

INITIATE CHANGE

2018 ROCKY MOUNTAIN REGIONAL CONFERENCE



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Design/Build - Alternative Delivery Legal Considerations

- Integrated Delivery Method for Public Projects Act (2007)
 - State – Counties – Cities (Statutory – Home Rule)–
Special Districts
- Selection Criteria
 - Best value
- Required / Prohibited provisions:
 - Appropriation – Delay damages – Owner indemnification
- Liability Concerns:
 - Spearin Doctrine & bridging documents
 - Design risk among team
- Right-of-Way acquisition & changes

Collaborative Project Delivery



May 24, 2018

Jim Mallorety, P.E.

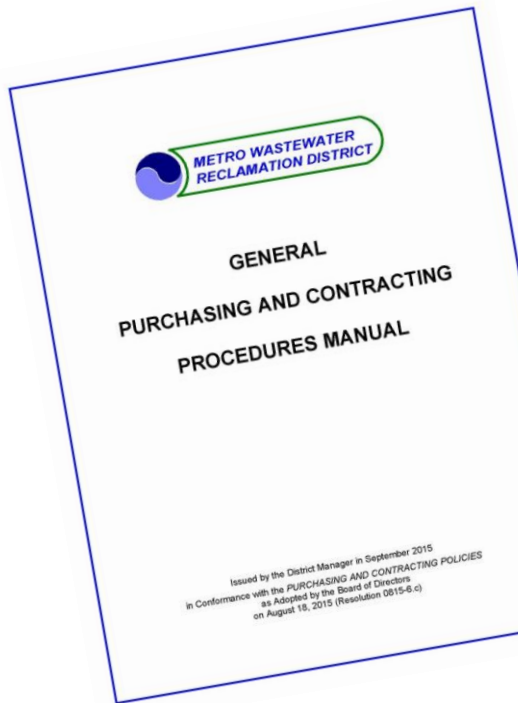
Metro Wastewater Reclamation District
Engineering Transmission System Division Head

Metro Wastewater Reclamation District: Who We Are

- Provides Wastewater Transmission and Treatment to 1.8 million customers over 715-square mile service area including Denver and surrounding areas
- Operates the Robert W. Hite Treatment Facility (220 mgd) and Northern Treatment Plant (29 mgd)
- Historically Design-Bid-Build project delivery



District Project Delivery Toolbox Policy and Procedures



**CAPITAL FACILITY
CONSTRUCTION PROJECTS**

PROJECT DELIVERY

The Metro District may use various project delivery methods when performing capital facility construction projects. Included among the project delivery methods that may be considered are the following:

- Design-Bid-Build (DBB).** This system involves the District completing a project design, through its own personnel or an independent design professional, and then having that design competitively bid by general contractors.
- Construction Manager-General Contractor (CM/GC).** Also referred to as Construction Manager-at-Risk (CMAR), this method is similar to DBB in that the District completes a project design, through its own personnel or an independent design professional. Unlike DBB, the construction contractor is retained by the District under a separate contract through a qualifications-based selection (QBS) process before the design is completed. The construction contractor is retained to provide pre-construction services considered beneficial to the project, such as value engineering, constructability reviews, estimating, and scheduling services. The construction contractor will ultimately provide either a lump sum or a guaranteed maximum price (GMP) for the construction of the project. If no acceptable GMP is reached, the District still maintains the option to bid out the construction work.
- Design-Build (D/B).** This method calls for the award by the District of a single contract to an entity that will assume responsibility for the design and construction of the project. There are several variants of this method, including: (a) performance-based D/B (where the District will specify only performance criteria that the D/B entity will meet); (b) prescriptive-based D/B (where the District will create prescriptive criteria that the D/B entity will complete); (c) performance- or prescriptive-based D/B (where the District will specify combination of performance and prescriptive criteria that the D/B entity will complete); (d) progressive design-build (PDB) (where the District will create a design definition retain the D/B entity to assist in furthering development of the design to a level appropriate to negotiate a lump sum or a GMP for the construction of the project. The procurement approaches for each of these variants can vary with performance- and prescriptive approaches generally being a competitive process that considers price, and generally being selected on a technical approach and a qualifications best value may consider both price and non-price factors.
- Design-Build-Operate (DBO).** This method is similar to the D/B methods, except term operation of the facility is combined with the design and construction procurement. If maintenance is added to the responsibility of the contractor, the method would be referred to as a DBO/M approach. If the contracting approach providing financing, this method would be referred to as a DBO/F (or DBO/F) if the entity was not only financing the facility, but also had ownership of the period of time before ultimately transferring it to the District after a set period would be referred to as Design-Build-Operate-Transfer (DBOT).

