Using Progressive Design-Build to Deliver Capital Projects
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Chris Brown – HDR
Agenda

01 Background - where are we and how did we get here?

02 IDIQ Projects - when risk is high

03 Whitaker Park Utilities Relocation - impacts of a “gift”

04 Liberty Street Sewer Replacement - never give up

05 Applications - when do you use this tool?
Background - where are we and how did we get here?
Background

**What?** Collection System Improvement Program (CSIP)

**Why?** Reduce SSO’s and increase operational efficiency

**Where?** City of Winston-Salem, Forsyth County

**Who?** City/County Utilities (CCU) serving
  - 100k sewer connections
  - 225 FTEs working in collection and treatment
  - 1750 miles of gravity sewer lines
  - 50 pump stations

**When?** 5-year CSIP kicked off in July 2016 (assessment and fast start activities Mar-Jul 2016)
CCU’s Vision Statement
We will be a top-performing utility supported by a trained, knowledgeable, and proactive staff, dependable equipment, efficient processes, effective information management, and fair and affordable rates.

Collection System Improvement Program Mission
To improve collection and conveyance of wastewater while protecting the environment and community we serve by complying with all regulatory requirements.
Overarching Concepts of the Program

- Ownership and Accountability
- Team Integration
- Knowledge Transfer
- Operational Optimization
- Condition and Capacity Assessment
- Design and Delivery of Construction Solutions
Design and Delivery of Construction Solutions

- Traditional SSES and repair – design-bid-build
- CCU in-house
- Progressive design-build
  - IDIQ – single step
  - Multi step
Progressive Design-Build

- HDR is the design-builder
- Typically projects are time and materials with a GMP
- What construction resources are in the marketplace?
  - Open House
  - MWBE firms
  - Specialty sub contractors
  - General contractors
- Prequalify sub
02 IDIQ Projects – when risk is high
The Process

- Projects identified:
  - Through assessments and calls
  - Almost daily
- All projects are vetted at least on a monthly basis
- Projects can go three directions:
  - CCU crew repair
  - System wide contract
  - IDIQ or PDB
- If project assigned to IDIQ
  - Informally bid and proposal submitted
  - CCU decides – proceed/not proceed

Indefinite Delivery
Indefinite Quantity (IDIQ)

A force account tool for small, quick projects
Sample Projects

- Fox Run
- South Main
- Old Town

Country Club
RP-10

- CCU directed further investigation of issue at meeting on 9/12/2017, for discussion at next meeting.

- Survey has been completed.

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<thead>
<tr>
<th>Asset Information</th>
<th>Details</th>
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<tr>
<td>Asset Type</td>
<td>Sewer Main</td>
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<td>Asset ID</td>
<td>1295662</td>
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<td>Asset Size</td>
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<td>Asset Location</td>
<td>Nearest Street Address: 5057 Country Club Road</td>
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<td>Asset Material</td>
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<td>Repair Project ID</td>
<td>RP-10</td>
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<td>Issue</td>
<td>Large hole found in sewer main</td>
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<tr>
<td>3R Recommendation</td>
<td>Contractor pipe patch</td>
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</table>
Sense of Urgency

- 107 defects identified
- 37 planned for future system wide projects
- 24 to be corrected by CCU crews
- 39 planned for IDIQ
- 7 in assessment

Goal is to reduce risk of an SSO
03 Whitaker Park Utilities Relocation - impacts of a “gift”
What was the “Gift”?  
- PORTION of an industrial complex  
- 200 acres  
- 1.8M SF of buildings  
- Undeveloped land  
- 2 miles north of Downtown adjacent large university  
- Quick access to I-40, I-85, I-77 and future I-74  
- Water and sanitary sewer infrastructure  

Gift kept changing based on assets retained by the donor
Impacts of a “gift”

- Timeline driven by donor to the non-profit Whitaker Park Development Authority (WPDA)
- How do you split a site? What is public? What is private?
- How does non-profit deliver public improvements? CCU...

Issue was not identified as part of CSIP project but the PDB tool was available.
Defining the Water and Sewer Elements

- **Phase 1** - Create a utility map with water and sewer layers to be used for base mapping, planning and to support the evaluation of existing utilities to the site.

- **Phase 2** - Prepare proposed utility mapping and planning level cost estimate to construct new facilities to support the “Straw Man” redevelopment plan. (Remember – The gift kept changing.)

- **Phase 3** - Perform condition assessments and coordinate with current owner the transition of existing facilities to provide appropriate metering, cross connection control, and service to support the intended short term and long term plans for the properties.

Did I mention a PORTION of the site was donated?
What is the Project?

- Now we have a project *three* Owners have agreed to
  - WPDA
  - CCU
  - Donor

- How do you construct the improvements?
  - Using public money = public bidding laws
  - Traditional design-bid-build
  - Progressive design-build
Decision – Progressive Design-Build

- Checked all the boxes...
  - Available
  - Met schedule
  - Met public bidding laws

CCU had a choice when GMP is presented - accept or reject - if reject, then project would go traditional D-B-B
Results

- Deadline met
- Changes came up – they were dealt with quickly
- Contingency of $200k split between CCU and contractor

Whitaker Park is open for business.

Water and sewer was a small but important part of the project.
Liberty Street Sewer Replacement - never give up
Never give up...

- Problem identified – sanitary sewer failed
- CCU tried to repair the sanitary sewer – could not be repaired
- Does CCU have a plan B? – yes, progressive design-build

Issue was not identified as part of CSIP project but the PDB tool was available
The Solution

- One point of contact – use PDB
- Three step process
  1. Task 2a PER – look at alternatives
  2. Task 2b Design and GMP – design chosen alternative and bid
  3. Task 2c Construction – At-risk GMP

CCU had to approve each step
Project Challenges

- Easement acquisition - absentee owner (time)
- Railroad permit and easement acquisition (time)
- Environmental unknowns (dollars)
- Subsurface conditions (dollars)
Benefits of One Team

- The bore…
  - 410 LF under a railroad yard which was developed in the 1940s
  - Guaranteed vs non guaranteed bore – What is the right answer?
  - Based on contractor and sub contractor input - went with non-guaranteed 48 inch bore and price for hand digging it needed

Solution provided a best value alternative for CCU
Status

- Under construction
- Bore is more than 50% complete – no issues to date
Applications – when do you use this tool?
Applications

Progressive design-build might be a application for you...

- When **schedule** is a critical driver
- When project has high **risk**
- When **traditional D-B-B is not the right choice**

CCU makes decisions along the way
Questions?

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