

# Bridge Preservation Model and Optimization

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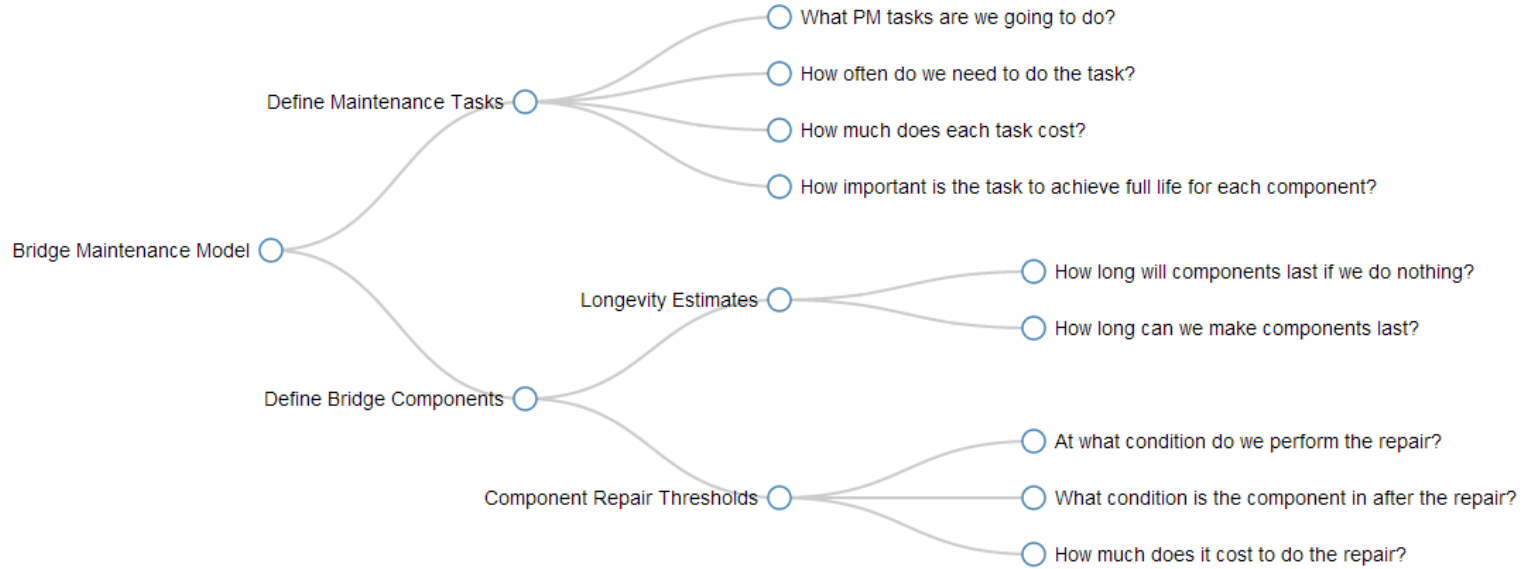
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# Bridge Preservation Model and Optimization

