

# Michael Baker International's Alternative Procurement Experience

April 23, 2019



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Alternative Procurement Comparison

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Utah US-89 Progressive Design Build Experience

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DOT&PF Horizontal Construction Management General Contractor (CMGC) Experience

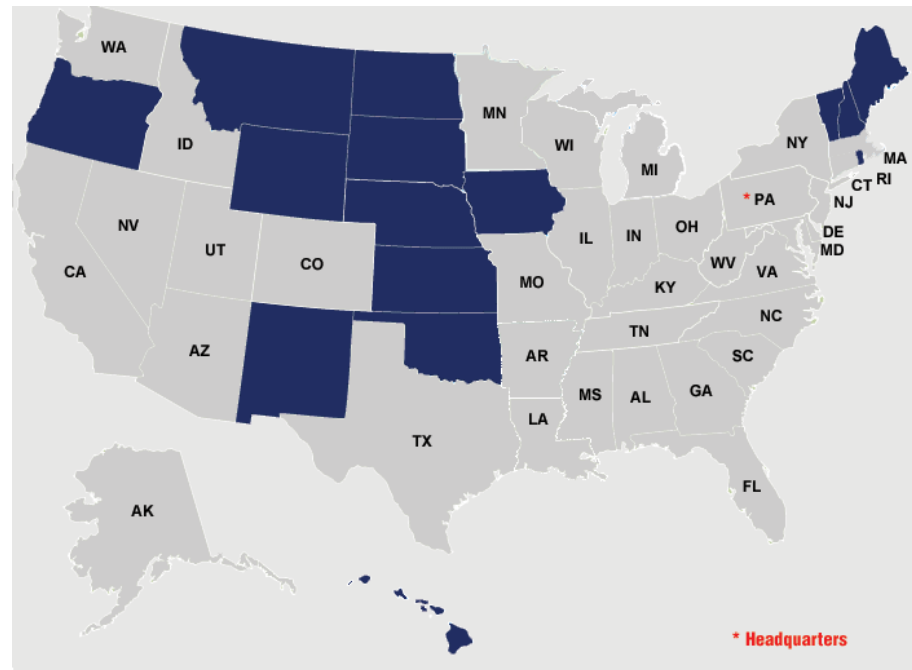


## Derek Christianson, P.E.

- 28 years professional transportation experience
- Michigan Technological University Graduate
- 8 years experience with FHWA
- 20 years experience as a consultant
- Leads Michael Baker's Alaska CMGC Projects

## Michael Baker International

- 3500 Employees
- 90 offices
- In Alaska since 1942



# Alternative Procurement Comparison



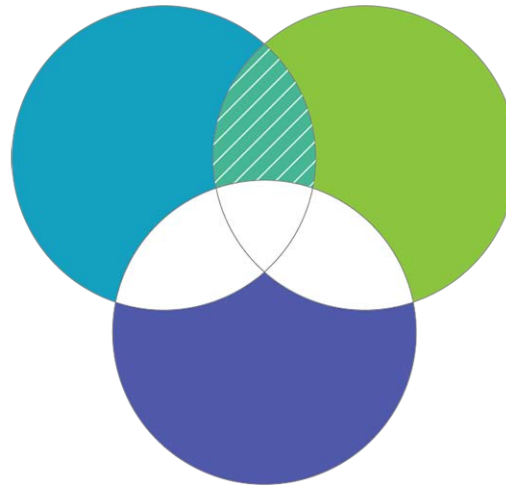
# Deliver Method Comparison – Design Build

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## RESPONSIBILITIES

### CONTRACTOR

- Deliver project per RFP
- Low bid
- Schedule driven
- Quality



### DESIGNER

- Finalize proposal plans with efficiencies/innovations
- Follow the RFP

### DOT&PF & Program Manager

- Create RFP
- Plan review/conformance



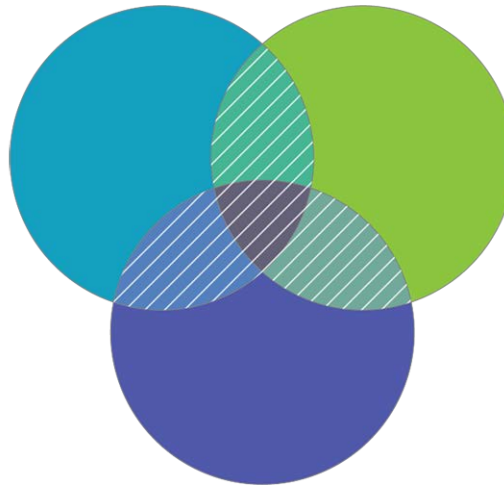
# Deliver Method Comparison – Progressive Design Build

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## RESPONSIBILITIES

### CONTRACTOR

- Design management
- Cost estimating
- Design review
- Contract documents
- Reduce risk
- Quality



### DESIGNER

- Design/options analysis
- Quantity generation
- Specifications development
- Program management
- Quality

### DOT&PF & Program Manager

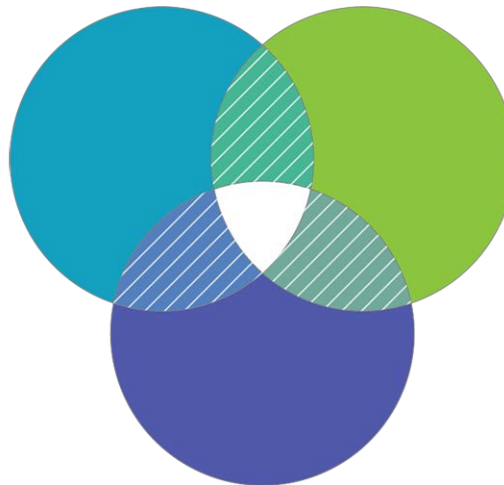
- Contract documents
- Cost control/Price validation (ICE)
- Collaborate on design innovations
- Quality



