A case for breaking down the Capital – Maintenance Barrier

Royce Greaves
I’m a Civil Engineering Asset Manager

So what does that mean?

I can help you deliver more for less:

- impress your legislature!
- please your stakeholders!
- give you some certainty about your future costs!
Icebreaker
Icebreaker
Icebreaker
Presentation Overview

- Purpose
- Current situation
- Constraints to change
- Exploiting the constraints
- Benefits
- Summary
- Questions
Purpose

• When you are back at the office after this conference…..
  ▪ You will challenge your organization
  ▪ You will always consider lowest lifecycle costs when making investment decisions
  ▪ You will talk to your CAPEX / OPEX teams!
  ▪ You will get your OPEX / CAPEX teams talking!
Current Situation

• Significant length of highway portfolio in Condition D (fair to poor)
• Fiscally constrained environment (need > budget)
• MAP21 - driving performance based outcomes
• Capital and Maintenance seen as mutually exclusive investment alternatives
• Impact of Capital on Maintenance not always accounted for
Current Situation
What needs to change?

- Organizational structure
- Compartmentalizing of maintenance and capital investment
- Fixed annual, non-transferable budgets
- CAPEX decisions without downstream OPEX impacts
- Political leverage of CAPEX over OPEX
What needs to change?
Asset Lifecycle

- Disposal methods, salvage, residual value calculations
- Analyze asset performance history
- Continue regular inspections, and monitoring maintenance, condition and risk
- Run options through optimized decision making process
- Schedule, estimate and allocate budget
- Regular inspections, maintenance
- Monitor risk performance and condition
- Asset does not meet condition, performance, demand or risk criteria
- ID demands and LOS standards/regulations
- Run options through optimized decision making process
- Schedule, estimate, and allocate budget
- Design standards
- Procurement process
- Material and construction standards
Asset Lifecycle Cost

Cumulative costs over asset life

- Construction
- Maintain
- Refurbish
- Disposal & Replacement

Effective Life

Present value costs

Required cash flow
Bring the two together….

- \(\uparrow\) CAPEX drives \(\uparrow\) OPEX
- Good OPEX \(\downarrow\) CAPEX
- Efficient OPEX = more $ for CAPEX
- \(\downarrow\) CAPEX = \(\uparrow\) OPEX

- Additionally, these are continually changing:
  - LoS, standards, regulations, technologies, budgets and political drivers
- Finding the lowest lifecycle costs can be like looking for a needle in a haystack!
What are our options?

- Work within the budget structure and do the best job possible

  OR

- Challenge our funding, budgeting and organizational structures and develop a true lowest lifecycle cost approach

- So what is stopping us?
Constraints to Change

- Organizational structure does not foster consideration of Capital and Maintenance works as decisions along a continuum of an asset's life
  - LH not talking to RH
  - Division of budgets
  - Different rules
Constraints to Change

• The structural inertia in large, mature, traditional organizations makes it challenging to effect positive change

• Desire to avoid loss is far greater than the desire to gain
Constraints to Change

- Capital and maintenance investments are evaluated using different criteria, creating a disconnect between different parts of the assets lifecycle.
Constraints to Change

The tendency to fund capital projects creates a future maintenance liability
Federal and State Funding rules do not allow the transfer of funds between CAPEX and OPEX funding programs despite being able to deliver lowest lifecycle costs if this were allowed.

- To say this in another way:
  - Budgets are rhythmic, need is not.
Constraints to Change

- Fear of long term budget attrition
  - “We spend it all because we have it!”
Exploiting the Constraints

- Focus on the lifecycle philosophy
  - Recognize each asset has OPEX costs throughout its life, provide funding accordingly
  - Allow between CAPEX and OPEX investments so that investment is driven by lifecycle cost and delivery of LoS
  - Provide incentives for Capital and Mtce teams to recognize lower LCC strategies (currently penalized)
Exploiting the Constraints

• Recall the constraints:
  ▪ Structure (silos)
  ▪ Inertia (hard to effect positive change)
  ▪ Disparate criteria
  ▪ Limited lifecycle commitment
  ▪ Rigid funding mechanisms
  ▪ Fear of budget loss
Exploiting the Constraints

- Solutions to organizational constraints:
  - **Structure**
    - Get Capital and Maintenance teams to collaborate when considering Capital Investment
  - **Inertia**
    - Identify barriers
    - Introduce incentives for organizational innovation
Exploiting the Constraints

• Solutions to lifecycle investment constraints:
  ▪ Evaluate capital investment against agreed levels of service
  ▪ Introduce processes that require lifecycle funding committed to capital investments
Exploiting the Constraints

• Solutions to funding constraints:
  ▪ Allow discretionary movement between CAPEX and OPEX to achieve agreed LoS
  ▪ Incentivize staff to identify cost savings
  ▪ Demonstrate commitment to a needs based budget
Benefits of Exploiting the Constraints

- Reduce the overall lifecycle costs of America’s pavement assets
- Budget allocation based on need, not on historical expenditure
Summary and Key Points

• Capital and Maintenance investments are required throughout the life of an asset
• Capital and Maintenance Investments influence one another
• Lowest life cycle cost can only be achieved when these investments are evaluated in the same decision framework
• Our current approach does not support this philosophy
• Break down the wall!
Acknowledgements

- Dr Anna Robak
- Shawn Landers
- Simon Bush
- Ewan Hunter
- Tony Porter
- ICMPA Committee
- You!
Thank you

• Questions?