CAPITAL ASSET SERIES

OPERATIONS & MAINTENANCE

HELPING COMMUNITY LEADERS CONSIDER LONG-TERM COSTS FOR CAPITAL PROJECTS

WORKFORCE SERVICES
HOUSING & COMMUNITY DEVELOPMENT
COMMUNITY DEVELOPMENT OFFICE

CAPITAL ASSET PLANNING PROCESS

FIRST-YEAR STEPS

1 ESTABLISH A CAPITAL IMPROVEMENT PLAN PROCESS & POLICY

The municipal council should establish a CIP policy and process that identifies responsible parties, timelines, and criteria for prioritizing projects—including an annual capital asset inventory.

2 CREATE A CAPITAL ASSET INVENTORY

Inventory existing assets, identify current conditions, needed repairs, replacement horizons and locations. Update inventory as changes occur. Refer to this list during each annual CIP process.

ANNUAL STEPS

3 IDENTIFY & PRIORITIZE CAPITAL FACILITY NEEDS

Identify and prioritize future projects by recognizing gaps among inventoried assets, or as emergencies and crises occur. Use prioritization criteria to determine which projects should be completed first.

4 DETERMINE OPERATIONS & MAINTENANCE COSTS

Through research, municipalities should determine the operation and maintenance costs of a new asset and ensure it is viable based on the city's budget.

This step is the focus of this guide.

5 PRESENT CIP TO COUNCIL IN PUBLIC MEETING & ADOPT PLAN

The party responsible for CIP preparation should present it to the city council who should review, adapt, alter and present the plan to residents before adoption.

6 IMPLEMENT THE PLAN

Use identified funding sources and available community capacity to implement the one-year project list. Throughout implementation, seek ways to improve preparation for future projects. Review status of one-year projects before starting the new CIP.

DEFINITIONS

Operation and maintenance (O&M) costs are the ongoing costs associated with maintaining, cleaning, repairing, staffing, operating, and ensuring an asset to continue its operation after it is acquired.

Capital assets are the high cost assets in a community. They include vehicles, buildings, parks, and other assets that will be used for long periods and exceed a cost threshold set by the community.

INTRODUCTION

Operations and maintenance (O&M) can become an afterthought for community leaders, especially when those leaders lack the resources (time, staff, understanding) to adequately assess the long-term costs of a project. Inattention to O&M can increase when communities receive grants or other external funding that cover building costs for a project. Leaders may assume they will figure out how to pay for O&M later—or don't think of it at all—and that they "can't pass up on this grant opportunity." The result is a potential overextension of community ongoing finances. This guide illustrates two key components of incorporating O&M assessments:

1. How O&M considerations fit into capital asset planning and construction.

2. How communities can recognize O&M costs as a major contributing factor in their decision to acquire a new asset.

O&M considerations apply to every physical project a community undertakes. They are an integral component of the project's cost-benefit analysis and should be considered as an important part of final decisions to pursue or not pursue asset acquisition or construction.

> "This document represents a combined **203** years of administrative experience in over **20** communities."

SOURCE INFORMATION

The two key components in this document were gathered from interviews of experienced community leaders. Through a series of interviews and survey work, the Community Development Office (CDO) collected thoughts and ideas from leaders representing a combined 203 years of administrative experience in over 20 cities, towns, special service districts, or other governmental entities.

WHERE O&M FITS IN THE ASSET LIFE CYCLE

In the CDO's guide "Capital Improvement Planning," after identifying capital projects that are needed in the community, it is recommended that communities research and determine O&M costs. It is important to identify and consider O&M costs before committing to obtaining a new capital asset. If a community backs out during the building or obtainment period there may be negative contractual consequences. After asset acquisition is completed, the community becomes financially liable for the asset's maintenance and operation.

Consequently, the appropriate time to complete analysis of an asset's O&M costs is **before** leadership votes to approve construction of the asset. The analysis must be completed with enough time to inform leadership *and citizens* of the long-term obligation the asset will create for tax payers. This ensures the public is willing to cover long-term expenses and that leadership can feel confident in the project's fiscal viability.

