Asset Management. The Short Version

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What is asset management?

- Asset management is maintaining a desired level of service for what you want your assets to provide at the lowest life-cycle cost.
  - US EPA

5 Key Areas

- Asset inventory & condition
- Level of service requirements
- How critical are the assets?
- Reaching low/minimum life cycle costs
- Long-term funding strategy

Asset inventory & condition

- Pretreatment
  - Maps & blueprints
  - Spare parts
  - Manufacturer literature
  - Change orders
  - Upgrades/repairs
  - Inspections
  - Replacement cost

Pricing replacement of assets

- Capacity
  - Asset replacement should include cost to meet correct capacity
    - Upsize OR downsize
- Realistic
  - Price should be what asset is replaced with, not what asset currently is.
    - i.e. clay sewer probably replaced with plastic

Important notes

- Note the following:
  - Assets nearing “past the point of no return”
  - Assets posing health/safety risks
  - Assets impact other environmental regulation
  - Assets with significant disposal costs
  - Assets that are completely obsolete

Level of Service Requirements

- In pretreatment setting – generally dictated
  - City of Wichita
  - KDHE
  - EPA
  - Internal/external company goals
  - ISO & other standards
  - Trade standards

Level of Service – Your input

- Chemical use
- Energy use
- Recycling percentage
- Landfill diversion
- Beneficial reuse
- Uptime %

What are the critical assets?

- Criticality
  - = probability of failure x consequence of failure
- Not determined by type or age of asset
- Changes over time

