capital budget only includes high cost non-routine items such as public buildings, equipment, infrastructure, and land purchases. Public buildings include: police stations, court houses, public schools and government offices. Equipment includes: vehicles, computers, and office furniture. Infrastructure includes roads, bridges, and water lines. It is

possible that some of these items can be included in an operating budget. For example, the purchase of a single computer would not require a long-term plan. However, the purchase of several computers tends to be more costly and cause a greater burden on the funding source. By placing the computers in the capital budget, a budget office may be more creative in financing the item (Gianakis and McCue 1999; Srithongrung 2010). Further, a city can have a separate infrastructure replacement budget to replace existing sewers, streets, etc. Most often, the determination of what is included in the capital versus the operating budget is a function of the government's capitalization policies. For example, if the government requires all equipment with a unit price greater than $5,000 to be capitalized, then all equipment with a unit price less than $5,000 would be included in the operating budget.

During times of budget shortfalls equipment can and often is the first thing cut out of the budget. This occurs because it is easier to cut equipment than people. Further, budget officials assume that agencies can get by one more year with the equipment that they have rather than replacing it. These cuts are facilitated when agencies seek to replace functional equipment with the "latest and greatest equipment" which may in fact improve efficiency and effectiveness.

When an agency is preparing a budget for new expenditures, analysts should realize that start-up costs are often expensive even though additional efforts lead to lower unit costs. In these circumstances *marginal costs* may be lower. When considering a comparable increase in the budget because of the new expenditure, the analyst should remember that marginal costs should not increase proportionally.

When performing this function, expenditures should be split into one-time *fixed costs* and *recurring costs*. One-time fixed costs include the up-front costs, and include: research cost, evaluations, land, construction labor, construction materials, legal fees, freight and shipping costs, and training. Recurring costs are those costs associated with providing the service on an annual basis. These include utilities, personnel, supplies, etc. As more units of service are added, recurring costs increase. As more services are added the unit cost goes down.

Let's assume for a moment that the municipal golf course is submitting their capital budget request. Since the golf course is more or less self-sufficient, funding is not a big issue. The first mistake that the golf course officials could make is to assume that since money is available that they can do a lack luster job in justifying the new requests. A budget officer should never take a surplus or a "guaranteed" increase in their budget for granted.

Unlike an operating and personnel budget, a capital budget may not be incremental in nature. The budget essentially reacts to the items within it. For example, during periods of relative inactivity a capital budget may appear to be incremental in nature. However, when agencies have large projects underway, the budgets can change drastically from year to year.

For example, take a look at Exhibit 4.1. The Post Office has purchased

items using a capital improvement plan that began a few years earlier. In FY 2018 they estimate that they will spend $20,000.00 on computers and are requesting $30,000.00 in FY 2019 to complete their system. According to the justification, this purchase is the final stage of a multiyear plan to replace older computers with new ones. The justification for purchasing the new trucks also follows the same logic. Unlike an operating and personnel budget, it is not necessary to elaborate in detail when justifying items in a capital budget that is following a CIP. However, thorough justification is needed if the plan is changed in any way.

Exhibit 4.1 Simple Line Item Capital Budget for the Post Office

Object Code	Item	Quantity	FY 2018 Cost (Est.)	FY 2019 Cost (proposed)
3003	Computers	10	$20,000.00	$30,000.00
3004	Security System	1	500.00	34,000.00
3005	Copy Machine	1	4,000.00	4,000.00
3006	Mail Sorter	2	3,000.00	6,000.00
3007	¾ Ton Trucks	8	75,000.00	120,000.00
3008	Office Desks	10	1,500.00	3,000.00
Total			$104,000.00	$197,000.00

Brief Description:

The Post Office is going through a normal update of its computer systems and vehicle fleet. The new security system will bring the Post Office into compliance with the last round of federal statutes. The new trucks will not only replace some of the aging fleet, but also provide for two new trucks to handle our expanding population in the southern region of the city.

Justifications:

1. Installing and Implementing the New Security System: The old system is outdated and does not offer the level of security that we need for our new equipment. Further, over time, this new equipment is cost effective and more efficient. The monthly up keep cost is 60% less than the old system. Last, the system will bring the office into federal compliance.
2. New Computers: These computers will allow us to complete our overhaul of the network. Our workload capacity will increase 20%. Thus, we will be more efficient and effective.
3. Copy Machine: This purchase is the second and last phase of our office equipment update.