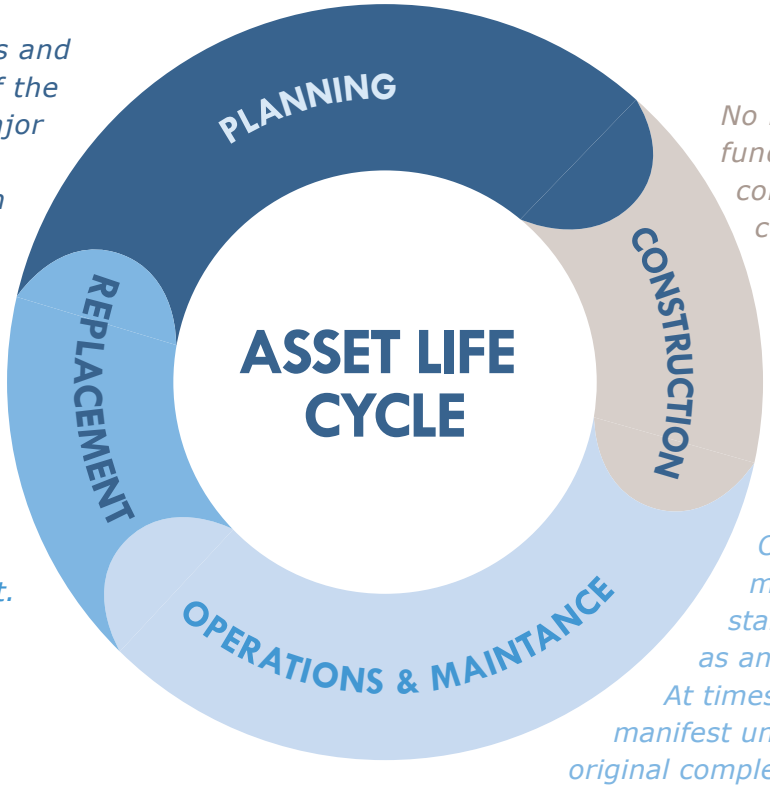
STATE REQUIREMENTS

Although we recommend communities carefully consider O&M costs for all assets, the state has set some specific requirements for water, wastewater, and sewer infrastructure projects. In order to receive state or federal financing or grants for these projects, communities must develop of Capital Asset Management plan. See Utah Codes 73-10g-502 and 19-5-202 for more information.

RESILIENCE FRAMEWORK

Building resilience means limiting the risk of failure in the future. Resilient communities have the capacity to adapt and recover from challenging events. Proper O&M analysis ensures your community has the resources needed to maintain its infrastructure before committing to any long-term financial obligations. This protects the economic well-being of your residents, ensures responsible use of taxpayer dollars, and prepares the community for future financial success.

The future operations and maintenance costs of the asset should be a major component in your community's decision to construct an asset.



No matter the construction funding available, communities who do not consider O&M costs when constructing an asset may overbuild and be unable to maintain the asset.

At the end of the asset's life, leadership must decide whether to renovate, reconstruct, or abandon the asset.

Operations and maintenance costs start to accrue as soon as an asset is completed. At times, these costs do not manifest until years after the original completion of the asset.

ANALYSIS & COMMUNICATION: KEYS TO GOOD ASSET PLANNING

From CDO's work with community leaders and officials, two key concepts emerged: analysis and communication. Leaders stated that a correct and complete analysis with simple cost information provided to both the public and decision makers ensures informed decision making on long-term assets.

The analysis determining the long-term (O&M) costs of an asset is vital to accurately depicting the burden an asset places on a community, regardless of its benefits.

Accurately informing the city council and the community about these costs is the other fundamental of properly handling O&M before an asset is built. When these costs are not considered and accurately accounted for, communities can make poor investments.