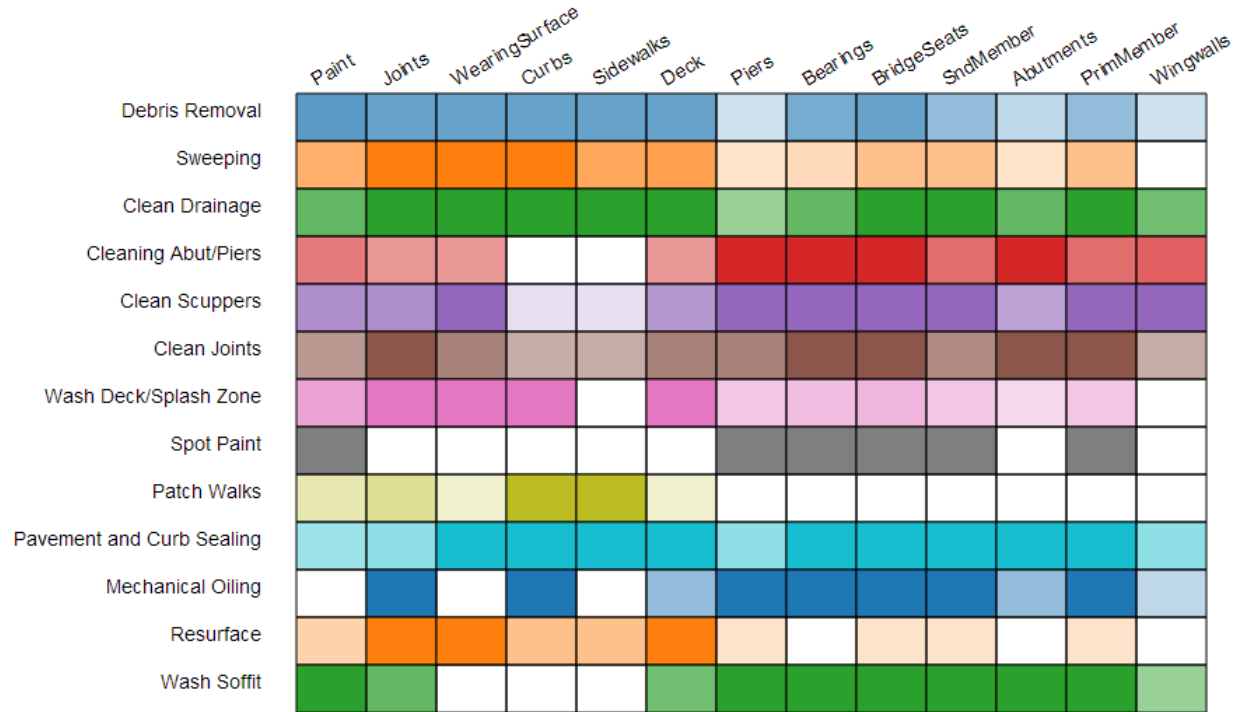
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# Bridge Preservation Model and Optimization

## Importance Factors of Maintenance Activities on Bridge Elements

The matrix below describes the relative importance of each PM task to each bridge component. Opacity is set by the importance of the maintenance task to achieving the full life of the component.