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EVALUATION CRITERIA FOR SELECTION OF A PROJECT DELIVERY METHOD

Every project will be evaluated to determine the most appropriate delivery method considering among other things, the following criteria:

- Project schedule.** The project delivery method will be evaluated to determine if it can provide any scheduling benefits relative to meeting a required or critical schedule as determined by regulatory compliance or construction sequencing needs.
- Clarity of the project scope.**
- Cost.** A project's price can be established earlier under most APD methods than under the DBB process. With DBB, the price is not established until construction bids are received after the design has been completed. Under APD methods, the price may be established at the time the contracting entity is selected and a contract negotiated. From a cost perspective, the selection of DBB versus an APD method, as well as choosing among APD approaches, will be a function of when the District needs a fixed project price either in terms of a lump sum or GMP. Other cost-related factors that might be considered include minimization of change orders and potential claims, cost escalation control, cash flow impact, and packaging of elements of the work to foster increased competitive bidding.
- Risks involved.** In the DBB option, the Metro District bears increased risk if an inexperienced or marginally qualified contractor is the lowest responsive bidder and wins the contract. The District is also typically responsible for any errors or omissions on the plans and for the related change orders. Under many APD methods, these risks may be eliminated or mitigated, particularly through the procurement approach taken by the District (i.e., when and how the contracting entity is retained and when and how the price is established). In addition, various APD methods, such as PDB and CM/GC, offer the District the opportunity to work with the design and construction teams to develop the design before the price is set, allowing quality expectations to be clearly defined in the scope of work and the contract.

For ease of reference, project delivery methods other than DBB will be generally referred to as Alternative Project Delivery (APD) methods. The universe of project delivery methods is broader than those specifically listed above, and there are variants to all project delivery systems, particularly based upon the procurement of the design and contracting entities under such systems and the type of contracting approaches (e.g., GMP, lump sum, target pricing, and price/profit) used in relation to such systems. The Metro District may select and employ whatever APD method or procurement and contracting approach it determines to be appropriate for a specific project and that serve the best interest of the District.

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WHY Collaborative Project Delivery?

- Qualifications-Based Contractor Selection
- Collaboration with Contractor during Design
 - Input during design and constructability reviews
 - Risk evaluation and risk allocation integrated in cost model
 - Input from specialty subcontractors
- Contract Price
 - Open book, transparent, cost model as design progresses; Early cost awareness
 - Best Value selected items + negotiated self-performed work
 - Opportunity for value engineering throughout design to manage costs to budget
 - Participation in prequalification and selection of specialty subcontractors
- Schedule
 - Concurrent activities, construction packages may begin early

Engineer's Idea



Contractor's Idea



Successfully Implemented Progressive Design-Build

- Digester Feed and Polymer System (\$4M)
- North Bar Screen and Grit Improvements (\$21M)
- Sand Creek Interceptor System Repairs (\$5M)
- Sand Creek Bank Stabilization (\$1.5M)
- Northern Treatment Plant (\$250M)



