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# WTD Capital Program Overview

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Metropolitan Water Pollution Abatement  
Advisory Committee

March 25, 2009

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# Presentation Overview

- Project types and sources
- Project prioritization
- Project management approach
- Project change control
- Project examples

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# Project Types and Sources

- Major Capital: projects that provide new or additional capacity
  - Source: RWSP, CSI, CSO planning processes; regulations
- Asset Management: projects that rehabilitate or improve existing facilities or processes
  - Replace in kind or incorporate technology improvements
  - Source: engineering work requests; regulations, sometimes combined with major capital projects

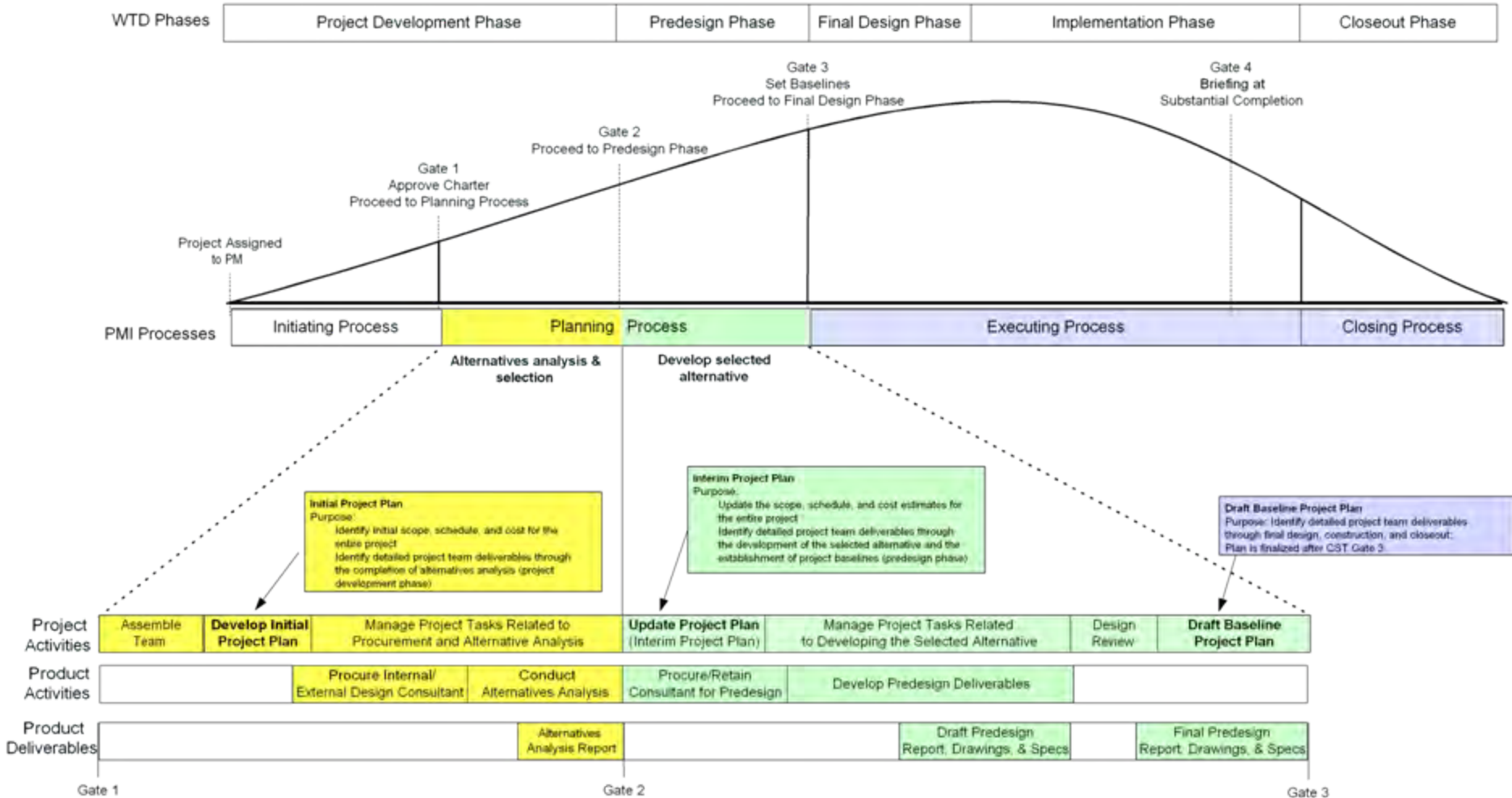
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# Project Prioritization

- All projects are prioritized every year until they begin construction
- Specific criteria are used to evaluate each project type (MCIP & AM)
  - Only like projects compete against one another
- The outcome is a numeric ranking of projects with 6-year cash flow
- Detailed presentation on prioritization given to the MWPAAC E&P subcommittee in 7/08

# WTD Project Management Approach

(highlighting the Planning Process)



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# WTD Project Management Approach: Alternatives Analysis

