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The Why and What Of Performance Based Infrastructure

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IACC Financing Conference
Wenatchee, WA
October 2016

A New Term—and a New Acronym

Performance Based Infrastructure

Is sometimes referred to

Public – Private Partnerships

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Why PBI -- Four Infrastructure Challenges

1. Ensure Safe Drinking Water for All
2. Protect the Environment
3. Sustain What We Build
4. Create Resilient Infrastructure Systems that Adapt to Our Ever-Changing Environment

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Common Traits of Performance Based Infrastructure

1. Reduces performance and cost risks –does not usually result in significant cost savings
2. Focus is on a combination of 4 elements
   - Finance
   - Design; and/or
   - Construction; and/or
   - Long-Term Maintenance and Operations
3. Extensive contracting

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Elements of Performance Based Infrastructure

- Capital Project Financing
  - ✓ This is a case in which a private entity undertakes financing for a public project in return for a long-term agreement to design, build, operate and/or maintain (or a combination of the four) the facility.

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Elements of Performance Based Infrastructure

- Design-Build Integrated Process
  - ✓ overlaps design and construction under one contract and team
  - ✓ features a single point of responsibility; the design-builder responsible for all work

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Elements of Performance Based Infrastructure

- Design-build-operate-and-maintain structure
  - ✓ includes a contract for specified years of operating the facility/plant
  - ✓ Most commonly used for wastewater plants

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Drinking Water State Revolving Fund and Performance Based Infrastructure

Janet Cherry, PE
Office of Drinking Water

PUBLIC HEALTH
ALWAYS WORKING FOR A SAFER AND HEALTHIER COMMUNITY

Office of Drinking Water Mission

We work with others to protect the health of the people of Washington State by ensuring safe and reliable drinking water.

DWSRF Funding Opportunities

- Preconstruction grants
- Consolidation grants
- Preconstruction loans
- Construction loans
- Emergency loans

DWSRF Construction Loans

- Funded by:
  - EPA grant
  - State set-asides
  - Repayments
- EPA grant amount based on need

DWSRF Construction Loans

- Needs assessment done every four years
- 2011 20-year national need for drinking water infrastructure is $384.2 billion, with 64 percent for transmission and distribution projects
- Washington receives 2.23 percent of national funding
- 2016: Funded $54 million in construction projects
- 2017: Currently taking applications, plan to award $35 million in contracts in 2017

DWSRF Construction Loans

Eligible projects:

- Address a public health risk.
- Upgrade deteriorated facilities.
- Can reimburse for eligible preconstruction activities (design, cultural report, permits).

DWSRF Construction Loans and PBI

- How can Performance Based Infrastructure (PBI) be used with a DWSRF loan?
  - Alternative procurement process
  - Partnering with private funders

DWSRF Construction Loans and PBI

- Alternative procurement process
  - General Contractor/Construction Manager (GCCM)
  - Design-Build
  - Design-Build-Operate
  - Bundling

GCCM: Tacoma Green River Filtration Plant

- Recently constructed Tacoma Green River Water Treatment Plant 150 MGD
- Serves Tacoma and surrounding area--about 500,000 people
- Constructed using General Contractor/Construction Manager (GCCM) contracting procedures
- Had to obtain Capital Projects Advisory Review Board approval

GCCM: Tacoma Green River Filtration Plant (contin.)

- Total project cost: $200 million
- Multiple funders
- DWSRF: $45 million (multiple loans)
- Bonds: $79 million
- Partner Utilities: $66 million
- Public Works Trust Fund: $10 million

GCCM: Tacoma Green River Filtration Plant (contin.)

Benefits of using GCCM:

- Can select most qualified contractor, don't need to select lowest bidder.
- Tacoma has qualified staff to operate plant and wanted to maintain ownership and operation.
- Tacoma able to provide input throughout project, unlike in a design-build contract.
- Able to receive contractor input on construction and sequence plant layout revisions that saved money.

GCCM: Tacoma Green River Filtration Plant (contin.)