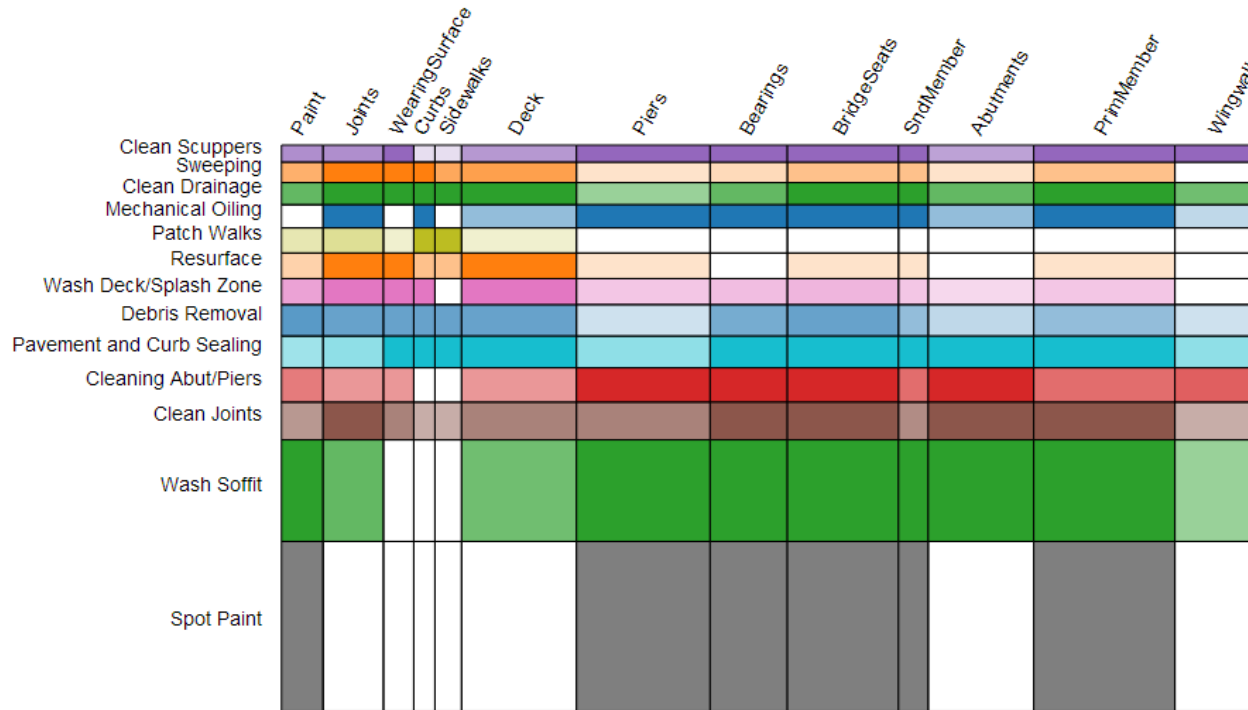
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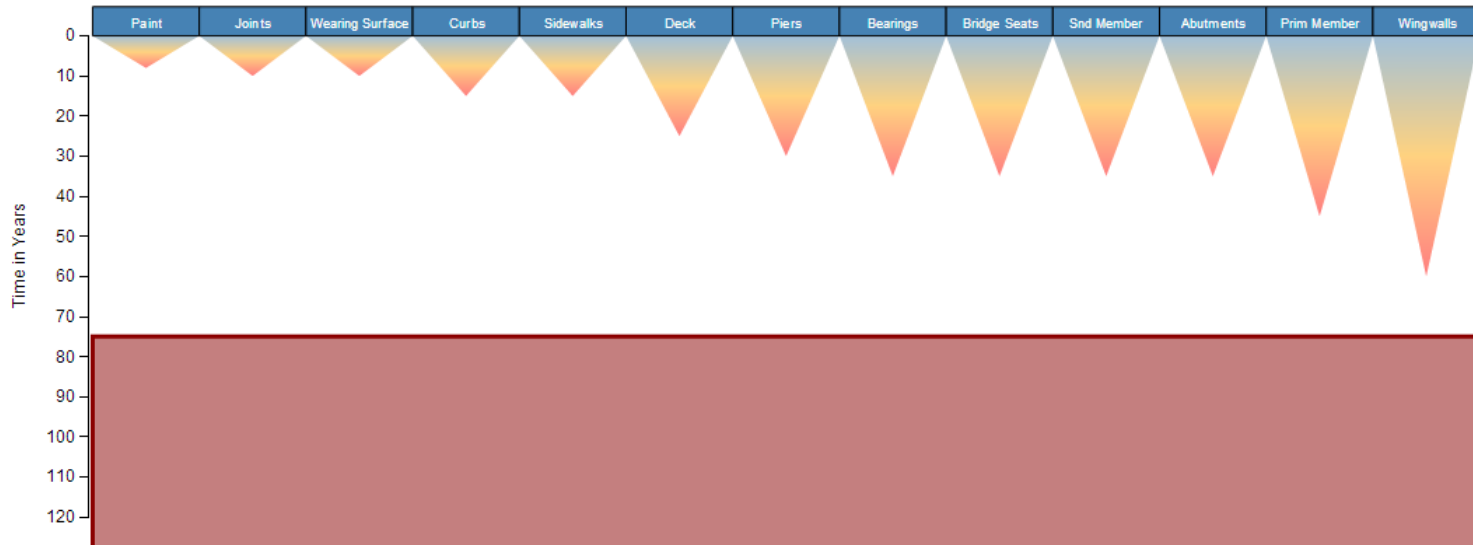
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# Bridge Preservation Model and Optimization