4. Trucks: These five trucks are the final vehicle purchases in updating our fleet for the foreseeable future.
5. Desks: The ten desks will hold the ten new computers. They are ergonomically designed and should improve the overall health of the users.

Last, agency heads must remember that operating budgets are affected by capital budgets in the long term. As capital projects come to fruition, maintenance and personnel cost fall back into operating and personnel budgets. So, it is important that agency heads ensure that staff and additional resources needed to manage the capital project are in place prior to the completion of the project. These projects often provide considerable strain on operating budgets when checks are not put in place.

Why Separate a Capital Budget from an Operating Budget?

On the surface, it may not seem important to separate these two funds. However, the bullet points below highlight some important reasons why this is important.

- Capital outlays are financed and often paid from one-time, earmarked sources such as debt proceeds and grants. Segregating the funds from operating budgets ensure that they are spent for their original purpose.
- The decision process differs in a capital budget. Frequently, projects are ranked and funded as revenue becomes available. As projects are funded, other projects are added to the list.
- The time frame for spending funds varies between the two funds. Capital budgets are rarely completely executed in a single fiscal year.
- Capital budgets often exceed budget projections and thus require close scrutiny.[19]
- Capital budgets can stabilize tax rates when individual capital projects are large relative to the tax base of the city (Mikesell 2014).
- Financial mistakes (underestimation of costs) made with capital budgets can linger for many years and these errors should not be tied to operating budgets which must balance each year.[20]

Capital Improvement Plans

When cities are expanding their capital infrastructure or simply planning for the future they will frequently put together a long term spending plan called a capital improvement plan (CIP) as well as the sources for funding the plan. Doss (1993) defines a CIP as, "a comprehensive document that enables local governments to budget for immediate capital projects, evaluate the condition of existing projects, and assess the future capital needs for either expansion, renovation or construction of new capital stock" (p. 272). This plan is a list of high cost expenditures that would occur over several fiscal years. This process will often begin with a request from the budget office for project proposals (See Appendix 4A at the end of the chapter for an example). Concurrently, the chief executive officer along with the legislative body will begin to develop their list of spending priorities (Bland and Rubin 1997; Lee, Johnson, & Joyce 2013; Vogt 2004; Kittredge and Ouart 2005; and Mikesell 2014). Why develop a CIP?

Advantages

- Establishes agency long-term priorities.
- Provides a mechanism for coordinating various agency projects.
- Helps to prevent duplication.
- Maximizes the distribution of public resources.
- Can stimulate private investment and economic development (excerpted from Riley and Colby 1983, p. 105).

Disadvantages

- Items that should be placed in the operating budget sometime end up in the CIP because of high cost.
- Assumes that officials will continue to reevaluate project proposals as the environment changes.
- The amount of funds may distort the ranking of projects. Some projects create their own funding, which may make them seem more practicable and appealing than non-revenue producing ventures.
- At some point, it is necessary to eliminate projects from consideration. The availability of funds play a perennial role in this process, but politics does as well. Decisions should be made objectively with the greater interest of the community.[21]

The Capital Budgeting Process

The capital budgeting process presented here occurs in three stages. The first stage is *planning*. Several important items must occur during this stage. First, some basic identification, classification and analysis of capital requests

should occur. Then, a preliminary ranking of projects should occur, along with a time frame in which the work should be completed, (*capital budget calendar*). According to Riley and Colby (1983), a budget calendar is "useful in coordinating the work of all the players and identifies who does what and when?" (p. 107). Exhibit 4.2 provides an example of a capital project request form.

Exhibit 4.2 Capital Budget Project Request Form

Directions: Complete this form for each capital request (includes new projects, repairs, or modifications).

1. Title of Project: Construction of Newburg Elementary School.
2. Location of Project: Jefferson City.

Description of Project: The school will serve the southwest part of the city. It will fit the standard model that we have used for the last five years in school construction. Should the region continue to grow at the current rate, this building model will allow the school to expand at minimal cost.

Justification of Project: The population in southwest Jefferson City is growing at an extremely fast rate. Hence, this is the best location for the school. The other schools in the city are overwhelmed with students and the bus system is being stretched thin due to long bus rides to the schools.