- WTD developed specific, standardized requirements for conducting alternatives analysis
  - Alternatives Analysis Report
  - Alternatives Analysis Design Criteria
- Compare 2–4 best apparent alternatives using a minimum of five standard criteria (other criteria are project specific)
  - Project Scope
  - Estimate schedule
  - Risk
  - Construction Cost
  - Life Cycle Cost
- Present alternatives and recommended alternative at Gate 2

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# Project Change Control

- Capital Systems Team (CST)
  - The CST provides management oversight and direction on project changes and amendments
- Change Review Board (CRB)
  - The CRB provides management oversight and direction on contract changes and amendments that pass certain authorization thresholds established in the WTD Delegations of Signature Authority (DOSA)

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# Project Examples: Waste to Energy

- Project Need
  - To maximize beneficial reuse of methane gas produced as a byproduct of anaerobic solids stabilization processes at the West Point Treatment Plant
  - The facility will co-generate electricity and heat for use within the West Point Treatment Plant
- Alternative Selected
  - Install two 2.3 Megawatt engine generators in an existing structure at the West Point Treatment Plant
- Agency Coordination
  - Seattle City Light
  - Department of Ecology
  - EPA
  - Tulalip, Muckleshoot, and Suquamish Tribes

# Project Examples: Waste to Energy

- Schedule
  - Design: 2003–2009
  - Construction: 2010–2012
- Cost
  - Construction Cost: \$19-20 million
  - Lifetime Cost Estimate: \$35 million
- Significant Changes
  - Rejected Bids in 2006, Re-evaluation of Alternatives
- Challenges
  - Modification of Existing Structure
  - Bidding Climate in 2006
  - Selection of Alternatives
  - Archaeologically sensitive site



One of the 2.3 megawatt engine generators

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# Project Examples: North Interceptor

- Project Need
  - Severe Hydrogen Sulfide corrosion damage along 1,155 linear feet of 138-inch diameter pipe
- Alternative Selected
  - Install fully adhered structural polymer liner that provides structural rehabilitation and corrosion protection
- Agency Coordination
  - Operations support includes coordination with Edmonds Treatment Plant

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# Project Examples: North Interceptor

- Schedule
  - Design: April 2008 to January 2009
  - Construction: June 2009 to September 2009
- Cost (baseline)
  - Lifetime cost estimate: \$4 million
- Significant Changes
  - Construction schedule went from two years to one year after WTD Operations showed that flow could be stored nightly
- Challenges
  - Flow must be stored nightly during construction to lower flow
  - Work must be staged above nightly low flows



Corrosion has exposed rebar and aggregate on the inside of the North Interceptor

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# Project Examples: Kirkland Pump Station

- Project Need
  - The CSI Planning process showed that projected flows exceed the existing capacity of the existing pump station and force main as well as replace aging equipment and force main piping
- Alternative Selected
  - After conceptual design, data from the regional I/I program showed the need to increase capacity from 7.7 to 9.4 mgd, so additional alternatives were explored. The selected alternative eliminated the need for a temporary pump station, retained part of the existing force main, installs a new parallel force main, and allows this urban pump station to remain online
- Agency Coordination
  - City of Kirkland
  - Sound Transit

# Project Examples: Kirkland Pump Station

- Schedule
  - Design: 2008 to 2010
  - Construction of Pipe: 2009 to 2010
  - Construction of Pump Station: 2010 to 2012
- Cost (Planning Level)
  - Lifetime Project Cost: \$15.9 Million
- Significant Changes
  - Amendment to design contract establishing new design criteria and splitting the project into two contracts – Pipe work and Pump Station Upgrades
- Challenges
  - Fast-tracking pipe work design and construction documents
  - Relocation and upgrade of City waterline (upgrade at City expense)
  - Pipe work to be bid and constructed under Sound Transit Transit Center contract
  - Prominent downtown location



Kirkland Pump Station

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# Project Examples: West Point Influent Screening

- Driver/Need
  - New state biosolids regulations (WAC 173-308-205) requiring influent bar screens of a 3/8-inch maximum aperture
- Alternative Selected
  - The project is currently beginning design; an alternatives analysis will be completed by mid-2010. The alternative will include both screening and screening-handling facilities
- Agency Coordination
  - Department of Ecology
  - City of Seattle

# Project Examples: West Point Influent Screening

- Schedule (conceptual estimates)
  - Design: May 2008 to December 2011
  - Construction: February 2012 to April 2015
- Cost (conceptual estimates)
  - Design: \$2.3–2.6 million
  - Lifetime project cost: \$21.7 million
- Challenges
  - Current screens are 5/8-inch. One important challenge will be to accommodate the expected significant increase in the amount of material collected from the new 3/8-inch screens
  - Potential need for new structure to process screenings may trigger City of Seattle Council Conditional Use Permit Process



Current West Point bar screens. Note variance in spacing between bars



West Point screenings material, which is loosely consolidated, contains fecal material, and is wet



South Plant screenings material that has been processed with a washer compactor