Northern Treatment Plant

Longmont's Experience with DB

City of Longmont Public Works & Natural Resources

Larry Wyeno, P.E. Engineering Administrator



Implementing DB Projects

- Project Delivery Evaluation
- City Manager/General Manager Approval
- Legal & Purchasing Dept.
- SOQ/RFP
- Owner's Agent



Why City Uses Design-Build

- Project Complexity: Coordination & collaboration benefits
- DB Selection considers DB qualifications as well as cost.
- Cost developed during design: Can adjust if necessary
- Can Specify performance requirements & prescriptive specifications
- Option to select equipment based on DB solicitation of bids.
- Owner's Project Management Staff



DB Projects

- Water Treatment Plant \$42M
- Raw & Treated Water Pipelines \$17M
- WWTF Capacity Expansion \$23M
- Raw & Treated Pipelines \$17M
- Anaerobic Digester & Cogeneration \$5M
- WTP & WWTP MCC Improvements \$1M
- WWTP Ammonia Treatment. & Biosolids Dewatering \$33M



Alternative Project Delivery



Why Change?

South Platte Water Renewal Partners (SPWRP) Overview



Regional
Facility



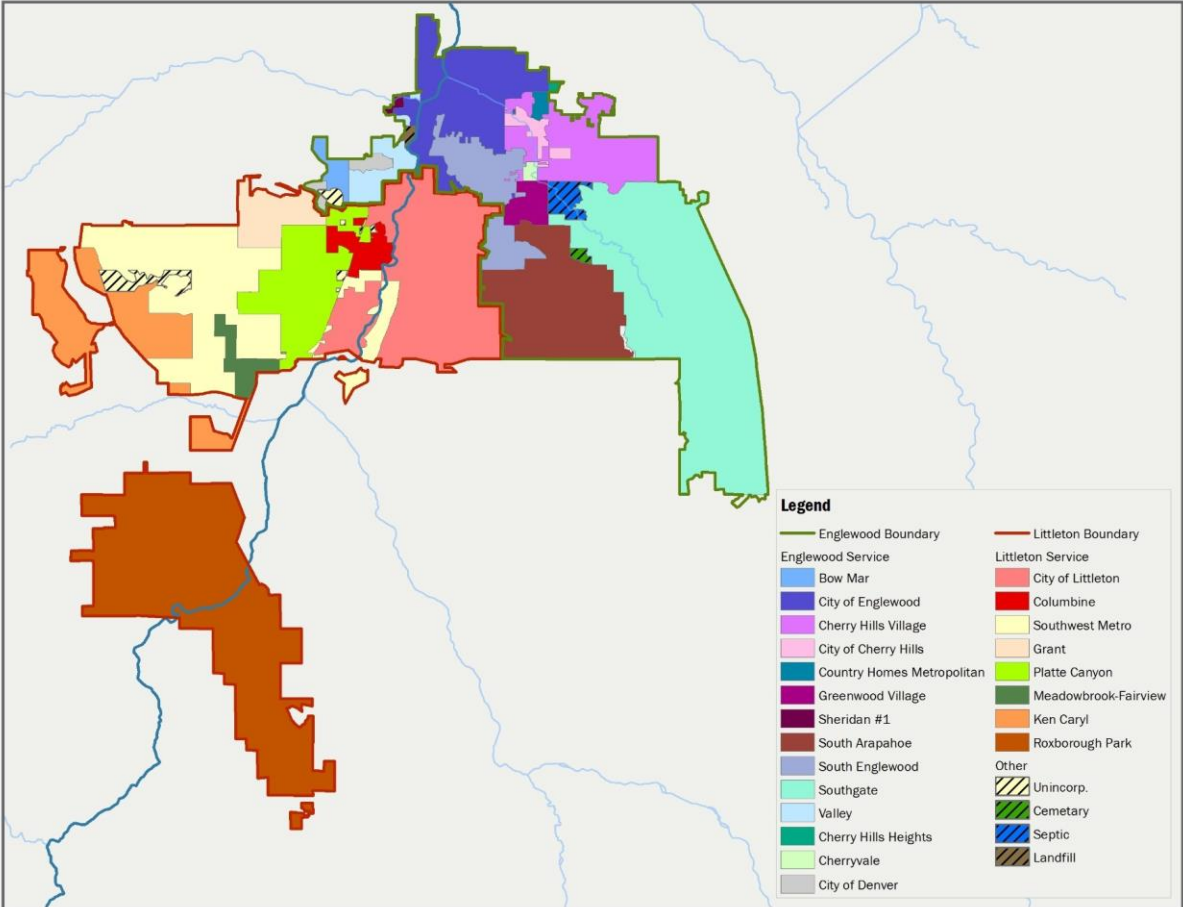
South Platte Water Renewal Partners (SPWRP) Overview