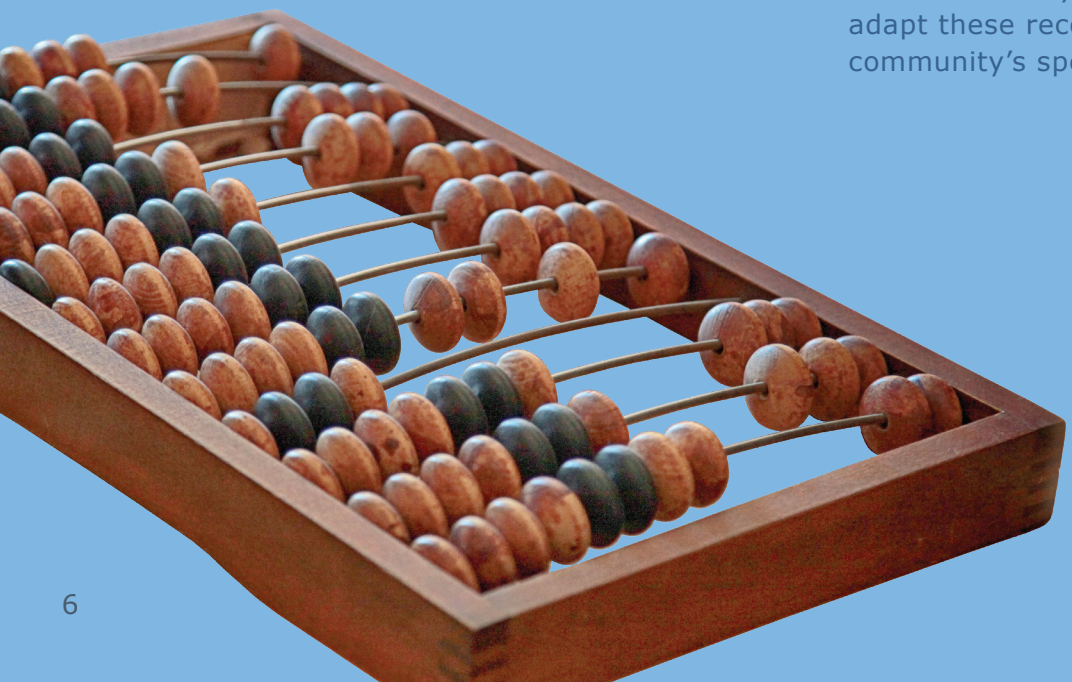
ANALYSIS

Accurate information improves leadership ability to incorporate O&M costs into their decision to purchase, build, or not to build capital assets. This section provides ideas and insights that can be applied to a wide range of projects. It is a reference document for considering the financial and political feasibility of a capital project.

