Budgeting and Funding Infrastructure Maintenance

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Justin Marlowe, Professor, University of Washington
Sustainable Pipeline Management

Geoff Krause, Pure Technologies
Our Mission

At Pure Technologies, we work to protect the critical infrastructure necessary for everyday life.
Our Why

Infrastructure is the backbone of modern society. It enables everyday life.

We believe by showing utilities the true condition of their infrastructure, they can effectively focus resources with precision, prolonging asset life, improving safety, and increasing reliability.
Our Background

30+ Years of Pipeline Management Experience
14,000+ Miles of Pipeline Data
900,000+ Valves Mapped & Assessed
500+ Individual Pipe Repairs Managed
Capital Budgeting Issues

• How do we discharge our obligation of “stewardship” of assets – both long term & cash?
• Generally more projects than cash
• How to prioritize?
  • Return on investment
  • Cost to implement
  • Maintain or replace?
• Risk mitigation
  • Are you spending money where you should vs where you can?
  • Insurable events vs preventable events
Finding the Spending Balance

Available funding sources:
- Operating cash flow and related levers
- Available credit facilities
- Incremental credit capacity
- “Equity”
The Underground Asset Challenge

- Pipeline renewal programs are typically age & failure based
  - Age Rarely Correlates With Condition (Water Research Foundation)
  - 70% To 90% Of Replaced Pipelines Have Remaining Life (US EPA)

- Asset Spending for sample utility:
  - Water and Sewer pipeline value: $3.74 billion (8 rehab projects)
  - Water and sewer treatment value: $1.26 billion (178 rehab projects)

U.S. Water Infrastructure Funding Gap

- Billions (US$)
- 2010
- 2030
- 2040
- $0
- $20
- $40
- $60
- $80
- $100
- $120
- $140
- $160
Two Stages of Pipeline Management

Stop The Bleeding

Stop The Heart Attack
Self-funding maintenance

- Over the next 20 years, $97 billion will be needed for water loss control in the United States (EPA)
- Annual water loss in the United States is approximately 2.1 trillion gallons (Center for Neighbourhood Technology)
- The annual value of Non-Revenue Water found by Pure Technologies alone is over $21 million
- The ASCE estimates that there are roughly 240,000 water main breaks every year
  - Average cost of a small-diameter pipeline failure: ~US$10,000
  - Average cost of a large-diameter pipeline failure: ~US$1.5 million
The Economics of Underground Asset Management

- Typical Replacement Program
- Asset Data Collection
- Optimized Renewal Program
Summary

• CFO's have a very difficult job playing role of “Dr. No.”

• Managing your capital spending funnel requires strong understanding of underlying economics

• In all cases, longer term view taking into account assumption or mitigation of corresponding risk is paramount
  • Avoid ‘shiny penny’ syndrome

• Economics don’t lie – Return on Investment
Geoff Krause

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Paying for Infrastructure Maintenance: Lessons from Public-Private Partnerships

Justin Marlowe, Ph.D., CGFM

Professor

University of Washington

GFOA Annual Conference

May 25, 2016
Volume 3: “Risks and Rewards in Public-Private Partnerships” available next week!
Public-Private Partnerships Today

> Estimated $4 trillion in unfunded US infrastructure needs
> Major public-private partnership infrastructure projects completed or underway in major US jurisdictions: California DOT, Port Authority of NY/NJ, State of Florida, City of Los Angeles, City of Chicago, City of Long Beach, others
> Move America Act of 2015, and other federal government proposals to expand private sector involvement in infrastructure finance

Sources: US Society of Civil Engineers; Center for American Progress; US Dept. of Treasury
Public-Private Partnerships Defined

### Traditional Public Sector Procurement

<table>
<thead>
<tr>
<th>Manage Project</th>
<th>Design</th>
<th>Build</th>
<th>Operate</th>
<th>Maintain</th>
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<tbody>
<tr>
<td>Finance Project (F)</td>
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<td>Own Project</td>
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<td>Own Land</td>
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Public Sector  Private Sector
Public-Private Partnerships Defined

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</tbody>
</table>

Public Sector       Private Sector

EVANS SCHOOL OF PUBLIC POLICY AND GOVERNANCE
UNIVERSITY of WASHINGTON
P3s Deliver Projects Faster and Cheaper than Traditional Procurement