Regional Facility



Service Area



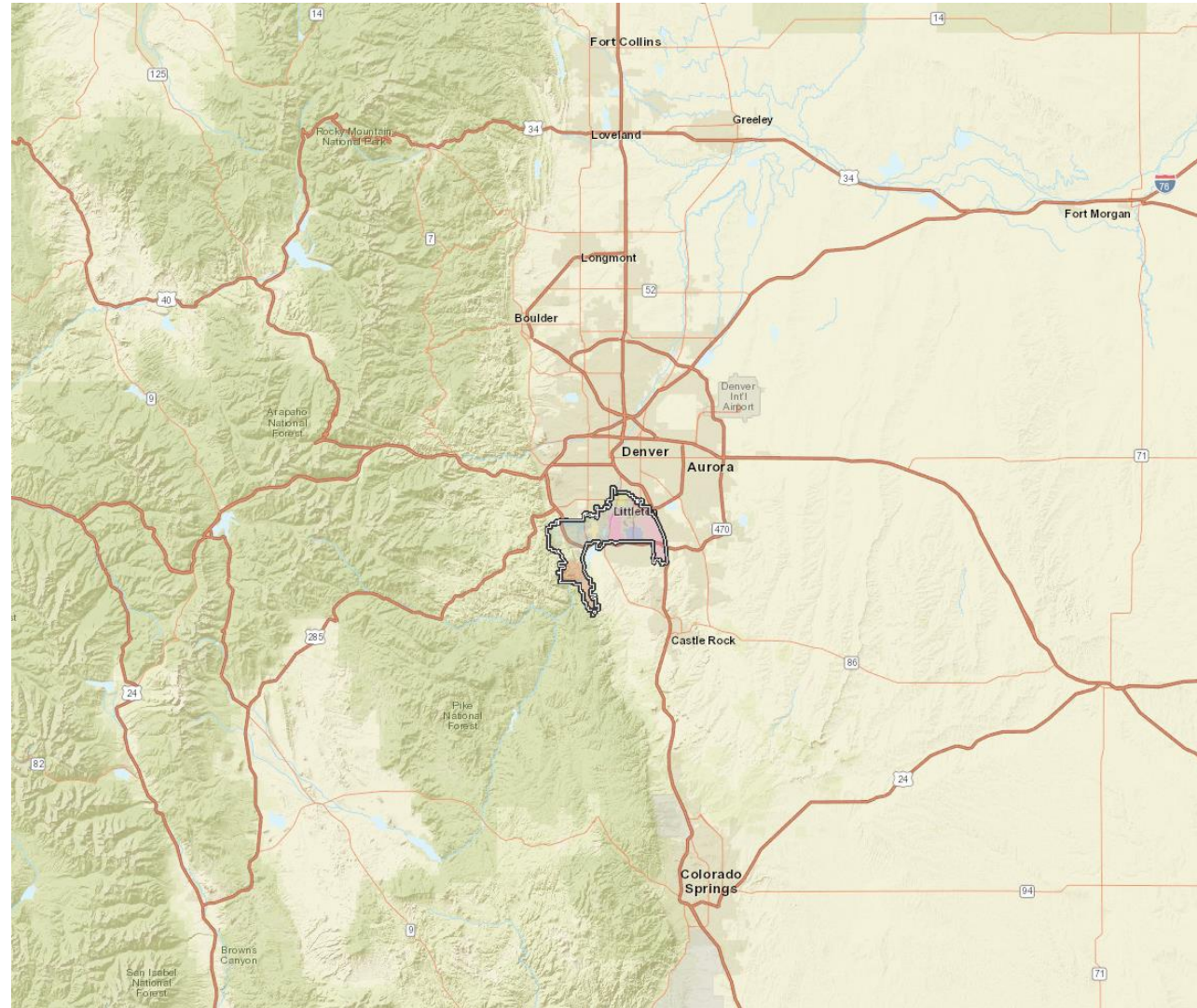
South Platte Water Renewal Partners (SPWRP) Overview



