



CALCULATING CRITICALITY

The criticality score of an asset is sum of the PoF and CoF. This score can be used to prioritize O&M plans and repair or replace decisions.

$$\text{CoF} + \text{PoF} = \text{Criticality}$$

PoF AND CoF RANKING

Develop a ranking scale that works for your utility. Ranking could be a 1-5 scale or 1-7 scale. Be sure that it is specific so that everyone knows how to rank an asset.

HOW TO START

Understand the condition and importance of your assets. Discuss what your ranking system will look like for your utility and begin.

Core Component 3: Criticality

Prioritizing activities based on risk.

Criticality is the intersection of the **Probability of Failure** and **Consequence of Failure** of an asset. Using ranking systems and charts, you can prioritize the next steps for your utility.

Probability of Failure (PoF)

Probability of failure is the likelihood that an asset will fail. All assets will fail eventually; however, there are factors that influence failure, including:

- Condition of the asset
- Age of the asset (*Be cautious when considering the age of an asset. Don't give an asset's age too much weight unless you have a detailed repair history to accompany it.*)
- Repair history
- Operations & Maintenance history

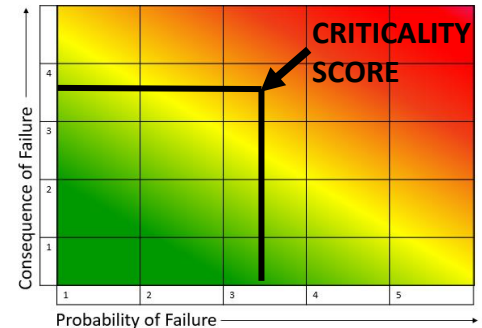
There are 4 Failure Modes that can be responsible for the failure of an asset.

- Mortality is a physical problem. Ex: A leak that leads to failure.
- Changes to Level of Service due to changes in regulations or customer demands. Ex: Increasing water pressure can stress an asset to failure.
- Capacity is not delivered at desired levels. Ex: A small main line that now needs to deliver fire flow can lead to asset failure.
- Financial inefficiency can lead to spending too much to repair when replacement would be more efficient and potentially prevent failure.

Consequence of Failure (CoF)

Consequence of failure is the impact the community will experience if an asset fails. CoF considers the triple bottom line impacts:

- Financial Impacts
 - Damage to other assets
 - Legal fees
 - Cost of shutting down or limiting operations
- Environmental Impacts
 - Violations
 - Fines
 - Contamination
- Social Impacts
 - Loss of confidence in the utility
 - Length of time out of service
 - Safety and health concerns



Visit the [Southwest Environmental Finance Center Asset Management Switchboard](#) for more tips on criticality.

This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement A197756601 to Wichita State University Environmental Finance Center. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does the EPA endorse trade names or recommend the use of commercial products mentioned in this document.