Estimated Cost of Project

Project Cost Components	
1. Land (3 acres)	$10,000.00
2. HVAC	$35,000.00
3. Construction	$315,000.00
4. Plumbing	$20,000.00
5. Equipment	$20,000.00
6. Other Costs	$25,000.00

Projected Annual Cost	
1. FY One	$175,000.00
2. FY Two	$100,000.00
3. FY Three	$25,000.00
4. FY Four	$75,000.00
5. FY Five	$50,000.00
Total Costs	*$425,000.00*

Current Status of Project: The project has not begun.
Estimated Project Life: 15-20 years once the school is open.
Possible Sources of Funding: School Bond

Stage two is concerned with *budget analysis, project evaluation* and *budget adoption*. In this stage, evaluators examine the status of current capital projects and capital facilities. Further, they select new projects and determine which projects require funding from the general fund or other sources, and which projects

will create revenue. In addition, an assessment of infrastructure changes and the construction or purchase of buildings can be done (Bland and Clarke 1999). At this juncture, budget forecasts can be made. Vogt (1983) suggests that quantitative analysis be used in this process (see chapter 6). Once these decisions are made, *implementation* of the CIP can begin.

In stage three, funds are acquired, managed, and invested in the CIP. Equipment is bought, land is purchased and the construction begins (Vogt 1983). Lastly, a *post evaluation* has to be conducted shortly after the project has been completed (Mikesell 2014). The purpose of the evaluation is to ensure that goals and objectives were met (See Appendix 4A for an example of a Capital Improvement Program).

Identifying and Prioritizing Projects

Selecting a group of people to identify projects for a capital improvement plan is not as simple as it appears. Bland and Rubin (1997) point out that the selection of participants will largely determine what comes out of the process (Bland and Clarke 1999). Vogt (2004) argues that experience should play a major role in prioritizing projects. Experienced citizens who are in touch with citizen's need should play a vital role.[22] Bland and Rubin (1997) offer three possible scenarios for prioritizing plans. Plan 1 is a planning oriented process where priorities are assigned by the planning or capital budget office based on need or technical standards. Priorities in Plan 1 can be categorized as follows:

- **High:** These are projects that are vital and impending. They should be ranked at the top and funded in the early years of the Capital Improvement Plan. These are items that *must be* done.

- **Medium:** These are projects that are also vital, but do not have to be funded immediately. They should be in the middle to latter years of the CIP. These are items that *should be* done.

- **Low:** These are projects that have great benefit to the city, but not to the extent that they should receive higher priority. That is, they will not adversely affect critical areas immediately. These are items that *could be* done. Elected officials may have a peripheral role in the plan.

Plan 2 is a less planning oriented process and may have the input of elected or bureaucratic officials as well as citizens. Hence, it becomes more politics based than strategically based on need. It could also follow the previous model.

In Plan 3, a group of elected officials and technical staff would identify and prioritize projects. Since the implementation of a capital improvement plan is a

multi-faceted process involving different areas of expertise, it seems quite reasonable that the process is not limited to elected officials and bureaucrats. In fact, it may be necessary to consult with professionals in the private sector (see also Bland and Clarke 1999; Kittredge and Ouart 2005).

Nice (2002) argues that "need" should be the prevailing characteristic when prioritizing projects. For example, the building of a new landfill to offset an old one that is operating at the maximum capacity should take precedence over a new recreational park. A long-term assessment of a locality's needs would be very useful when prioritizing projects. Bland and Rubin (1997) suggest two methods for prioritizing projects. In the first method, "projects are generated and ranked through a technical planning process, possibly overseen by the planning department" (p. 179). One way to prioritize projects using this method is to address the following issues:

- Legal Mandates: Is the project required by federal or state statute, court order, etc?
- Removes or Reduces Hazards: Does it remove hazards or improve public safety?
- Legislative or Executive Goals: Does the project advance stated goals and objectives?
- Efficiency: Does the project improve productivity and lower operating costs?
- Standards of Service: Does the project maintain or extend current service levels?
- Economic Development: Does the project support or benefit economic development?
- New Service: Does the project offer new services or programs?
- Quality of Life: Does the project improve the quality of life for citizens?
- Convenience: Does the project make it easier for citizens or government officials to manage activities?[23]

At the other end of the spectrum, "projects are generated by departments and examined and ranked by variously structured committees" (p. 179). Unfortunately, politics plays a role in this process. Most projects tend to show characteristics of both methods. In either case, a level of economic and political parity much be reached (Axelrod 1995; Mikesell 2014; Aronson and Schwartz 2004).

