GOVERNMENTAL ACCOUNTING FOCUS

Estimating useful lives for capital assets

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The Governmental Accounting Standards Board's (GASB) Statement No. 34, *Basic Financial Statements—and Management's Discussion and Analysis—for State and Local Governments*, will require that governments depreciate their exhaustible capital assets, including infrastructure.

Depreciation is the systematic and rational allocation of the (estimated) historical cost of a capital asset,(or if donated, the fair value of a capital asset at the time of donation), over its estimated useful service life. Accordingly, one of the principal challenges facing those attempting to implement depreciation accounting for previously undepreciated categories of capital assets is estimating the useful service lives of those assets (i.e., "lifing"). This article will attempt to provide financial statement preparers with information that may be useful for making such estimates.

Background. GASB Statement No. 34, paragraph 161, provides the following guidance on estimating the useful lives of capital assets:

> For estimated useful lives, governments can use (a) general guidelines obtained from professional or industry organizations, (b) information for comparable assets of other governments, or (c) internal information. In determining estimated useful life, a government also should consider an asset's present condition and how long it is expected to meet service demands.

As discussed in an previous issue of *GAAFR Review* (October 2001), a number of states (especially state departments of transportation) are using the internet to make information available to local governments on the estimated useful lives of various categories of capital assets. Likewise, professional groups and consultants have provided information that should be useful for lifing purposes. It is important, however, that such general information be adapted to a government's specific circumstances. GFOA issued a recommended practice earlier this year on *Estimating the Useful Lives of Capital Assets* that emphasized the need to take into account each of the following factors :

- *Quality.* Similar assets may differ substantially in quality, and hence in their useful lives, because of differences in materials, design and workmanship. For example, an asphalt road will not have the same useful life as a concrete road. Likewise, the depth of the material used for paving purposes, as well as the quality of the underlying base, will also affect the useful life of a road.

- *Application.* The useful life of a given type of capital asset may vary significantly depending upon its intended use. Thus, the life of a motor vehicle used in the public safety function may differ from the life of the same type of vehicle used in the parks and recreation function.

- *Environment.* Environmental differences among governments can have an important impact on the useful lives of their respective capital assets. For instance, the useful life of a road in a climate subject to extremes in temperature is likely to be different from that of a similar road located in a more temperate climate. Also, regulatory obsolescence may shorten the service life of some capital assets used in connection with highly regulated activities (e.g., utilities).

The GFOA's recommended practice goes on to explain that the potential effect of each of these factors could be mitigated or exacerbated as a consequence of a government's maintenance and replacement policy. For example, the potential for road damage is increased in a cold environment when cracks are not promptly repaired because water settling in the cracks will expand and contract, thereby accelerating the initial deterioration represented by the crack itself.

GFOA's recommended practice also emphasizes that lifing is not a one-time exercise. Governments need to monitor their actual experience with capital asset lives and make appropriate changes to estimated useful lives based upon that experience.

Data on estimated useful lives. The paragraphs that follow will offer information on the *average* estimated useful lives of various types of capital assets. This information is based upon our experience performing studies designed to assist clients as they implement GASB Statement No. 34.

Before beginning, it should be mentioned that sometimes a given asset grouping may be classified either as a *land improvement* or as *infrastructure* depending upon the specific circumstances (e.g., parking lots, sidewalks, pedestrian paths). The criterion used to make a classification in such cases often is the location of the asset. A parking lot adjacent to a building, for example, might be classified as a *land improvement*, whereas a public parking lot on a street corner operated by the government might be classified as *infrastructure*.

Roadways. Information on roadways can be reported in one of several ways:

- *by detail* (e.g., *curbs*, *gutters*, *surface type*, *guardrails*, *concrete barriers*, etc)
- *by subsystem* (e.g., *roadway pavement*, including curbs and gutters)
- *by network* (e.g., *roadway network,* consisting of pavement, curbs, gutters, lighting, guardrails, signage, etc.).

