Advancing Urban Infrastructure: Leveraging Digital Strategies to Fuel Regenerative Construction in Los Angeles

Presented By:
SEPIDEH (SIPPY) ARIA
Kiewit, Project Manager
AGENDA

• Common Issues in Construction Management
• InEight Solutions
  • Progress Management
  • Connected Analytics
Advancing Infrastructure – Los Angeles
Common Issues in Construction Management

- Alternative Contract Models – DB/PDC/EPC/P3
- Design Errors leading to scope growth and/or rework
- Inefficient planning
- Poor Risk Identification and Management
- Project controls – Staying on Schedule and Under Budget
- Collaboration and Consistency Amongst Stakeholders
SoFi Stadium – Inglewood, CA

Super Bowl LVI

2023 College Football Championship

Opening & Closing Ceremonies of the 2028 Olympics
SoFi Stadium – Kiewit Scope

- 5.5 million cubic yds of mass excavation for the stadium bowl
- 252,000 SF/10,000 EA of MSE panels
- 107,080 CY of concrete
- 7,500,000 CY of dirt handled
- 36,000,000 lbs of rebar
- $46 million worth of equipment
INEIGHT PORTFOLIO

Offering the most functionally complete, interoperable and modular software portfolio built to optimize capital programs and project workflows, control costs, reduce risk and drive predictable outcomes.
Field Execution
## Common Progress Measurement Challenges

<table>
<thead>
<tr>
<th>Activity</th>
<th>Budget</th>
<th>Cost to Date</th>
<th>% Complete</th>
<th>Gain/ Loss</th>
<th>Forecast (Based on Performance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Placement</td>
<td>$100,000</td>
<td>$70,000</td>
<td>68%</td>
<td>$(2,000)</td>
<td>$102,941</td>
</tr>
</tbody>
</table>

### Percentage Complete

- **69%**: $(1,000), $101,449
- **70%**: $0, $100,000
- **71%**: $1,000, $98,592
- **72%**: $2,000, $97,222

### Difference in Forecast At Completion

$5,719
### Common Progress Measurement Challenges

<table>
<thead>
<tr>
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<th>% Complete</th>
<th>Gain/ Loss</th>
<th>Forecast (Based on Performance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Placement</td>
<td>$1,000,000</td>
<td>$700,000</td>
<td>68%</td>
<td>$(20,000)</td>
<td>$1,029,412</td>
</tr>
</tbody>
</table>

#### Forecast at Completion

<table>
<thead>
<tr>
<th>% Complete</th>
<th>Gain/ Loss</th>
<th>Forecast (Based on Performance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>69%</td>
<td>$(10,000)</td>
<td>$1,014,493</td>
</tr>
<tr>
<td>70%</td>
<td>$0</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>71%</td>
<td>$10,000</td>
<td>$985,915</td>
</tr>
<tr>
<td>72%</td>
<td>$20,000</td>
<td>$972,222</td>
</tr>
</tbody>
</table>

**Difference in Forecast At Completion**: $57,190
Claiming Progress

1. Breakdown Operations into Discrete Task
2. Develop Claiming Schemes
3. Execution Planning (AWP, Work Packaging, Daily Crew Plans)
4. Field Personnel Report Progress
1. Breakdown Operations into Discrete Tasks

- How are crews assigned a scope of work?
  - Drawings, Work Packages, Area
- What are task boundaries? What are logical start/stop points?

Goal: Create components with claiming schemes that can be completed within a reporting period (daily or weekly period)

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>UoM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column 1 – Lift 1</td>
<td>25</td>
<td>CY</td>
</tr>
<tr>
<td>Column 1 – Lift 2</td>
<td>25</td>
<td>CY</td>
</tr>
<tr>
<td>Column 1 – Lift 3</td>
<td>20</td>
<td>CY</td>
</tr>
<tr>
<td>Column 38 – Lift 1</td>
<td>25</td>
<td>CY</td>
</tr>
<tr>
<td>Column 38 – Lift 2</td>
<td>25</td>
<td>CY</td>
</tr>
<tr>
<td>Column 38 – Lift 3</td>
<td>20</td>
<td>CY</td>
</tr>
<tr>
<td>Column 38 – Lift 4</td>
<td>20</td>
<td>CY</td>
</tr>
</tbody>
</table>
2. Develop Claiming Schemes

- What are the steps to complete an operation?
- How much effort (manhours) it takes to complete each step

Goal: Create company standard claiming schemes across similar operations.