Needs Assessments and the Selection of Projects

Prior to implementing a capital improvement plan, a *needs assessment* should be conducted. A needs assessment allows all concerned parties to examine the current status of the capital infrastructure. That is, the assessment should indicate the condition of all capital assets. By showing the positive benefits of

previous investments in the infrastructure, you can legitimize new investment. Needs assessments should be comprehensive and conducted by a neutral unbiased party. Why? An agency can only look at its own needs over some period of time. Citizens and elected officials often have their own agendas and fail to see the big picture and as a result overlook conflicting or competing needs.

At the tail end of this process, someone has to decide what projects will be selected for funding. Nice (2002), Bland and Rubin (1997), Gianakis and McCue (1999), Axelrod (1995) and Millar (1988), offer a number of suggestions and questions that should be answered prior to making a final decision on capital projects. Vogt (1983) offers a two-dimensional matrix to establish priorities based on a numerical score. The matrix and the items included in Table 4.1 are quite consistent.

Table 4.1 Other Factors to Consider Prior to Selecting Capital Projects

1. Prepare an inventory of current fixed capital assets. What is the life expectancy of these assets and how much are they currently worth?
2. What is the fiscal impact of each new project for the current and future years? How will the project impact the personnel and operating budget on a year-by-year basis? Will the project generate revenue on a year-by-year basis? Is the project a continuation of an earlier project? Are there any legal liabilities that will impact the project?
3. Assess the impact of the project on the community. Are there any special energy requirements? How will the project affect the aesthetic value of the community (noise, air, commuters, households, recreation and quality of life)? Are there any health and safety issues?
4. Determine possible health and safety effects (accidents, illness, sewage, etc).
5. Estimate how the project will disrupt day-to-day activities in the community.
6. What is the impact of the project on the various populations in the community? Consider the following factors: race, income, single parent households, age and disabled.
7. Ascertain the level of public support for the project. Is the project consistent with the master plan for the community?
8. If the project is not funded or deferred, what impact will this have on the community (i.e. higher costs, inconvenience)?
9. Will the project benefit or adversely impact other localities?
10. Will the project benefit or adversely impact other capital projects?

Financing Capital Improvement Projects

In most state and local governments where funds are limited, a decision to pursue a project and the decision to fund a project occur relatively close together. While it is possible for a project to create revenue, a lot of projects do not generate revenue. In either case, the budget officer should make at least four revenue projections relative to funding capital outlay: current operating revenue and expenditures, current outstanding debt, annual debt-service payments and intergovernmental grants and aid. Every attempt should be made to determine how the economy and other environmental and demographic changes have affected these items (Vogt 1996 2004; Bifulco, Bunch, Duncombe, Robbins, Simonsen 2012).

How to fund a capital project, to a large extent, depends on the project. For example, it is feasible to fund the construction of a new highway from a toll on the highway. However, it would not be feasible to use a highway toll to fund the construction of a new school. This is illegal. A bond may be a better alternative.

Bland and Rubin (1997) offer two basic strategies for financing capital improvement projects. The first is *pay-as-you-go* financing. In this method, officials may use current revenues, federal or state grants, reserve funds, revenue from leases or other revenue such as utility charges to fund projects. Vogt (1983) points out several advantages to using this method. First, "it encourages responsible spending by requiring the same officials who approve projects or outlays also to levy taxes to pay for them," "it avoids paying the interest charges that are involved with bonding; and it avoids the accumulation of large, fixed principal and interest payments in the operating budget" (p. 139). It also, "sidesteps bond and debt markets" as well as improves the financial position of the local government by holding down debt and lowering debt service cost (Vogt 2004, p. 144; Solano 2004). Pay-as-you-go financing is particularly effective if a government has a consistent need for infrastructure maintenance. For example, a mature state or local government needs to replace and maintain its streets, waterlines, and sewer lines. Dedicating a set amount annually for this purpose avoids the extra interest charges (Wang and Hou 2009).

Vogt (2004) offers a second pay-as-go or cash method for financing capital projects by creating a capital reserve. Essentially revenues would be diverted from other sources into this capital fund which could be used when the time arose. Spending does not occur until a sufficient amount of revenues have been collected to meet the needs of the expenditure. For example, a city might want to construct a new city park and have a five-year plan to save the funds to pay for it. A *capital reserve* would be the perfect tool to facilitate this process. A note to the wise, it is better to separate the *capital reserve fund* from other funds. This prevents fungibility from occurring easily (Aronson and Schwartz 2004).