From our experience in setting up and reporting infrastructure values, the most common method for reporting roadway infrastructure is by subsystem. This approach provides a level of detail sufficient for describing the components of the roadway system and allows the use of a component-specific useful life for depreciation purposes. The subsystem approach also facilitates the retirement of infrastructure assets on a go-forward basis.

The estimated useful life of roadways appears to depend more on the type of pavement material used than on the class of roadway (i.e., local, connector, arterial, major arterial). The reason may be that the engineering design of roadways with a high average daily traffic (ADT) adjusts for the high traffic volume compared to the engineering design of a roadway with a lower traffic volume. Thus, a concrete arterial roadway will have the same estimated useful life as a concrete local roadway.

Although roadways usually are reported by type of pavement, governments sometimes prefer to report by class of roadway (i.e. local, collector, arterial or major arterial). In that case, the estimated useful life is weighted to take into account the mix of surface types comprising each class.

Four factors affect the life assigned to roadways:

- subgrade or bearing capacity of the road (i.e., a harder subgrade under the roadway leads to a longer life for the roadway)
- the composition of the asphalt or concrete surface
- traffic volume (engineered for cars and/or trucks)
- climatic conditions (e.g., as amount of rain or snow, fluctuation in temperature).

One additional factor to consider when assigning roadway lives is the speed limit. Asphalt roads with a slower speed limit, for example, have a shorter life than asphalt roads with a high speed limit because of the "creeping" quality of asphalt.

When arriving at an estimated life for a roadway it is assumed all normal maintenance will be performed to maintain the roadway during its normal life. "Average" lives for roadways are as follows:

Dirt	10 years (subject to weather conditions)
Gravel	15 years (subject to weather conditions)
Concrete	30 years
Asphaltic concrete	20 years
Brick or stone	50 years

Sidewalks. As with roadways, climatic conditions, such as the amount of rain or snow and fluctuations in temperature, affect the life of sidewalks. Otherwise, the average lives for sidewalks depend upon the material used for construction, as follows:

Concrete	30 years
Asphalt	25 years
Brick or Stone	50 years (subject to weather conditions)

Parking lots. Once again, the key variable in determining useful life is the construction material:

Concrete	35 years
Asphalt	15 years
Gravel	10 years
Brick or stone	45 years

Bridges and culverts. Sometimes there is confusion when attempting to distinguish *bridges* from *culverts*. One approach to resolve this potential problem is to use the length of a structure as the determining factor (e.g., all structures with a span of more than 20 feet are to be classified as *bridges*).

As with roadways, a number of state departments of transportation publish estimated useful life guidelines of bridges within the state. For financial reporting purposes, the following average lives may be useful, subject to any adjustment needed to reflect climate and temperature fluctuations.

Precast concrete	40 years
Prestressed concrete	45 years
Steel with truss	50 years
Steel without truss	45 years
Timber/wood	30 years
Pedestrian	
Steel	30 years
Concrete	30 years
Wood	25 years

Unique structures, such as suspension bridges, cable staid bridges, moveable bridges (e.g., rotating, hydraulic, bascule), and covered bridges typically are evaluated on a case-by-case basis.

Culverts can be divided into two categories: *major* and *small*. *Major culverts* have a side area of 35 square feet or greater. *Small culverts* have a side area less than 35 square feet.

Major culverts:

Concrete (precast box, precast elliptical, cast in place)	40 years
Concrete pre stress	45 years
Timber log treated	30 years
Steel (corrugated round, corrugated bottomless arch)	30 years

Small culverts:

Plastic	25 years
Cast iron	30 years
Metal corrugated	30 years
Concrete	40 years

Road signage. GASB Statement No. 34 limits the *mandatory* retroactive reporting of infrastructure assets to *major* networks and subsystems. Consequently, road signage normally is exempt from this requirement. Nonetheless, most governments are choosing to report roadway signage because information is readily available. The average useful life of road signage is 10 years.