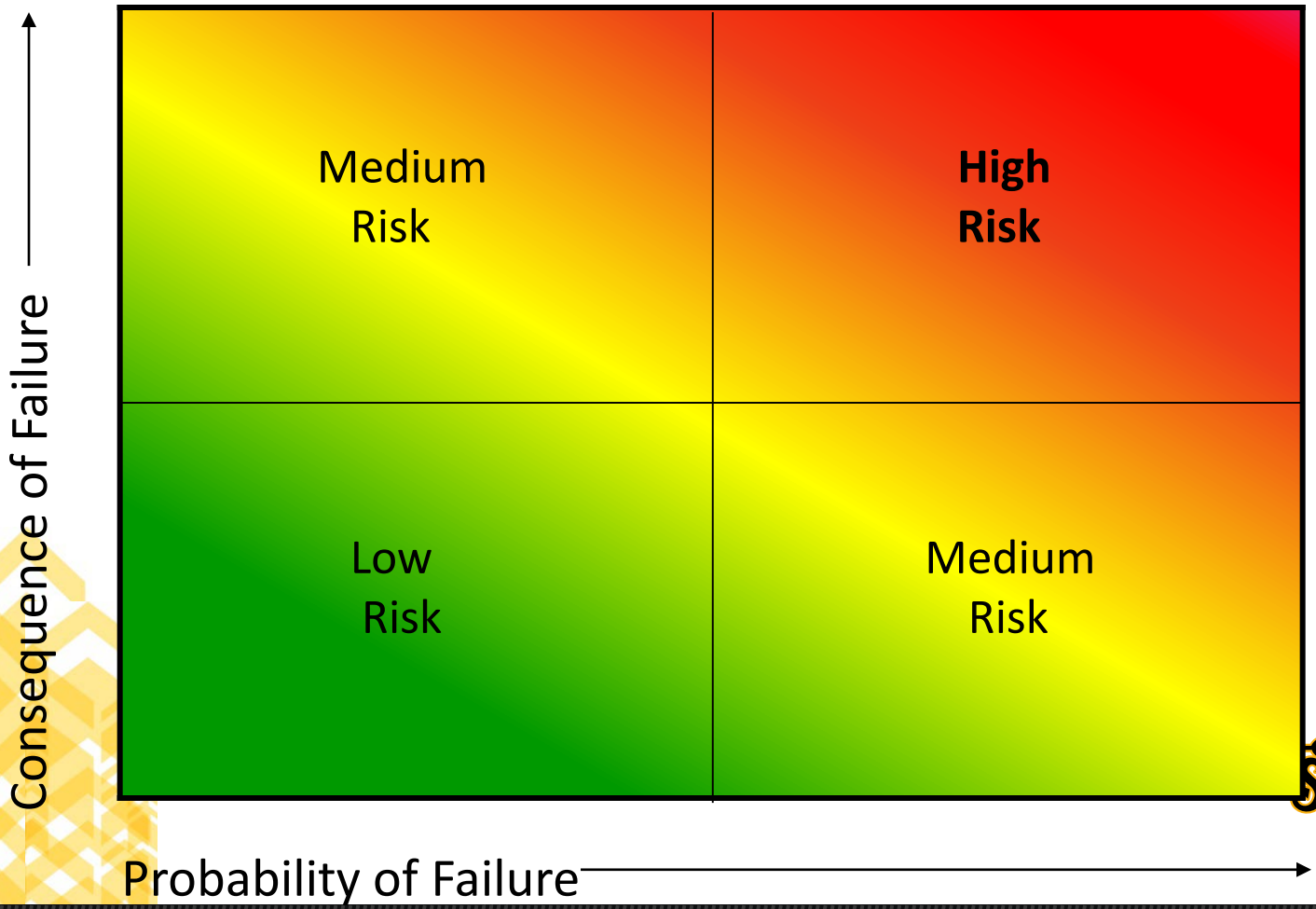
Probability of failure

- Experience – you & others
- Maintenance (or not)
- Stated lifespan
- Rehabs/rebuilds
- Recent operational changes
- Spare parts in inventory

Consequence of failure

- Costs, including:
  - Direct expenses
  - Downtime
  - Costs to cure for missed contracts
  - Goodwill/Public Relations
  - Social
  - Environmental
  - Health & Safety

Critical Assets – Risk Analysis



Which category of assets do I care about the most?

The least?

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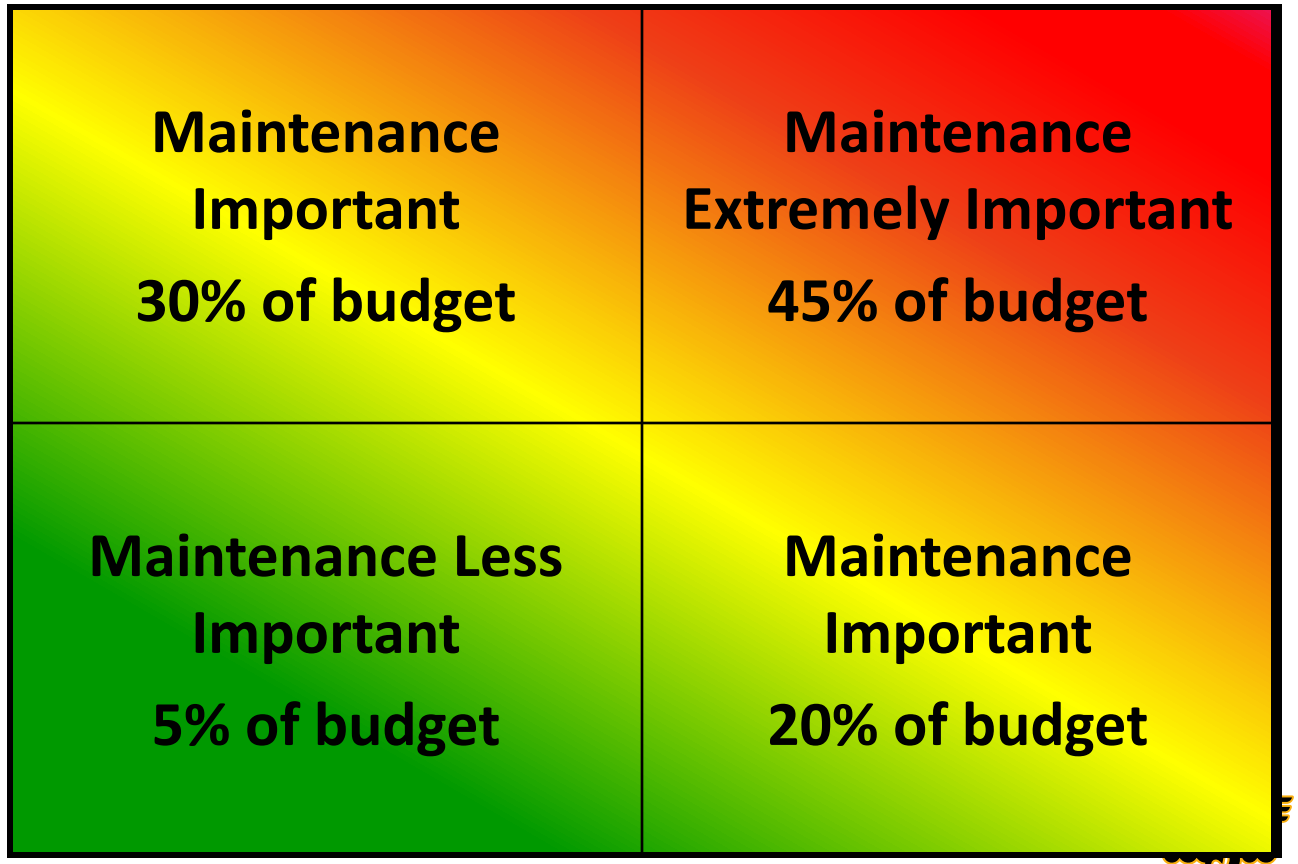
Life Cycle Costing