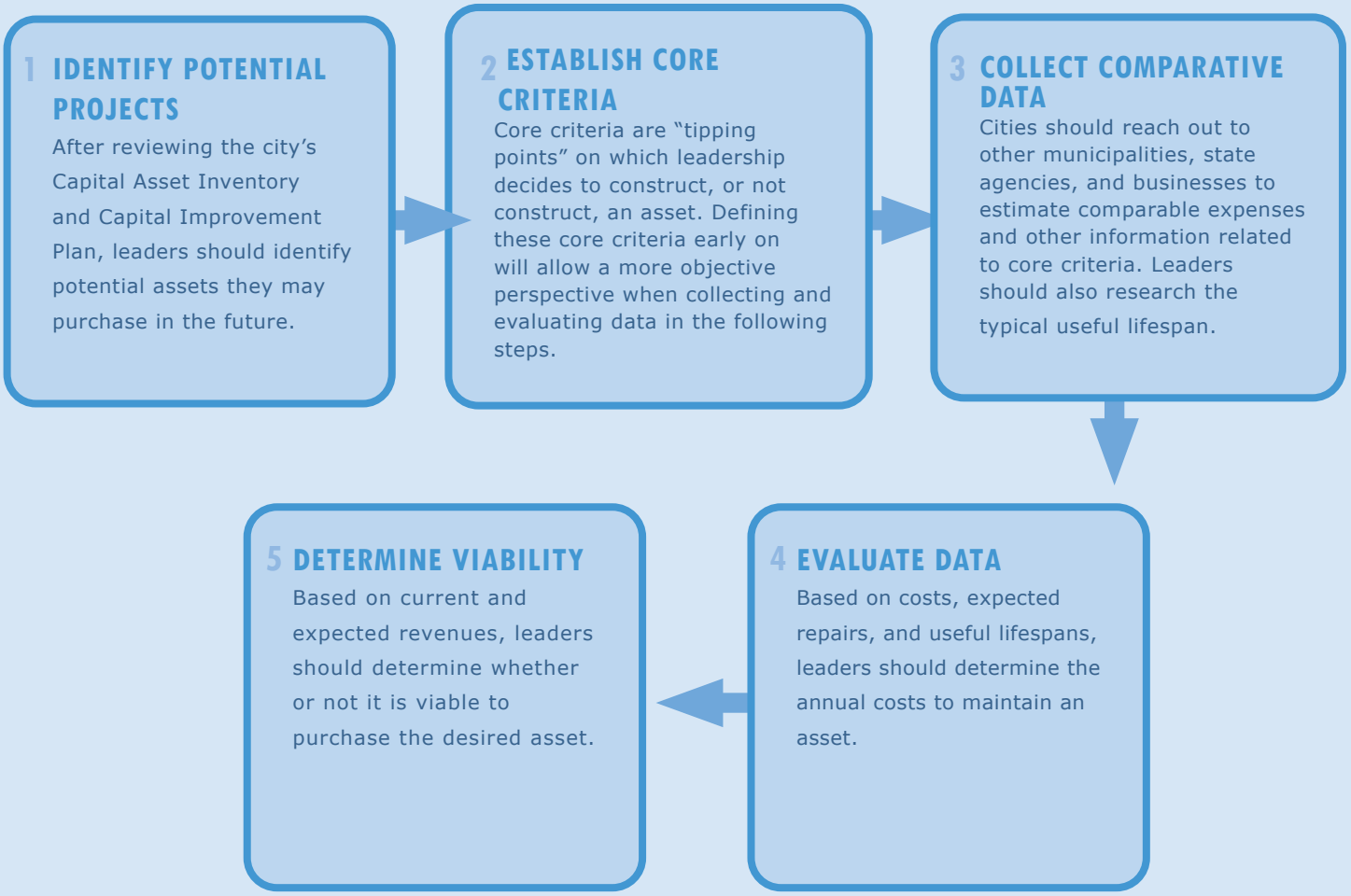
Leaders identified analysis of comparable facilities from multiple communities as the most effective way to estimate the true cost of maintaining and operating a capital asset. The communities used in the analysis should have similar socio-demographics and climates. Most communities will be able to find a project similar to theirs within the State of Utah. This is a cheap, effective way to determine the feasibility and long-term viability of a proposed asset's creation. Similarly, it informs leaders of potential hidden costs that they have not recognized.

When available, multiple comparisons improves the accuracy of an analysis. At first, cast a broad net and try to incorporate a wide range of communities. This is easier for a project like a fire station and more difficult for uniquely designed projects. If data from multiple assets are not available, analyzing one comparable asset is significantly better than going into a project with no knowledge of what long-term operational costs could be.

The following section describes some best practices for analysis identified through the surveys and interviews with community leaders. Review and adapt these recommendations for your community's specific situation.



STEPS TO GOOD O&M ANALYSIS



The purpose of analysis is not to justify preconceived notions of an asset's fiscal viability but to gather sufficient data to facilitate data driven decisions. The following steps are recommended to conduct a thorough comparative analysis for operations and maintenance planning.