Traffic lights. The situation for traffic lights is essentially the same as that just described for road signage. The following are average useful lives:

Mast arms	20 years
Hung wire	15 years

Street lighting. Once again, most governments will report street lighting voluntarily, because the information is readily available. The average useful life of street lighting varies, as follows:

Concrete	30 years
Metal	20 years
Wood	15 years

Sewer lines. For sewer lines, the key factor in estimating the average useful life is the material used, as follows:

Concrete	50 years
Brick	90 years
Metal	40 years

Storm drains. The average useful lives of storm drains depends upon the type of material used, as follows:

Plastic	25 years
Cast Iron	30 years
Metal Corrugated	30 years
Concrete	40 years
Ditch/Trench	100 years

Berms and tunnels. The average useful life for a berm is approximately 20 years. Tunnels have a highly variable life expectancy. Accordingly, useful lives for tunnels typically are assessed individually.

Alleys. The average useful life of an alley is similar to that of a roadway, as follows:

Concrete	20 years
Asphaltic Concrete	20 years
Dirt	10 years
Gravel	15 years
Brick or Stone	50 years

Man-made lakes, water ways/canals, and boat ramps. The average useful life of a man-made lake is 100 years. The average useful life of a waterway or canal is also 100 years. The average useful life of a boat ramp depends upon the construction material, as follows:

Wood	10 years
Concrete/Asphalt	20 years
Metal	15 years

Marinas. Different estimated useful lives apply to different types of marinas, as follows:

Piers	50 years
Seawalls	50 years
Bulkheads	50 years

Bike/Jogging paths. Once again, the type of surface is the key factor in estimating the useful life of a bike or jogging path (just as was the case for roadways and alleys), as follows:

Dirt	10 years
Gravel	15 years
Concrete	30 years
Asphalt	20 years
Composite rubber	7 years
Brick or stone	50 years

Reservoirs and dams. Reservoirs have an estimated useful life of 50 years. Dams require individual research. As a general rule, however, earthen dams have a life of 40 years and concrete dams have a life of 60 years.

Airport runways. Airport runways have, on average, an estimated useful life of 10 years.

Moveable equipment. The following is a list of average estimated useful lives for some of the most commonly encountered categories of moveable equipment:

Athletic equipment	10 years
Appliances/food service equipment	10 years
Audio visual equipment	7 years
Books, multi-media materials	5 years
Business machines	7 years
Communications equipment	10 years
Computer software	5 years
Contractors/construction equipment	12 years
Computer equipment	5 years
Fire department equipment	12 years
Furniture	20 years
Grounds, agricultural equipment	15 years
Lab, science equipment	10 years
Law enforcement equipment	10 years
Licensed vehicles	6 years
Machinery and tools	15 years
Musical instruments	10 years
Outdoors recreational equipment	15 years
Stage and auditorium equipment	20 years
Custodial equipment	15 years
Photocopiers	5 years

Land improvements. The following is a list of the average estimated useful lives for common categories of land improvements:

Fencing, gates	20 years
Landscaping	10 years
Outside sprinkler systems	25 years
Athletic fields	15 years
Golf courses	20 years
Septic systems	15 years
Stadiums	45 years
Swimming pools	20 years
Tennis courts	20 years
Fountains	20 years
Retaining walls	20 years
Bleachers	20 years
Soccer fields	15 years
Running track	15 years
Outdoor lighting	20 years

Buildings, building components, and building services. The following is a list of the average estimated useful lives for buildings, building components, and building services:

Permanent structures	50 years
Portable structures	25 years
Excavation	50 years
Foundation	50 years
Frame	50 years
Floor structure	50 years
Floor covering	15 years
Carpeting	5 years
Computer flooring	10 years
Exterior walls	50 years
Roof cover	10 years
Interior construction	15 years
Interior renovation	10 years
Ceiling finish	10 years
Plumbing	20 years
HVAC	20 years
Electrical	20 years
Fire system	25 years
Elevators	20 years