- Attempts to:
  - Minimize the cost of owning, operating, maintaining and disposing of an asset from initial service to final disposal
  - You will be wrong
    - Asset management helps you be less wrong

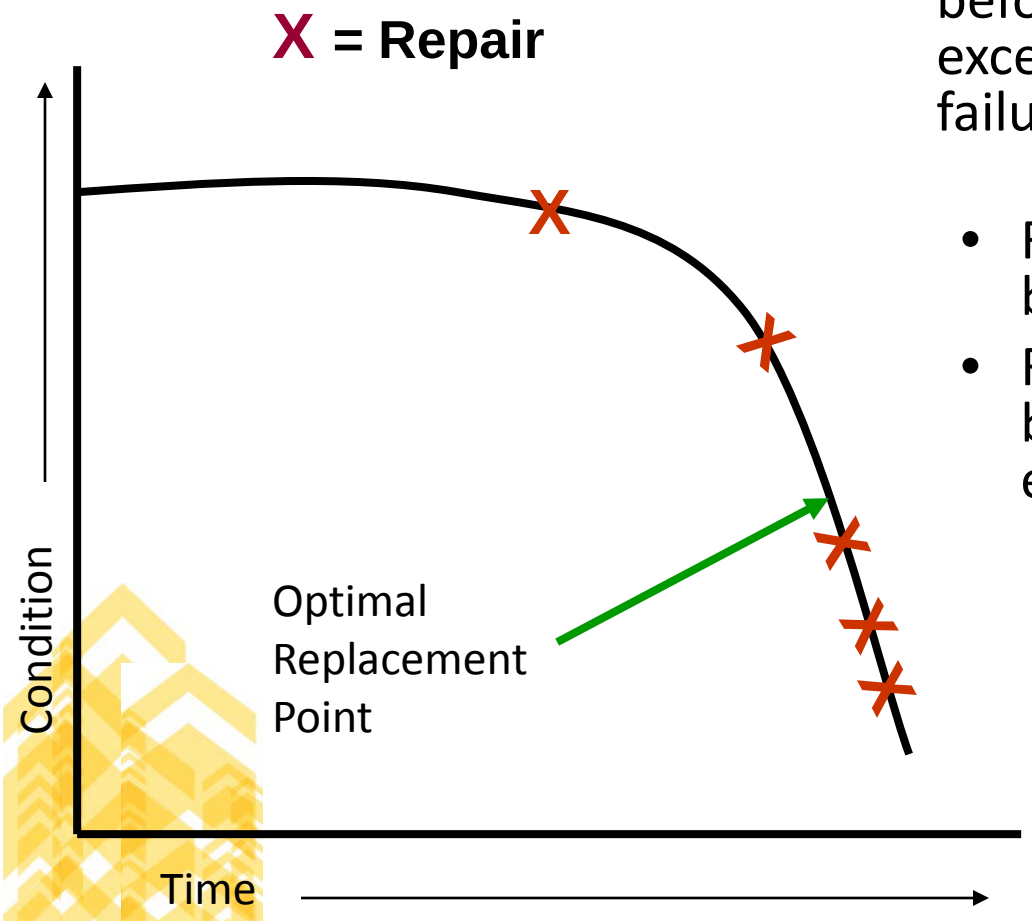
Maintenance Based on Criticality



Energy Management

- Energy is a huge driver of life cycle costs
- Inventory high users
- Determine if efficient
- Determine if necessary
- Make more efficient with PM
  - Efficient lubricants
  - Heat = friction = wear = breakage

Life Cycle Costing: Replacement of Assets



The optimal time to replace an asset is before repair or maintenance costs are excessive or just before a catastrophic failure.