The process of contacting other communities to explore their experiences with specific assets will help you understand what data is needed (i.e., collecting historical O&M costs and revenues on comparable assets). Leaders do not need to be experts in data analysis to make the analysis valuable; rather they need to take the time to rationally think through the probable costs and revenues after looking at other communities experiences and considering how their asset's O&M costs and revenues will be similar and how they will differ.

1 IDENTIFY POTENTIAL PROJECTS

Potential projects should be identified after completing your community's Capital Asset Inventory (see CDO's guidebook 'Capital Asset Inventory'). This inventory will help identify assets in need of replacement or repair. Replacement or repair of current assets should be high on your community's priority list. Your community may also identify new capital asset projects as they work through the Capital Improvement Planning Process (see CDO's guidebook 'Capital Improvement Planning').

2 ESTABLISHING CORE CRITERIA

Before gathering data from comparable cities or state entities, the person responsible for the project should establish core criteria. Core criteria are "tipping points" on which leadership decides to construct, or not construct, an asset. These are often related to costs but can also include expected patronage and water usage. Try to establish specific data thresholds as part of the core criteria (e.g., if costs are greater than X, we should seriously question this project). As an example, when determining whether or not to build a swimming pool, leadership might be primarily concerned with the questions listed to the right.

While other factors will play a role in the decision for each leader individually, the role of the core criteria will be to focus group decision making on the most important, and generally accepted, factors

EXAMPLE: CORE CRITERIA FOR A SWIMMING POOL

1. How much the pool will cost to operate and maintain versus total expected pool revenues. If the community is expected to subsidize over a certain amount (e.g., 40%), they should question building the pool.
2. How many people from the community will be expected to use the swimming pool. If under a certain amount (e.g., 30%), they should question building the pool.
3. How much repairs and renovations for the pool will cost in the short-and long-terms. If it's over a certain amount (e.g., $40,000), they should question building the pool.