Regional
Facility



Service Area



South Platte Water Renewal Partners (SPWRP) Overview



- Traditional Methods
 - Design-Bid-Build
 - Low Bid

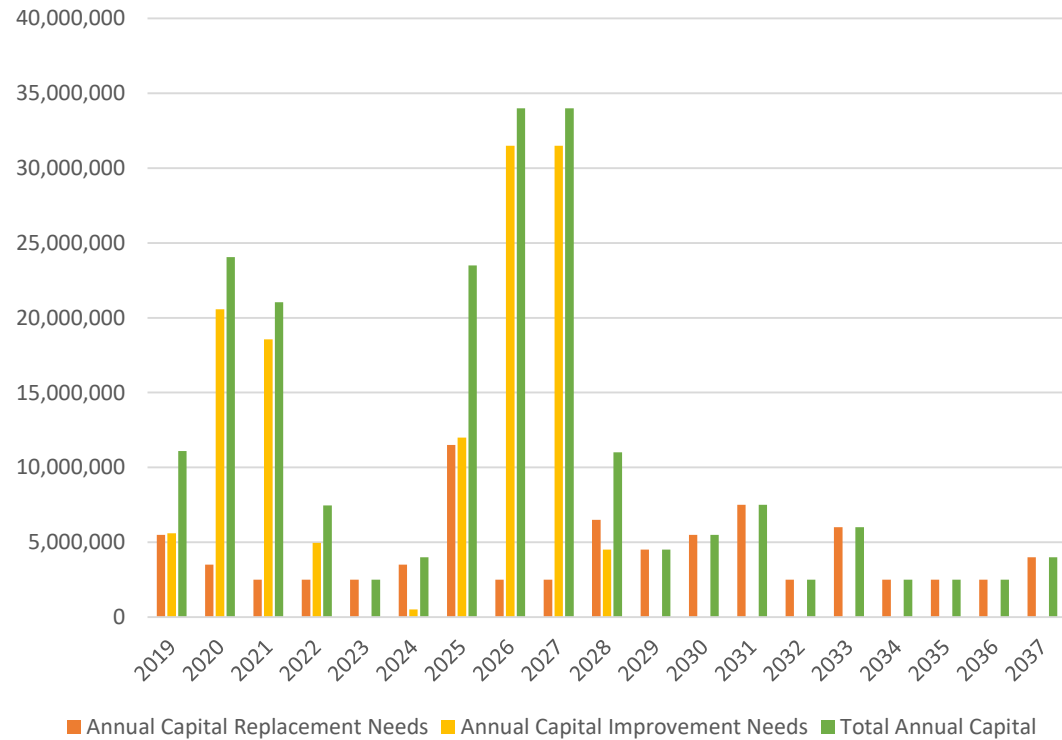


- Change Happens
 - Improvement to procurement processes
 - Design Build – small projects
 - CMGC



- View into the Future
 - Challenges ahead
 - Streamlined project delivery
 - Collaborative success

Draft Forecast



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