## Maintenance Model Simulation

The display below simulates the basic functions of the preventive maintenance model



Bridge Service Age: 75-years

Uniform PM Task Frequency: 0%

The buttons below scale the longevity estimate at different Maintenance Levels

Equal Sized Components

Component with Weighted by Repair Cost

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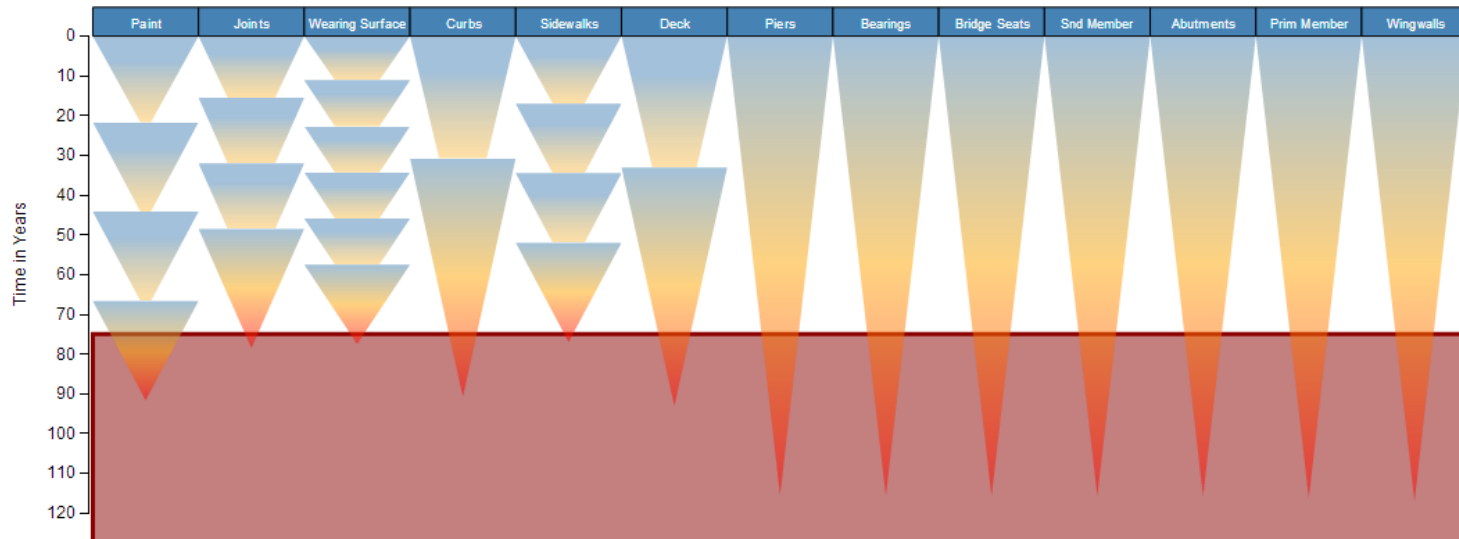
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# Bridge Preservation Model and Optimization

## Maintenance Model Simulation

The display below simulates the basic functions of the preventive maintenance model