1Documented Project Savings % - Canadian Experience

<table>
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<tr>
<th>Category</th>
<th>Savings (B)</th>
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</thead>
<tbody>
<tr>
<td>Average (52)</td>
<td>$30.7B</td>
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<tr>
<td>Average Health (22)</td>
<td>$13.3B</td>
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<tr>
<td>Average Justice (10)</td>
<td>$3.4B</td>
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<tr>
<td>Average Education (3)</td>
<td>$1.2B</td>
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<tr>
<td>Average Other (4)</td>
<td>$1.2B</td>
</tr>
<tr>
<td>Average Transport (13)</td>
<td>$12.2B</td>
</tr>
</tbody>
</table>

1 Not present value of savings as a % of Project NPC (Canadian experience) as per published value for money reports on the procurement agencies websites. Total number of projects: 52 with total net present value of $31 Billion
P3s and Infrastructure Maintenance

Question: Are P3s an effective way to finance infrastructure operations and maintenance?
Example DBOM P3: Seattle Public Utilities, Cedar Water Treatment Facility
Example DBOM P3: Prince George’s County, MD Clean Water Partnership
Example DBOM P3: Long Beach, CA Civic Center
Advantages of DBOM P3s for Infrastructure Maintenance

> Operations and maintenance funding is “baked in” to the project
> Cost transparency as a policy goal - recall the “$1-$10-$100 rule”
> Cost stability as a policy goal
> Private partner(s) can innovate on life cycle costs over the project
Disadvantages/Concerns of DBOM P3s for Infrastructure Maintenance

- Lifecycle cost analysis is an (oddly) small part of value for money analysis
- “All-in” project costs are typically 30-50% higher than traditional procurement
- Financing and transaction costs can be much higher – 50 basis points on financing is not uncommon
- “Leap of faith” on the design-build-operations synergies
- Potential for unexpected success – gain sharing, etc.
Some Recommendations

> DBOM P3s are an effective mechanism to fund O&M under certain conditions:
  – Larger projects – at least $75-100 million
  – More complex projects or groups of projects with complex coordination/logistics needs
  – If there’s strong political support for ongoing maintenance

> For all other projects, “look before you leap”
May 23, 2016
Jim Kupfer
Public Works and Development Services
Kenosha County (WI)

- Population – 168,000
- Employees – 1,100
- Annual Spending - $217 million
- Equalized Value - $13.2 billion – 70% Residential, 30% Commercial and Other
- Median Home Price - $143,000
- County Taxes on Home per $100,000 - $512
- Unemployment Rate – 4.9% (12% in 2010)
- General Fund 28% of Annual Spending
Kenosha County (WI) - Strengths

- Proximity to two major metropolitan areas
- Steady improvement in business expansions, investment and hiring
- Strong job market and growing industrial economy is fueling residential, retail and commercial growth
- Post-recession – one of the fastest growing areas in U.S. – good place to do business
- Access to high-quality post-secondary institutions
- Good physical infrastructure including roads, rail, water, sewer and broadband
Major County Spending Categories

- Human Services – 45%
- Law Enforcement – 25%
- Public Works – 15%
- Debt Service – 8%
- Finance and Administration – 5%
- Legislative / Elected / Executive – 2%
- Largest expenses are personnel related – salaries and benefits
Major County Revenue Categories

• Intergovernmental – 39%
• Property Taxes – 29%
• Charges for Services – 16%
• Borrowed Funds – 6%
• State and Local Sales Tax – 6%
• Other – 4%
City of Kenosha
• Population – 100,000
• Services Offered
  • Sanitation
  • Public Transportation
  • Police and Fire
  • Public Works
  • Parks and Recreation
• Maintains Their Roads
• Some Overlap with County Services
Challenges

- Property Values Affect Borrowing Capacity and Levy Limits
  - Levy Caps Dictated by State and County Board
  - Bonding Limits – Bond Counsel and Rating Agencies – Currently AA
- Limited State Funding – Decrease in Federal Assistance
- Working With City and Other Municipalities to Attract New Businesses and Development
- Attracting Capable Workforce – Keep Workers in Area
- Political Risk
Building Boom in 1990’s

- Many New Buildings Constructed or Significantly Remodeled in Early 1990’s
- These Facilities Are Now 20-25 Years Old
- Maintenance Costs Are Increasing and High
- Replacements Are Needed – HVAC, Roofs, Parking Lots, Building Envelopes, Windows
- Develop Long-Term Strategies
Kenosha County Public Works and Development Services Department

- Highway Division
- Facilities Division
- Parks Division
- Golf Courses – Break Even
- Planning and Development
- University of WI Extension
Public Works and Infrastructure Maintenance Budgets