Benefits realized by Tacoma:

- Able to receive contractor input on construction and sequence plant layout revisions that saved money .
- City realized cost savings if project finished for less than maximum project cost.
- Fewer claims and change orders than past projects.

GCCM: Tacoma Green River Filtration Plant (contin.)

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GCCM: Tacoma Green River Filtration Plant (contin.)

GCCM: Walla Walla UV Project

- Funded with two $12 million DWSRF loans
- Project started as 24 MGD slow sand filter plant, but is now a 24 MGD UV Plant
- Contractor selected early in project development
  - Assisted with developing accurate cost estimate of slow sand filter plant
  - Resulted in City abandoning slow sand filter plant design and commenced with UV design

GCCM: Walla Walla UV Project

- Other benefits of GCCM
  - Less change orders
  - Able to identify and minimize risks of working within footprint of existing infrastructure that is 90 years old
  - Better specifications and to ensure qualified contractors bid on project
  - Able to maintain existing plant operations with minimal interruptions

GCCM: Walla Walla UV Project

Example of Design/Build/Operate: Seattle Water Treatment Plants

- Constructed using design/build/operate
- City did not have operational staff and contractor very invested in outcome
- Less risk to the city
- Treatment plants are around 20 years old
- Recent issues with decision making and assignment of responsibility

DWSRF Construction Loans and PBI: Bundling Projects

- Bundling projects will allow combining multiple similar projects to be bid together
  - Example: Water main or lead service line replacement
- Will most likely result in lower bid and cost savings to loan recipients
- Each loan recipient would receive individual DWSRF loan contracts
  - Would need to coordinate design and bidding of projects
- Process still under development for DWSRF

DWSRF Construction Loans and PBI: Partnering with Private Investors

- Grand Mound water system expanding to serve growth (hotel and other businesses)
- Need a new storage tank to provide fire flows and system redundancy
- $1.5 million project
- DWSRF cannot be used for growth or fire flows, but can pay for the portion of the tank needed for system redundancy
- Need to develop business model for private investors to contribute

DWSRF Construction Loans and PBI: Partnering with Multiple Funders

- City of Lynden 8.0 MGD WTP
- Multiple funders
- DWSRF: $18 million
- Whatcom County ED Grant: $2 million
- Whatcom County ED Loan: $4 million
- PWTF: $12 million

Questions?

Contact Information

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Public Private Partnership Case Study: Cle Elum

David Dunn P.E.
Water Quality Program – Financial Management

DEPARTMENT OF ECOLOGY State of Washington

What is PPP?

- Point to Point Protocol?
- Public Private Partnership

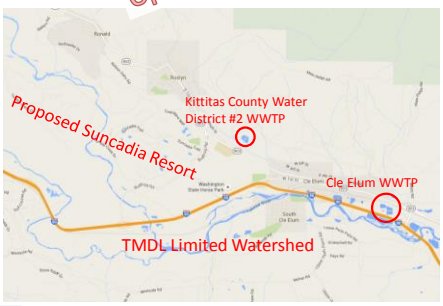
"PPP involves a contract between a public sector authority and a private party, in which the private party provides a public service or project and assumes substantial financial, technical and operational risk in the project."

What can PPP do?

- Procurement / Construction
- Operations
- Financing
- TANSTAFL

The problem in 2000

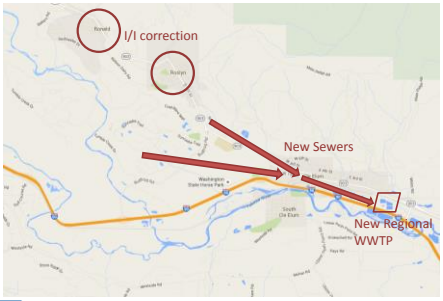
Opportunity



The Partners

- Public Partners (2005 populations)
  - Cle Elum (Population 1900)
  - South Cle Elum (population 500)
  - Roslyn (population 900)
  - Ronald (population 250)
  - Total population (3500)
- Private Partner
  - Suncadia Resort
- 30 year design population 19,000

The solution



So how did PPP help to make this project a reality?