<table>
<thead>
<tr>
<th>Step</th>
<th>% Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pour</td>
<td>40%</td>
</tr>
<tr>
<td>Finish</td>
<td>30%</td>
</tr>
<tr>
<td>Cure</td>
<td>20%</td>
</tr>
<tr>
<td>Hold Back</td>
<td>10%</td>
</tr>
</tbody>
</table>
3. Execution Planning

![Image of a tablet showing a construction site management software interface]

<table>
<thead>
<tr>
<th>Task Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lift Pump Foundation</td>
<td>1.00</td>
</tr>
<tr>
<td>Erect Stair Tower</td>
<td>8.00</td>
</tr>
<tr>
<td>Strip Forms South W.</td>
<td>5.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14.00</strong></td>
</tr>
</tbody>
</table>

**Equipment:**
- Clint Herrington: 00123733, MH: 6.00
- Zack Nava: 00123733, MH: 8.00
- Bradley Whitt: 00137134, MH: 10.00
- 330 Cat Excav...: 736228, EQ: 4.00
- Ford F-150: ANB7779, EQ: 0.00
- Ford F-150: MYQ6532, EQ: 0.00

**Notes:**
- ST: 8.00, DT: 2.00
- OT: 4.00

**Productivity:**
- MH: 7.00
- EQ: 4.00

**Submit**
5. Field Report Progress
Project Reporting
Project Reporting - Earned Value
Project Reporting - Earned Value

- 23.8% RFI Responses
- 43.5% Approved Submittals
- 68% Executed Subcontracts

Subcontract % Executed by Project:
- 15% Div. 1
- 25% Div. 2
- 35% Div. 3
- 45% Average

RFIs Created vs Closed by Period:
- 0 RFIs Created
- 50 RFIs Created
- 100 RFIs Created
- 150 RFIs Created
- 200 RFIs Created
- 250 RFIs Created
- 300 RFIs Created
- 350 RFIs Created
- 400 RFIs Created

Planned vs Actual Submittals by Period:
- 0 Planned Submittals
- 10 Actual Submittals
- 20 Cumulative Planned Submittals
- 30 Cumulative Actual Submittals
- 40 Cumulative Planned Submittals
- 50 Cumulative Actual Submittals
Project Dashboard
Project Dashboard

- Bid Volume: $1.36bn
- Awarded: $574.24M
- Lost: $781.50M
- Win/Loss: 37.50%
- Avg Awarded Margin %: 8.58%

**Win/Loss by Month**

**Revenue by Owner**

**Estimates Per Month by Division**

**Awarded Projects by Division**

- Vertical Building: $83M
- Industrial: $198M
- Mining: $84M
- Water/Wastewater: $131M
- Infrastructure: $165M

**Awarded Projects by Location**

**Top 10 Awarded Projects**

<table>
<thead>
<tr>
<th>Owner</th>
<th>Contract Value</th>
<th>Margin %</th>
<th>Margin</th>
<th>Project Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alliant Energy</td>
<td>$35,000,000</td>
<td>7.0%</td>
<td>$2,450,000</td>
<td>DOT Roadwork</td>
</tr>
<tr>
<td>Wisconsin Public Service, and Madison Gas and Electric</td>
<td>$10,000,000</td>
<td>20.0%</td>
<td>$2,000,000</td>
<td>Wind Energy</td>
</tr>
<tr>
<td>Consumers Energy</td>
<td>$50,000,000</td>
<td>11.0%</td>
<td>$5,500,000</td>
<td>Terminal Expansion</td>
</tr>
<tr>
<td>Total</td>
<td>$188,214,000</td>
<td></td>
<td>$41,911,420</td>
<td></td>
</tr>
</tbody>
</table>

**Top 10 Lost Projects**

- Alliant Energy: $43,000,000 (11.0%)
- Capstone Collegiate Communities: $64,000,000 (6.0%)
- Capstone Collegiate Communities: $60,000,000 (11.0%)
- Total: $80,000,000 (0.0%)

**United States Map**
Thank You