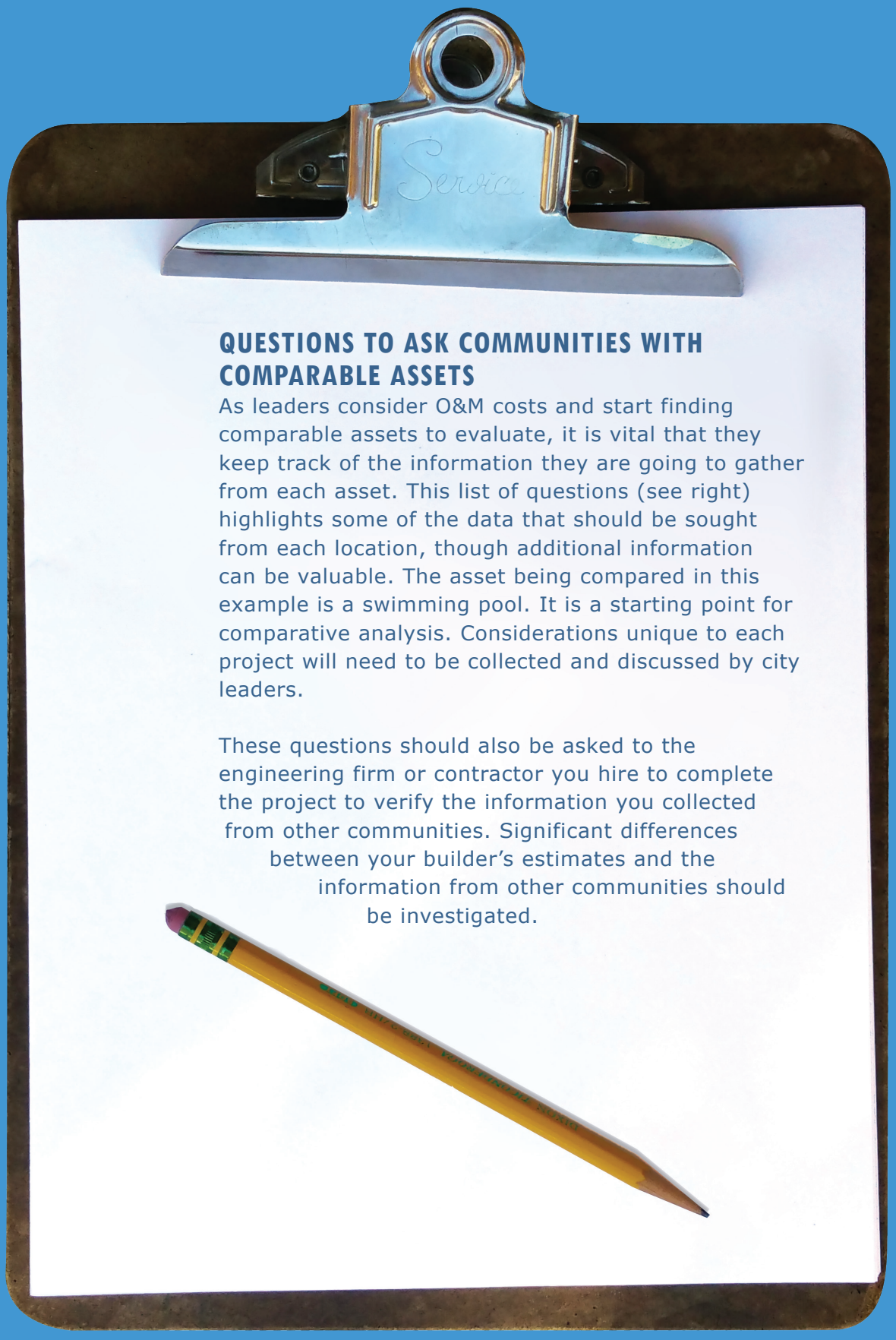
3 COLLECT COMPARATIVE DATA

Data on these assets is best accessed from similar assets in similar communities to your community. The total purchase price (and potential long-term costs) of an asset should dictate the amount of effort and care used in obtaining comparable information: make a greater effort and collect more comparative data on higher cost assets. When available, data should be collected across multiple similar assets in different communities.

Creating a survey that standardizes the information you are trying to collect from other communities will make the data more easily comparable. The survey should include any surprises the community experienced with their asset.

After collecting data on similar assets, enter it into a spreadsheet that allows aggregation of the data. Some asset types will require significantly more analysis. For example, a swimming pool analysis should look at revenue generation versus expenditures on the asset for as many years as possible, while the costs for specific components (like a pump) are more point-in-time cost estimates.

Collect more data than you think you'll need. You'll be glad you have it, especially if the decision to obtain a certain asset is highly contested or uncertain.



QUESTIONS TO ASK COMMUNITIES WITH COMPARABLE ASSETS

As leaders consider O&M costs and start finding comparable assets to evaluate, it is vital that they keep track of the information they are going to gather from each asset. This list of questions (see right) highlights some of the data that should be sought from each location, though additional information can be valuable. The asset being compared in this example is a swimming pool. It is a starting point for comparative analysis. Considerations unique to each project will need to be collected and discussed by city leaders.

These questions should also be asked to the engineering firm or contractor you hire to complete the project to verify the information you collected from other communities. Significant differences between your builder's estimates and the information from other communities should be investigated.

