## Welcome

## **NCTCOG Public Works Roundup**

## **Best Practices in Construction Management**

### May 9, 2017

## James Pruitt, Senior Vice President CRIADO and Associates

#### **Challenges facing the Construction Management Field**

- Commercial
- Residential
- Highway / Roadway
- Industrial Applications





### What is Construction Management?

Delivering A Successful Product - Meeting the Requirements of The **Owner/Key Stakeholders** 

## Safely, On Time And On Budget

#### **Challenges:**

- Experienced CM Staff and Resource Allocation
- Design Concerns and Differing Site Conditions
- Schedule Management





### Experienced CM Staff and Resource Allocation

- An Experienced Chief Construction Inspector Who Can Make Daily Decisions In The Field And Work Well With The Contractor
  Knows When to Call The Project Manager For Assistance
- A Materials Testing Lab Who's Field Personnel Can Also Function As An On-Site Construction Inspector.
  - Adds Capacity And Saves Overall CM Cost
- Staff The Project Appropriately Based On Complexity And Construction Schedule (MSE Walls, Tech Walls, Bridge Construction, Paving OPS)
  - Utilize Staff Resource Leveling for Multiple Projects
- Provide And Enforce The Use of Proper Safety Equipment (PPE & Marked Vehicles With Safety Lighting)



## **Design Concerns and Differing Site Conditions**

#### **Design concerns:**

- Work to promptly resolve. Many can be resolved in the field, some cannot
- Site Survey Control / Level Loops / GPS
- Traffic Control Plan (Any Modifications Signed/Sealed By A PE)
- Temporary Drainage During Construction (Often missed during design)
- Local Design Standards Not Followed (Pavement Section etc..)
- Improper Materials or Mix Designs Specified (Submittal Review)

#### **Differing Site Conditions:**

- Unforeseen Utilities (Invest in SUE up front during the design phase)
- In Situ Materials (Unforeseen materials not indicated on Boring Logs)
- Retaining Walls CM Inspector to be familiar with report and requirements. MSE Walls in particular.

### **CPM Schedule Management**

- Require an initial project schedule submittal showing the baseline critical path
- Require monthly updates to the baseline schedule looking for any changes to the critical path
- Changes to the critical path need to be justified by the Contractor and agreed upon by the Owner prior to acceptance
- Accept or reject schedule updates in writing.
- Review % Paid vs. % Time Charged
- CPM Schedule Review is a Key tool for delay claim mitigation

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### **General Site Housekeeping Observations**

- Project Barricades not Maintained
- SWP3 and Erosion Control not Maintained
- Overall Jobsite Cleanliness

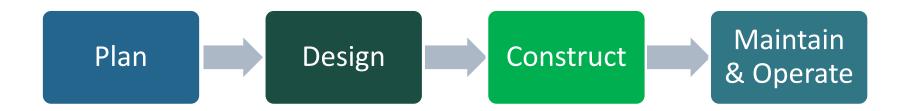
Good Partnering and Communication between the Owner, CM and Contractor is Key to a successful project



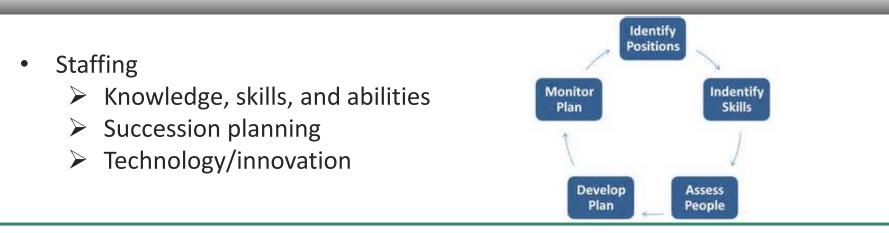


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## Flow



# Challenges



- Processes
  - Outdated procedures
  - Outdated guidelines
- Technology
  - Smart cities/Roadways/CV/AV
  - Economic trends/consumer behavior/freight/on-time delivery
- Management
  - > Overall Project Management skills of responsible staff

## **Construction Cost Drivers**

- Initial Construction Cost
- Construction Design Support Cost
- Construction Engineering and Inspection (CEI) Cost
  - In-house
  - Outsourced
- Change Orders Allowances

## **Overcoming Challenges**

- Optimized staffing levels
- Control of change orders
  - Needs/wants
  - Utilities/Site issues
  - Constructability (supplemented by experienced CEI team)
- Construction Engineering and Inspection (CEI)
  - In-house staff
  - Outsourced through targeted procurement
    - Reduced Liability
    - Supplementation Of Staffing
    - Expanded Experience
    - Training Of Respective Organization Staff
- Overall improved performance and budget management

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## Thank you!

Q&A

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