Bridge Service Age: 75-years

Uniform PM Task Frequency: 100%

The buttons below scale the longevity estimate at different Maintenance Levels

Equal Sized Components

Component width Weighted by Repair Cost

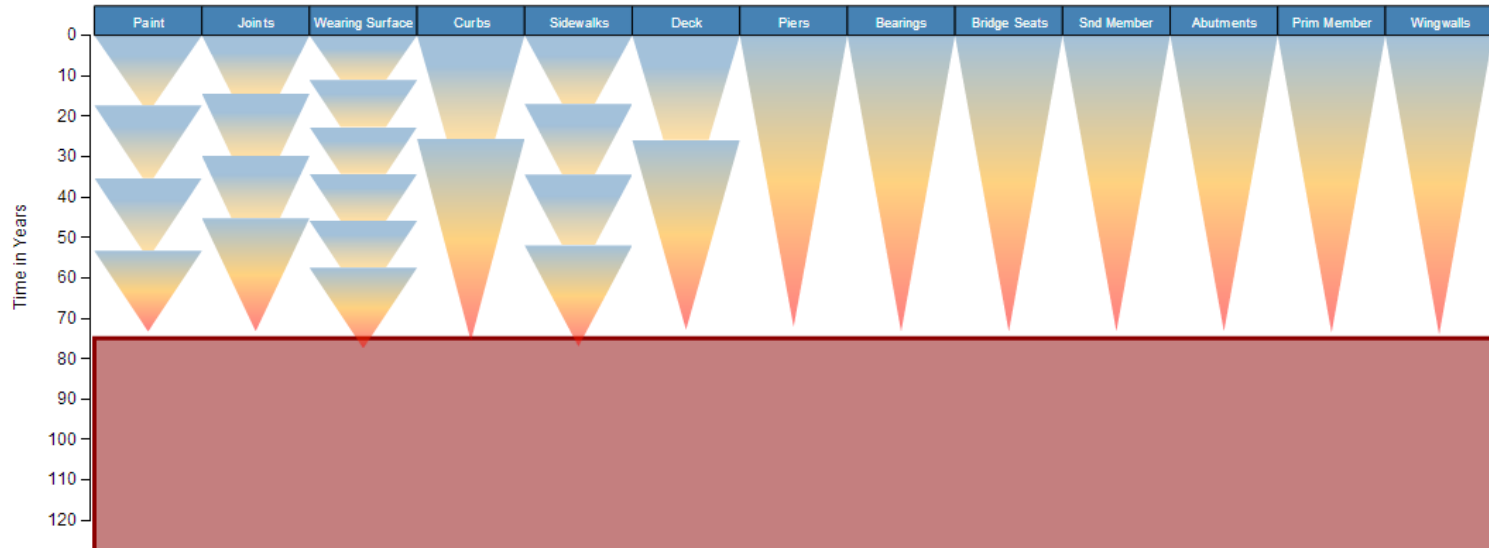
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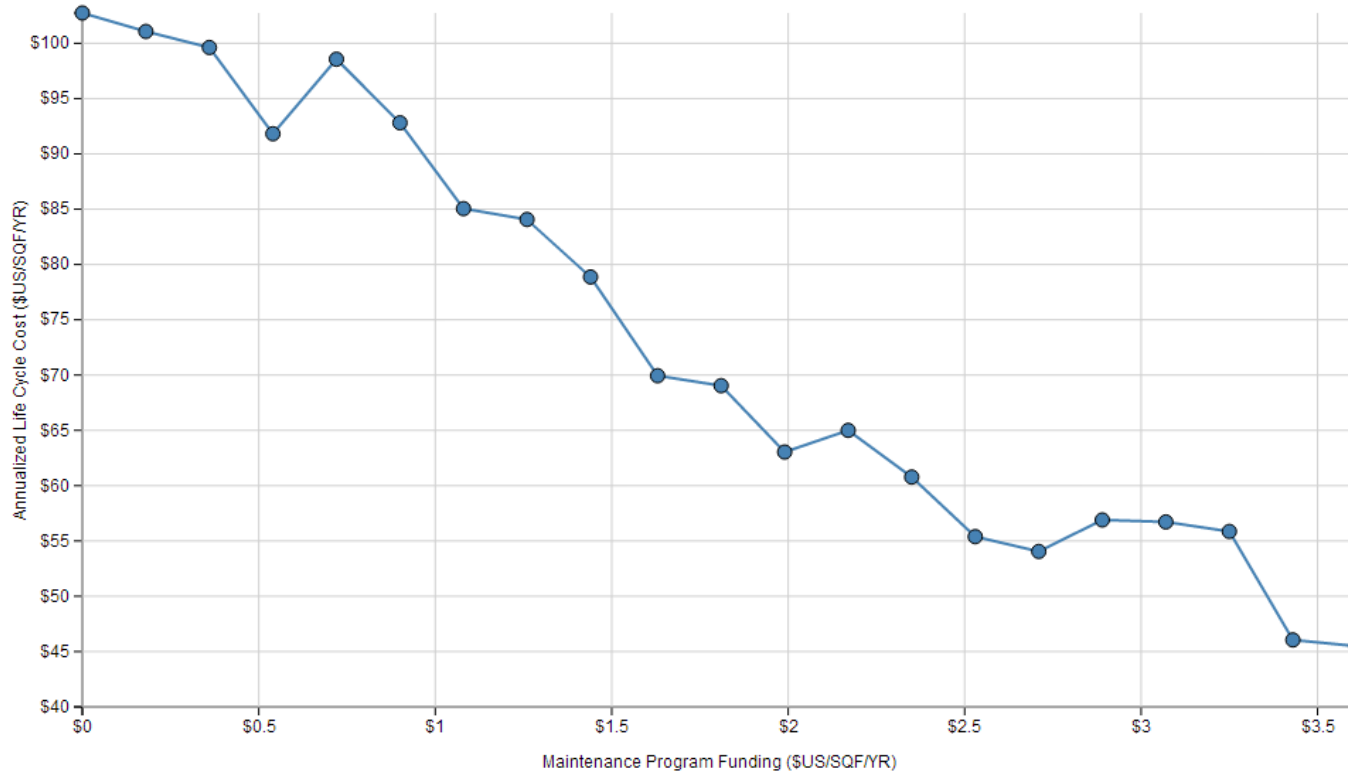
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# Bridge Preservation Model and Optimization