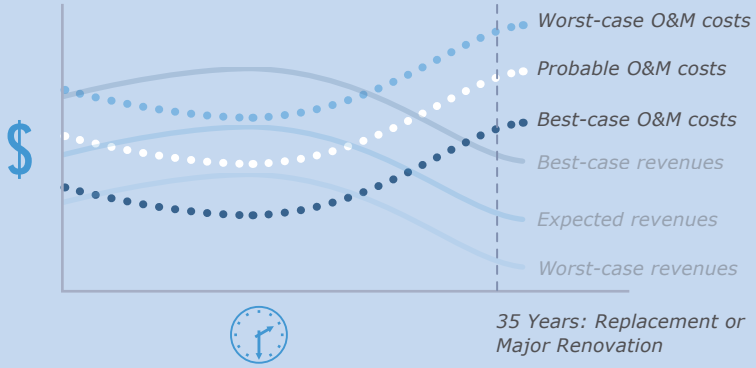
TOPIC	QUESTIONS	EXAMPLE
Size	How do the assets compare in size? Square footage? Number of floors?	How many square feet is the building? How many gallons is the pool? What is the max capacity?
Age & Longevity	How new are the assets you are comparing? How will this impact comparison data? How long before key systems needed repairs? What was the useful life estimate for their project?	What year was the pool completed? Has it undergone any remodels that have significantly extended the life of the pool? How long do you expect the pool to be in operation?
Usage Statistics	Do you have any usage statistics available on a spreadsheet?	How many total visitors per month? Do you have past attendance data? Do you track any demographic data with attendees?
Community	Is the population similar in size, age spread, income levels, etc.? How could differences impact asset use?	What are the demographics of the community? Do certain demographics use the pool more than others?
Wages	Do comparable projects employ staff? What are the labor requirements for operation or maintenance? What do cities with similar assets pay in annual wages for continued operations?	How many people do you have to employ for safety, selling passes, food, etc.? How much does this amount to annually and monthly?
Repairs	How much do repairs cost for comparable assets over time? How frequently are repairs needed? What are the most frequent repairs made? Is staff capable of completing the repairs or are specialists required?	What have you had to fix most often? Do you have historical data on repair costs for the pool?
Fees & Revenue	If applicable, what type of revenue do comparable facilities generate? What percentage of their costs are covered by revenues? What fees are charged for asset use and how were those fees assessed? What is the goal of the fees?	How much do you charge for entrance? Have you raised rates in the past? How much do you earn on average each month of the year? Do you have past revenues data?
Funding	In addition to revenues the asset generates, how do communities with similar assets fund the O&M costs for the asset? Is it subsidized through the general fund? How much?	Are there any special funding mechanisms for the swimming pool? Grants? Do you use a recreation district? Is it subsidized by the general fund?
Unexpected costs	What construction and O&M costs surprised other communities as they built and use their asset? How will we prepare for those costs?	What costs have been most surprising through the building and operation of the swimming pool?
Type of Systems	Will your asset use the same brands for its major systems or materials? Are your materials and systems of higher quality? Lower? The same? How will this affect longevity?	What different sections does the pool have (i.e., kiddie area, diving boards, lap, lockers, etc.)? What brand equipment was used for pumps, slides, diving boards, etc.?
Location	Are the comparison assets in very different climates? Will differences impact longevity and needed repairs? Will seasonal use vary?	Are you comparing inside pools to other inside pools? Are they in a much warmer or cooler climate?

4 EVALUATE DATA

After data collection, sit down and evaluate the data. If there are outliers in your data set, reach out to see why the outlier community in your data set had the anomaly. This can highlight potential pitfalls or best practices. The costs over time can then be graphed, illustrating revenues and expenses over time, expected one-time replacement costs, etc.

Estimating future costs is not a science; you will not be able to perfectly foretell the costs. Your asset will undoubtedly differ from those assets you use in your comparative analysis. As a result, CDO recommends developing potential scenarios (high, mid/expected, and low) to present to leadership. The expected cost or revenues would be the average O&M over time of your comparison group. You can then vary roughly 10-15 percent on either side of your expected scenario or use the highest and lowest of your comparison assets as the high and low with the average as the expected (see below).

SCENARIOS FOR SMALL POOL: REVENUES VS O&M



4 DETERMINE VIABILITY

Once the data is collected and evaluated, leaders must decide whether or not the asset is fiscally viable in the community. This means evaluating all the costs associated with the project, including the operations and maintenance, against the expected benefit. Not all benefits will be monetary—some of the main benefits may include improved access for residents, improved services, or improved quality of life. However, the expected cost of the asset must be compared to projected tax revenue or revenue associated with asset. If the costs exceed the benefits, the project is not viable and should likely be discouraged.

