Post Construction Reviews: ALDOT Perspective

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Why Post Construction Reviews?

Over last few years, been focusing on 3 issues:

1. Increasing number of
   • Prior-to-letting changes
   • Change orders
   • Major changes and Design error/omissions

2. Their impacts (time and money)

3. Using data to determine performance metrics
# Letting Changes

<table>
<thead>
<tr>
<th>Year</th>
<th>Changes</th>
<th>Avg</th>
<th>Pulled</th>
<th>Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015:</td>
<td>146</td>
<td>12</td>
<td>17</td>
<td>1.4</td>
</tr>
<tr>
<td>2016:</td>
<td>142</td>
<td>11</td>
<td>16</td>
<td>1.2</td>
</tr>
<tr>
<td>2017:</td>
<td>172</td>
<td>16</td>
<td>26</td>
<td>2.4</td>
</tr>
<tr>
<td>2018:</td>
<td>194</td>
<td>16</td>
<td>12</td>
<td>1.0</td>
</tr>
<tr>
<td>2019:</td>
<td>82</td>
<td>21</td>
<td>4</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*Note: on track for 267 changes in 2019*
Letting Changes

• Dangerous trend
• Increasing changes indicative of plans \textbf{NOT} ready to let
  • Either reviews not thoroughly done
  • Hurried to meet letting schedule
• \textit{Both}???
Impacts

For errors not caught before letting, what happens?

(a) H. O. C.
(b) Change Orders
(c) Delays and Time Extensions
(d) Overruns
(e) Impact to the Traveling Public

(f) All of the above
Change Orders

2010 - 2017:

• 2081 Change Orders totaling $94.1 Million
• 297 per year for $13.4 million avg

• 3361 days of Time Extensions
• Equates to extra 19 years of Work Zone
Change Orders

2018:

• 346 totaling $16.7 Million
  • Increase over 2010 – 2017 (avg)
  • 297 per year at $13.4 million

Time Extensions 2018:

• 1211 days
  • Equates to extra 6.7 years of Work Zone
## Major Changes and Design Errors

≥ $100,000 per GFO 4-3

<table>
<thead>
<tr>
<th>Period</th>
<th>#</th>
<th>Total Costs</th>
<th>Avg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>April ’16 – Mar ’17</td>
<td>17</td>
<td>$9.6 million</td>
<td>$561,000</td>
</tr>
<tr>
<td>April ’17 – Mar ’18</td>
<td>41</td>
<td>$13.3 million</td>
<td>$323,000</td>
</tr>
<tr>
<td>April ’18 – Mar ’19</td>
<td>58</td>
<td>$14.6 million</td>
<td>$251,000</td>
</tr>
</tbody>
</table>

+241%  +52.0%  -55.3%
Overruns

Pay Item Overruns by % (from CAMMS)

<table>
<thead>
<tr>
<th>Projects</th>
<th>382</th>
<th>399</th>
<th>410</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>2017 (pages/items)</td>
<td>2018</td>
<td>2019</td>
</tr>
<tr>
<td>≥ 15%</td>
<td>403 ≈ 9600</td>
<td>367 ≈ 9200</td>
<td>345 ≈ 8600</td>
</tr>
<tr>
<td>≥ 50%</td>
<td>253 ≈ 6000</td>
<td>229 ≈ 5700</td>
<td>217 ≈ 5400</td>
</tr>
<tr>
<td>≥ 100%</td>
<td>173 ≈ 4000</td>
<td>154 ≈ 3850</td>
<td>142 ≈ 3100</td>
</tr>
<tr>
<td>≥ 500%</td>
<td>42 ≈ 1000</td>
<td>36  ≈ 900</td>
<td>32 = 470</td>
</tr>
<tr>
<td>≥ 1000</td>
<td>20 ≈ 500</td>
<td>25  ≈ 450</td>
<td>18 = 149</td>
</tr>
</tbody>
</table>
Impacts – Trends

• Plan Changes during Letting: +22
• Pulled projects from Letting: -14
• Change Orders: +49
• CO Money: +$3.3 Million
• Construction Time: +6.7 years
How do we improve?
How do we improve?

Realized we have a communication canyon between Construction and Design
Mobile River Bridge

- Six-lane
- Cable-stayed bridge
How do we improve?

Change Order/Overruns communication

• Construction has to open up communication with Designers

• Designers have to know about problems/changes

• If they don’t, how will they change???
How do we improve?

“R & D”

• Learned about Post Construction Reviews at CoC
• Opened our eyes
• Gave us a new tool in our toolbox
Initial Post Construction Reviews

• FHWA Peer Exchange with Kentucky
• Learned from their process
• Initial Pilot Reviews:
  • 2 on I-59 Widening in Tuscaloosa
  • 5 various projects in Mobile Area
What’s Next?

• Pending GFO
  • Level of review varies for scope/size of project
  • Possible summary for annual Resurfacing per Area
• Overrun/Underrun Analysis from Final Estimate
• Which Bureau is right one to coordinate?
  • Design, Construction, or Quality Control
What’s Next?

We have to change our practices or we are doomed to repeat our mistakes
Panel Questions

What has been the most surprising aspect of post construction reviews?
• Impressed how quickly Mobile could be ready for a review
• Great practice since the longer you wait, the more you forget
• Seemed to be very thorough in their process; should help us set the bar for others

How do you ensure that the loop is closed, providing the feedback to design staff?
• Ensure designers and project personnel are present
• Communication canyon between most designers and construction personnel statewide
• Critical to bridge the canyon and provide feedback

Have contractors been engaged in discussions or has their feedback been reserved? What methods have you seen to encourage this dialogue?
• Not in Mobile; will address that in our GFO