Life Cycle Cost vs PM Program Funding

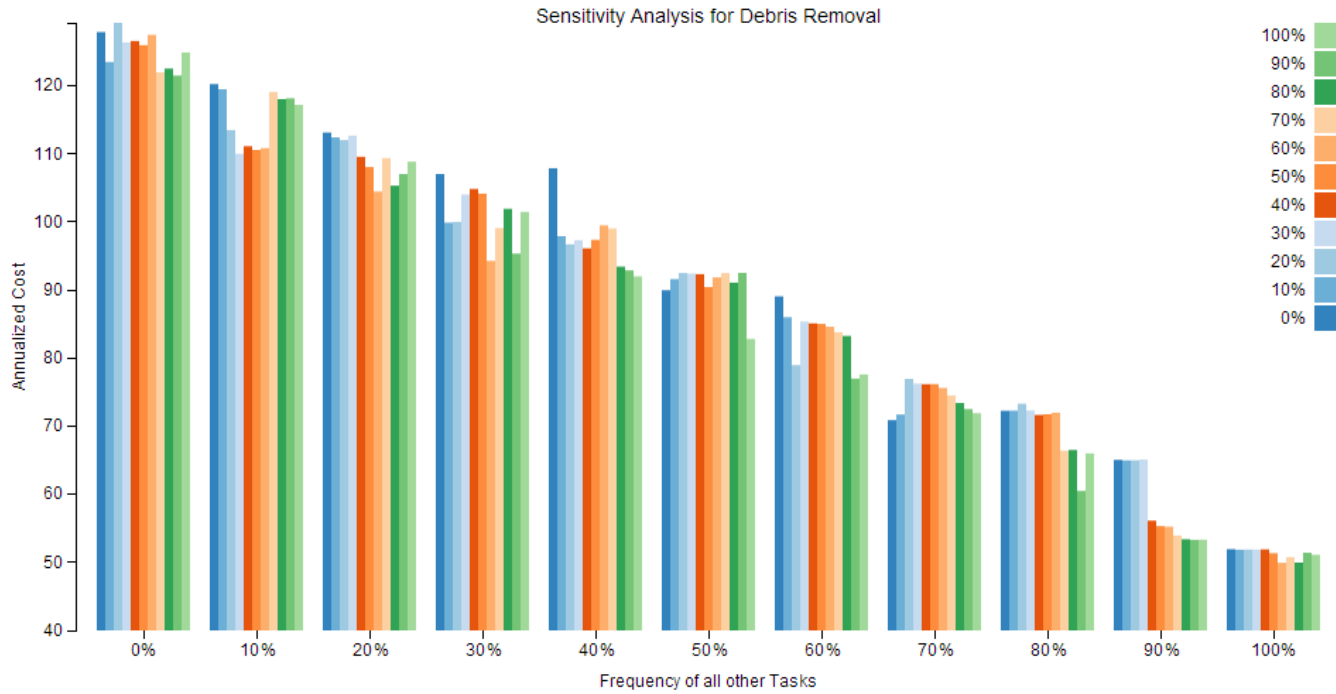


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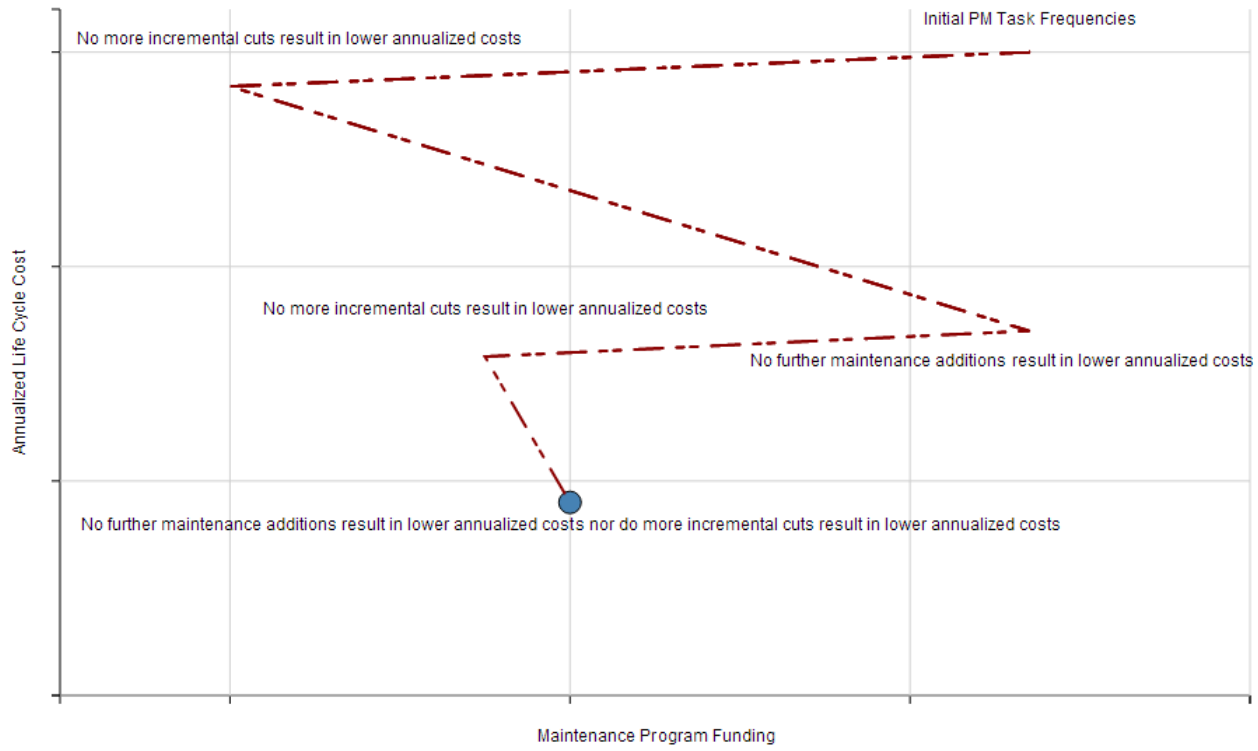