- **Operating Budget** – 163 FTE’s, Labor, Benefits, Utilities, Contracted Services, Supplies, Insurance, Repairs and Maintenance – $20 Million
- **Capital Budget** – Machinery and Equipment, Vehicles, Buildings and Improvements, Land Improvements, Highways and Infrastructure – $12.5 Million
- Highest Spending in Highways and Facilities
- **Focus is Forward-Looking** – Prepare Infrastructure for Future – Examples: Amazon, Uline
Process – Project List Preparation

• Review ongoing needs list of assets and maintenance
  • Machinery and Equipment
  • Highway Infrastructure
  • Buildings and Major Repairs – Example: Roof Replacements
  • Preventive Maintenance Schedules
• State and Municipal Requests
• Departmental Requests
• Elected Official Requests
• Collect Supporting Data – Descriptions, Costs, Justifications, Paybacks
Process – How Does County Decide?

• Collaborative Process
• Setting Priorities
  • Public Safety
  • Rules and Regulations
  • Obsolescence – Example: Highway Paving
  • One-Time Expense or Ongoing
  • Management Recommendations / Negotiations
  • Subject to Funds Availability
• County Executive Approval
• Committee(s) Review and Approval
Services Provided by Highway Division

- Snow Plowing and Winter Maintenance
- Shouldering
- Mowing
- Paving and Crack Filling
- Equipment Maintenance
- Administration and Project Management
- 70 Employees
Highway Division Services Provided To:

- Federal Government
- State of Wisconsin
- Local Towns, Villages and Other Municipalities
- Developers and Businesses – Integral Part of County Development Team
- Services Provided on a Time and Materials Basis Via Contracts
Kenosha County Road Miles Maintained by Highway Division

- Interstate – 14 miles
- State Highways – 654 Lane Miles
- County Trunk Highways – 261 Centerline Miles – 15 Year Life Expectancy – Resurfacing Cost is $140,000 per mile -
- County Infrastructure - $68 million
Highway Division Metrics

• **Operating Budget - $9 Million Expenses**
  • Revenues
    • State Aid - $3 Million
    • State Project Reimbursement - $3 Million
    • Town, Village and Local Project Reimbursement - $1 Million
    • Taxes - $2 Million

• **Capital Budget - $5 Million Expenses**
  • Revenues
    • Bonding - $4 Million
    • Grants / Reimbursements - $1 Million
Facilities Division - Services Provided

- Repairs and Maintenance
- Custodial – Cleaning, Painting, Etc.
- Basic Electrical & HVAC
- Snow Removal & Grounds Maintenance
- Project Management
- Most Services Provided Internally, Some Coordination with Outside Providers
- Challenge – Maintaining Workforce in Light of Local Employment Environment
Facilities Division Metrics

- $4 Million Operating Budget
  - $3 Million Property Taxes
  - $1 Million Fees and Rents
- $3 Capital Budget – Bonded Money
- 40 Employees – Custodians, Electricians, HVAC Specialists
- 8 Large Buildings (Including 2 Jails), Many Smaller Buildings
- Currently Adding to Existing Nursing Home - $21 Million
- Expanding Downtown Campus Footprint
Cost Saving Initiatives

- WI Act 10 – Unions
- Changes to Prevailing Wage Laws
- 2-Tier Wage Scale for Highway Employees
- Increase Employee Contribution to Insurance and Retirement
- Changes to State Sales Tax Payment Tracking
- Research New Maintenance Techniques and Preventive Maintenance Schedules
- Keep Equipment Longer – Trade-off Between Maintenance and New Purchase
- Employee Wage and Benefit Study
- Limited Outsourcing
- Do More with Less
Budgeting and Funding Infrastructure Maintenance

May 25, 2016
A State Perspective

- Limited resources
- Different approaches on prioritization of projects
- Different ways to finance projects
- Dependence on legislative/political actions results in challenges in making long term decisions/investments
GFOA Best Practices

- Asset Maintenance and Replacement (2010)
- Role of the Finance Director in Capital Asset Management (2011)
GFOA Resource Center: Public-Private Partnership (P3)

Available on GFOA website, in association with P3 Advisory:

- Public-Private Partnership (P3) for Economic Development and Redevelopment
- Public-Private Partnership (P3) for the Sale of Lease of Assets
- Public-Private Partnership (P3) for Outsourcing
GFOA Advisory: Public-Private Partnerships (P3)

• Approved by Executive Board (01/15)

• Recommendation:
  – Organizations, and especially the finance officer, must understand what is at stake and make informed, strategic decisions on whether or not to pursue P3 opportunities.

  – List of key considerations: Legal Authority, Justification for the Project, Competition, Expected Project Revenue, etc.
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