The second method is *pay-as-you-use* financing. This includes bonds or

other debt instruments, assessments on recipients of the service, or mortgages or bank loans. Bland and Clarke (1999) point out two advantages to debt financing. First, it allows a government to acquire capital as needed yet devote a relatively stable amount of current revenue each year for debt service. Second, it also removes capital acquisition decisions from the operating budget process, which is often completed under a tight time constraint. This also allows officials to better plan for the future (see also Vogt 1983; Aronson and Schwartz 2004). Another advantage of pay-as-you-use financing is that the taxpayers who are receiving the benefit of the project are paying for it. The taxpayers are contributing annually to the payment for debt service.

Riley and Colby (1991) offer several methods to the pay-as-you-use financing method. The first method is to issue *bonds*. A bond is basically money that is borrowed from an individual(s) with the assurance that the bond can be cashed in a given period of time for a sum of money (principal and interest). State and local governments use bonds to finance projects that cannot be financed from the current revenue sources. The interest earned on bonds is not taxable by the United States government.

Bonds can be issued through public entities to assist in private development activities, if they further the objectives of a particular agency (e.g., economic development, energy conservation, affordable housing). These bonds can either be *revenue bonds*, which are a type of *municipal bond* where principal and interest are secured by revenues such as charges or rents paid by users of the facility built with the proceeds of the bond issue. The issuer of a revenue bond is not obligated to use any other funding source to pay back the bond. Projects financed by revenue bonds include turnpikes, airports, and not-for-profit health care and other facilities.

The more common approach is to use *general obligation bonds* (GO), which may be taxable or tax-exempt bonds which are backed by the general "faith and credit" of the issuing entity to assure repayment of the bonds. Because the backing for revenue bonds is limited to the revenue stream that is used to support the bonds, they have a higher interest rate than general obligation bonds. General obligation bonds can make up more than a third of the long-term debt issued by state and local governments (Vogt 2004).[24]

Prior to securing any type of bond, a local government may need to be rated. *Bond ratings* are quite similar to an individual credit report that you or I may get prior to buying a house or a car. Vogt (2004) describes it this way:

> A bond rating evaluates a debt issuer's strength or weakness on factors that bear on the issuer's ability and willingness to make principal and interest payments on the debt when due and to comply with other obligations that the issuer assumes under the debt contract. A rating addresses not only the probability that the issuer will make debt service payments but also the legal protection afforded to investors by laws, regulations, and the debt contract. Such protection or security varies by

type of debt and also depends on state and federal laws and regulations (p. 217).

As shown, the emphasis is on the ability of the entity to repay the amount borrowed with the interest and the protection afforded to the investors (see Vogt 2004 & Aronson and Schwartz 2004 for a description of bonds and ratings; Srithongrung 2008; Krueger & Walker 2010).

Some governments are precluded from issuing general obligation debt because of legal restrictions or debt limitations. Other types of financing instruments have been created to allow governments to construct capital facilities. For example, a government might enter into a lease-purchase arrangement with a private contractor to build a water treatment plant. The government makes lease payments to the contractor until the project is paid off. At that point, it is turned over to the government. Another financing option is a *certificate of participation*. A government contacts one or more financial institutions and a pool is formed. Each participant in the pool receives a certificate of participation. The project is financed using the resources in the pool and the resulting facility is leased to the government. Each participant receives a share of the debt service based on its participation in the pool.

A municipality may also secure *short-term notes* or use a *line of credit* (LOC) where "money is made available for the local government to use on an "as needed" basis (Riley and Colby 1983, p. 110).[25] Short-term notes are used during the construction phase of a project because of arbitrage restrictions established by the *Internal Revenue Service* (IRS). Since debt issued by state and local governments is exempt from federal taxes, the IRS requires funding of a capital project to be undertaken as cash is needed. For example, if a government is building a facility that costs $10 million, issuing $10 million in bonds when the project is approved would allow the government to invest the proceeds and earn substantial interest for some period of time. Under the arbitrage rules, a government now has to reimburse the federal government for such arbitrage earnings. Thus, governments finance the projects during the construction period by using short-term notes. City and counties can also *joint finance* projects that will be shared.[26]

Conclusion

While there are some similarities between an operating and capital budget, it is clear that the differences substantiate separating the two. It is important for the reader to understand that investments into capital infrastructure and the use of public resources to fund capital projects play a major role in economic development and growth in states and municipalities. Hence, time and resources devoted to the process should not be taken lightly. Chapters 5 and 6 will further this topic with a discussion of payment options and maximizing use of capital facilities through analytical models and techniques.