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# Bridge Preservation Model and Optimization

## Life Cycle Cost vs PM Program Funding



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# Bridge Preservation Model and Optimization

Life Cycle Cost vs PM Program Funding

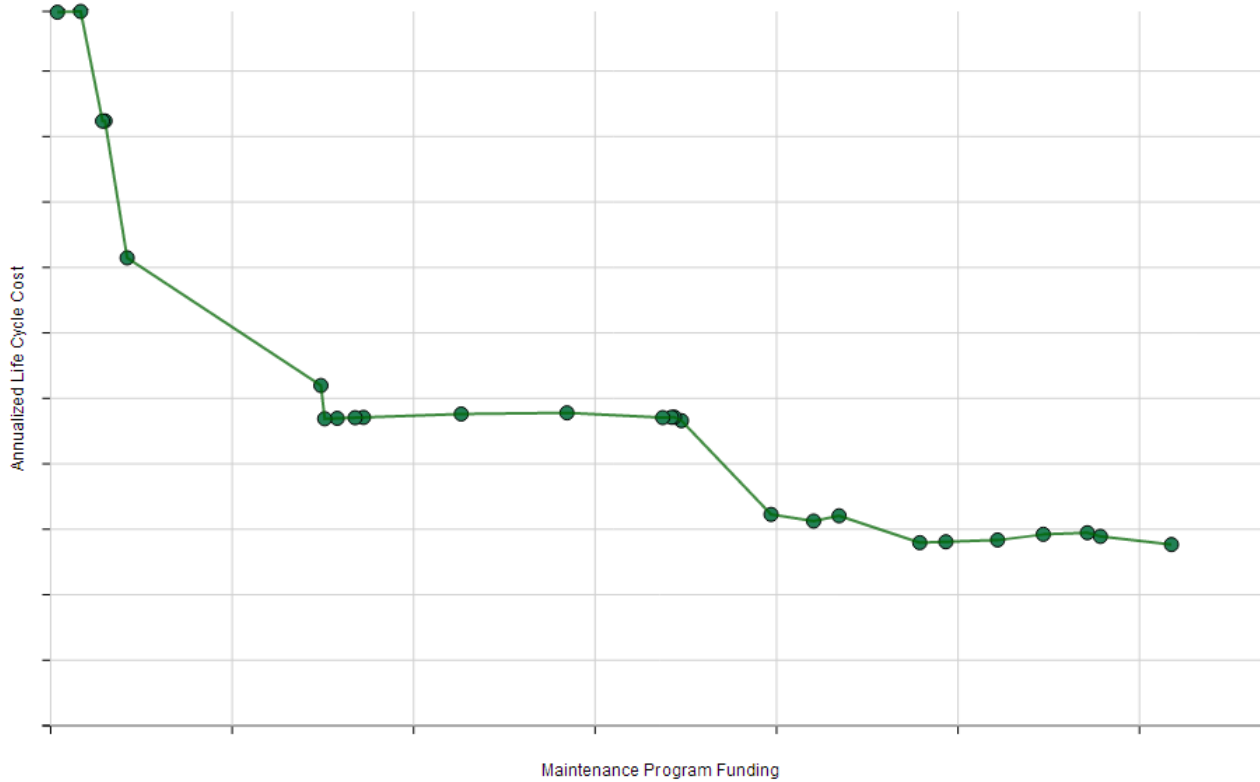


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# Bridge Preservation Model and Optimization

Life Cycle Cost vs PM Program Funding



Optimize Scatter Highlight Efficiency Frontier Show Curve Segments

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### So What?

- A simple and understandable way to present the mechanics of preventive maintenance to decision makers (read: funding)
- Helps agencies keep sight of fundamental asset management questions.
- Model optimization may reveal bias in assumptions or errors in data and/or analysis.
- Model optimization aids in the initial decisions on where to emphasize program efforts/expenditures
- Easy to develop and maintain in-house.

### Questions?

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