- PPP occurred in two ways:
  - Financing
    and
  - DBO contract

PPP for financing

Project Cost allocation

- Cle Elum/South Cle Elum: $1M toward cost of regional treatment plant
- Roslyn (and Ronald): I/I improvements, abandon existing facilities, cost of interceptor to regional facility. (no capital investment in regional facility)
- Trend West: All other costs associated with the regional treatment plant ($16M)
- Developer to be reimbursed by development fees paid by new homes, condos, etc. that connect to the sewer system. ($28,000 per lot)

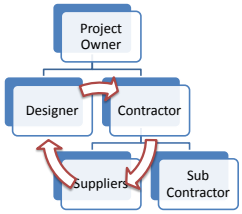
Results

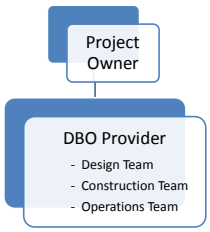
- Suncadia Resort: Receives sewage disposal capacity necessary for their development.
- Public Partners: Receive new treatment plant that meets permit limits.
- State Agency: Exchange two non-complying permits for one permit that is in compliance.

PPP for DBO

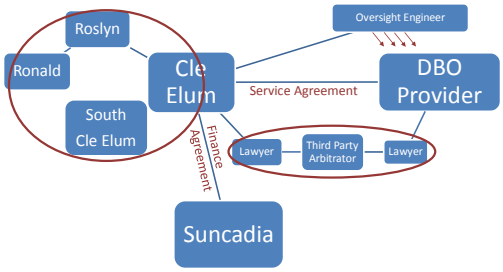
What is DBO?

- Design, Build, Operate procurement.
- Traditional Procurement
- DBO Procurement





What does this really look like?



How was the DBO contract structured?

- City retains ownership of the infrastructure.
- Each city owns and operates their own collection system.
- Agreement assigns performance, timelines, risk, and costs.
- Design and construction cost was negotiated "not to exceed" value
- Operations contract based on a 10 year "fixed fee" contract

Operations Contract

- "Fixed Fee" includes operation and maintenance (labor and parts); Normal equipment replacement, spare parts.
- Escalation based on CPI.
- Power and chemical costs are paid directly by Cle Elum
- Cle Elum bills the other partners for their proportionate share of the costs.
- Plant expansions (when necessary) will be paid for by Cle Elum

Why did Cle Elum decide to use DBO?

- Operational / Managerial Capacity and Staff
  - Cle Elum faced massive expansion in responsibility and staff
  - Moving from 1 (Class I) operator to 4 (Class IV and III) operators.
  - Much easier to hire expertise than develop it internally.
- Some cost savings during construction
  - Cost saving synergies during design
  - Cost savings from reducing or postponing work
- Stable, reliable, and cost effective operations
  - Incentives to operate efficiently, maintain, and extend equipment life [*asset management*]
  - Design with operations in mind; utilize reliable equipment
  - In 2015 city renewed the operations contract and extended it to include the drinking water treatment plant

How did it work out?

- Developer got their resort.
- Cities have a wastewater utility that allows them to grow.
- Project area has grown in past 10 years
  - Not quite at the rate hoped for by the developers
  - Population grew from 3500 to 5700 (2005 to 2015)
- City is receiving reliable service
- Plant discharge routinely achieves the perfect compliance "good guy" award from Ecology.

Bottom Line:

WHAT CAN WE LEARN FOR THE EXAMPLE OF CLE ELUM?

EFFECTIVE UTILITY MANAGEMENT!

- Product Quality
- Customer Satisfaction
- Infrastructure Stability
- Community Sustainability & Economic Development
- Stakeholder Understanding and Support
- Employee Leadership and Development
- Operational Optimization – Energy and Water Efficiency
- Operational Resiliency
- Water Resource Adequacy
- Financial Viability

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Questions and Discussion

Contact Us!

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- Water Quality funding program site: http://www.ecy.wa.gov/programs/wq/funding/funding.html
- Grant and Loan listserv: http://www.ecy.wa.gov/maillist.html