- Replace too early, money is wasted by not using all of an asset's life
- Replace too late, money is wasted because the repair will be more expensive

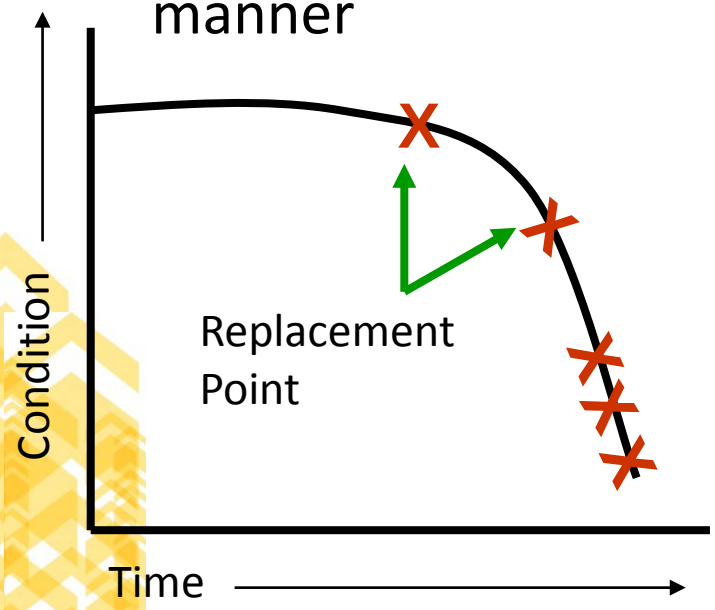
Not possible to know the optimal time to replace every asset

So… need to use the concept of risk

Replacement of Assets & Risk

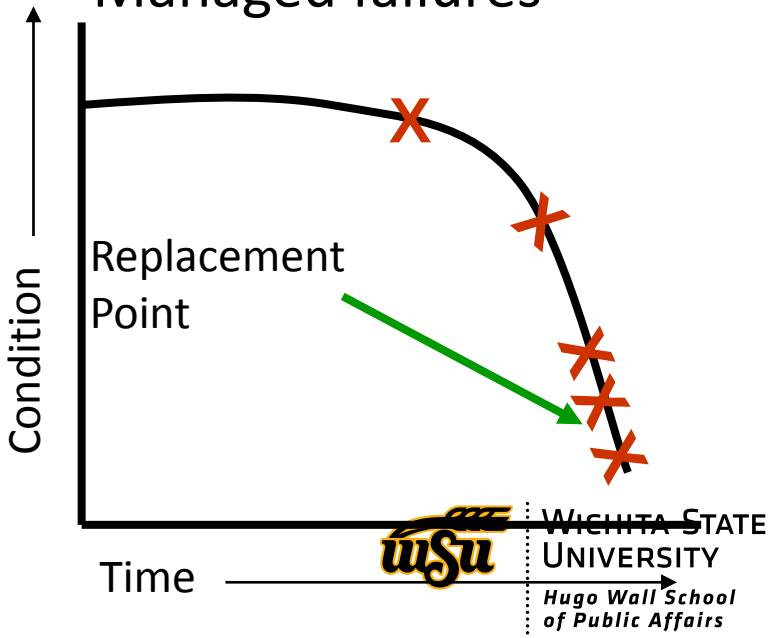
High risk assets: err on the side of replacing too soon, before failure

- Replaced in a planned manner



Low risk assets: allow them to run to failure and replace afterwards

- Managed failures



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Long-term funding

- Display risks
- System must run to operate facility
- Capital improvement program
- 5-10 years projection of large items/costs
- Save money
  - Rehab where possible
  - Reduce energy or labor costs

Questions? Comments?

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