LOANS & USEFUL LIFE

As leaders prepare for financing a project, they should be careful to assure that their loan terms are not longer than the useful life associated with the asset. Generally funding organizations will review for this, however leaders should ensure that they are not burdened with a loan after the asset has lost its value.

PUBLIC INPUT

Once the quantitative data is analyzed, communicating those costs and impacts to the city council and general public is next. In the event that a community is completing a general obligation bond, residents will vote on the project, making their decisions the final go/no-go criteria for a project. Otherwise, leadership will have the final say in the assets creation, though community input should be gathered regardless to ensure the investment meets community desires.

REPLACEMENT PLANS

Leadership also needs to consider replacement costs before they approve a project: is this asset going to be replaced? Is the city planning on paying for its replacement on their own? Does the city have a dedicated revenue stream or means of saving for its replacement?

If leadership ignores planning for replacement, they will leave future leadership and residents (even if the replacement time is 30 years from now) to beg for grants or develop a new revenue source for the asset's replacement. Many rural communities believe in self-reliance. Dependency upon grants to fund replacement costs of a potential asset may be generally unaligned with resident attitudes and may not be a reliable strategy for fiscal management.

COMPARATIVE ANALYSIS (EXAMPLE)

The analysis below illustrates costs and revenues for several swimming pools in rural Utah using multiple criteria. To decide which swimming pools to compare against, the evaluators looked at population size, size and type of pool, and geographic location; they selected pools that were similar to the community in question for these factors, along with some larger and smaller communities to contrast results.

Once pools with comparable statistics were identified, multiple areas for comparison were established. The tables below shows one of several considerations: average annual revenue and expenses. This was used to calculate an annual net cost and an annual net cost per resident.

It is clear from this example that none of these facilities were able to cover all of their costs and were therefore using taxpayer money (likely from the general fund) to subsidize the swimming pools. This may not be undesirable if the citizens are willing to pay the extra taxes. This compiled data provides a range for realistic, potential costs. The community using this analysis could illustrate to the taxpayers a clear choice: build the pool and face probable increased taxes, or go without a pool.

COMPARISON OF PUBLICLY-OWNED SWIMMING POOLS IN RURAL UTAH (2019 FINANCIALS)

	Example #1	Eample #2	Example #3	Example #4	Example #5	Example #6	Example #7	Example #8	Example #9	Example #10
Pop.	1,498	1,830	2,544	2,580	2,604	3,033	3,074	3,418	5,268	8,265
Facilities	Indoor & outdoor pool, aquatic playground	Outdoor pool	Indoor/ outdoor convertable pool, slide	Outdoor pool, slides	Indoor pool, aquatic play-ground	Outdoor pool	Indoor pool	Indoor pool, slide, out-door splash pad	Indoor pool, 2 outdoor pools, play structure, slides	Indoor pool, outdoor wave pool
Revenue	$264,274	$24,158	$42,832	$31,190	$14,863	$29,920	$43,359	$135,672	$289,750	$191,915
Expenses	$354,059	$76,131	$239,227	$136,291	$135,695	$79,034	$213,523	$288,050	$1,068,429	$613,369
Net Costs	-$89,785	-$51,973	-$196,395	-$105,101	-$120,832	-$49,114	-$170,164	-$152,378	-$778,679	-$421,454
Per Resident	-$59.94	-$28.40	-$77.20	-$40.74	-$46.40	-$16.19	-$55.36	-$44.58	$-147.81	-$50.99

*The example above comes from a comparative analysis of swimming pools compiled for the CIB board in 2022. These figures reflect actual municipal pool data, however, names have been removed to protect private information. Contact the Community Development Office (community@utah.gov) for the full analysis.

2019 financial data

Works Cited:

CONCLUSION

Operations and maintenance planning may seem to be a daunting task, but as leaders leverage their resources and relationships, they will be able to get a clear picture of all the costs and benefits associated with an asset. O&M planning is crucial to making informed decisions that will help communities remain self-reliant and sustainable.

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