## RESPONSIBILITIES

### CONTRACTOR

- Design review with innovation
- Estimate refinement
- Reduce risk



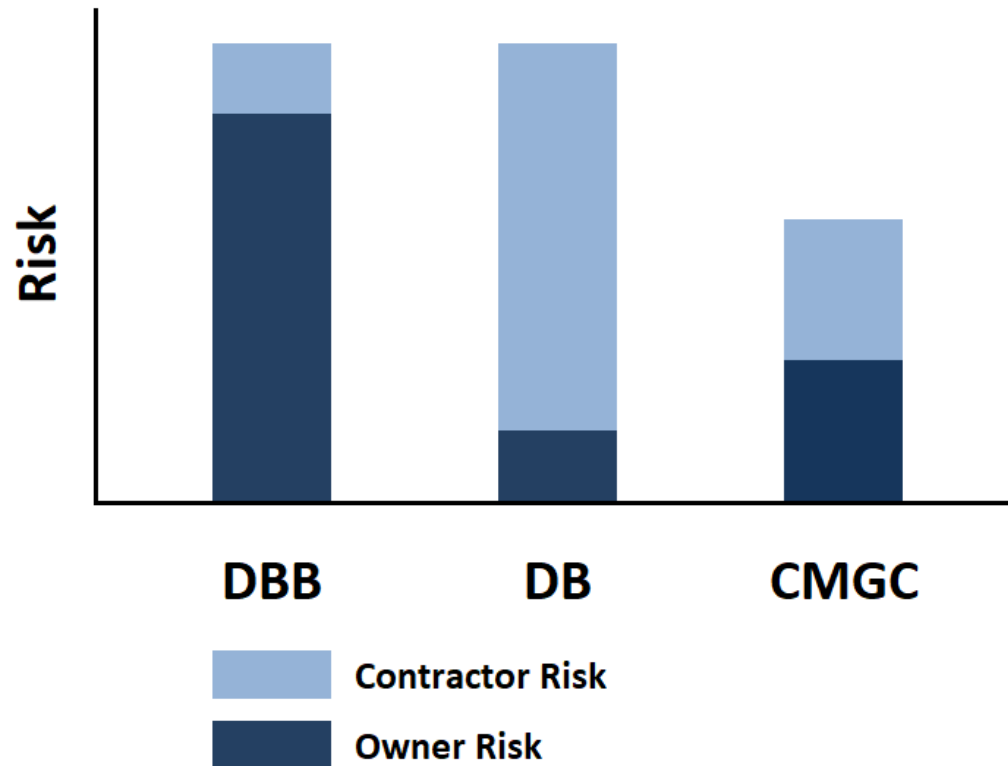
### DESIGNER

- Design development
- Evaluate contractor ideas in design
- Quantities
- Quality

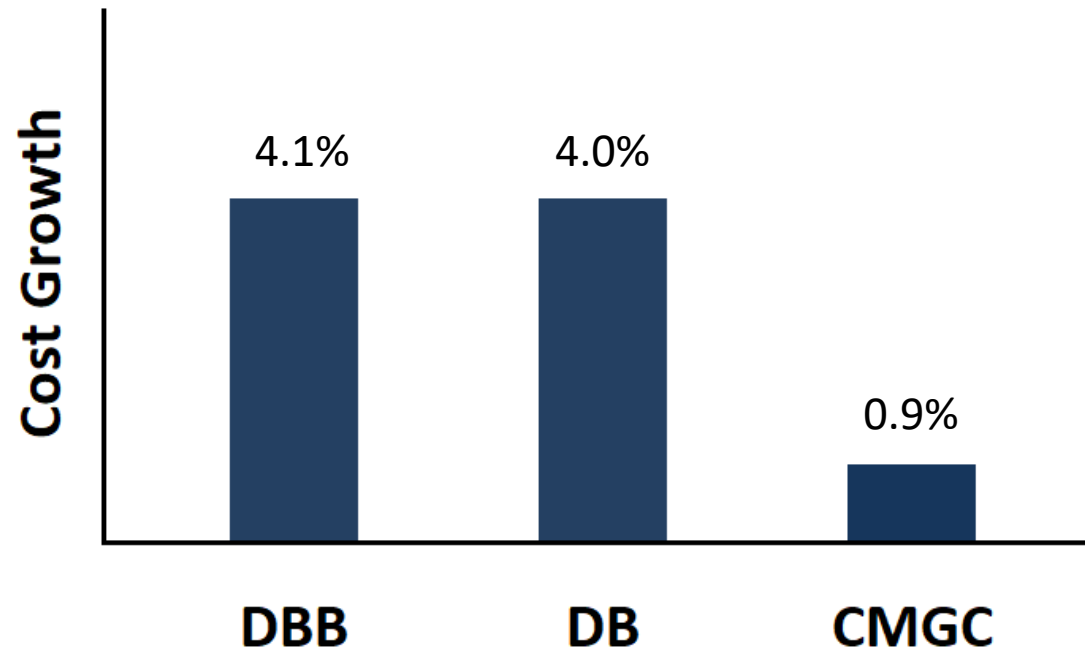
### DOT&PF & Program Manager

- Evaluate contractor innovations; maintain standards
- Independent Cost Estimator (ICE)
- Quality



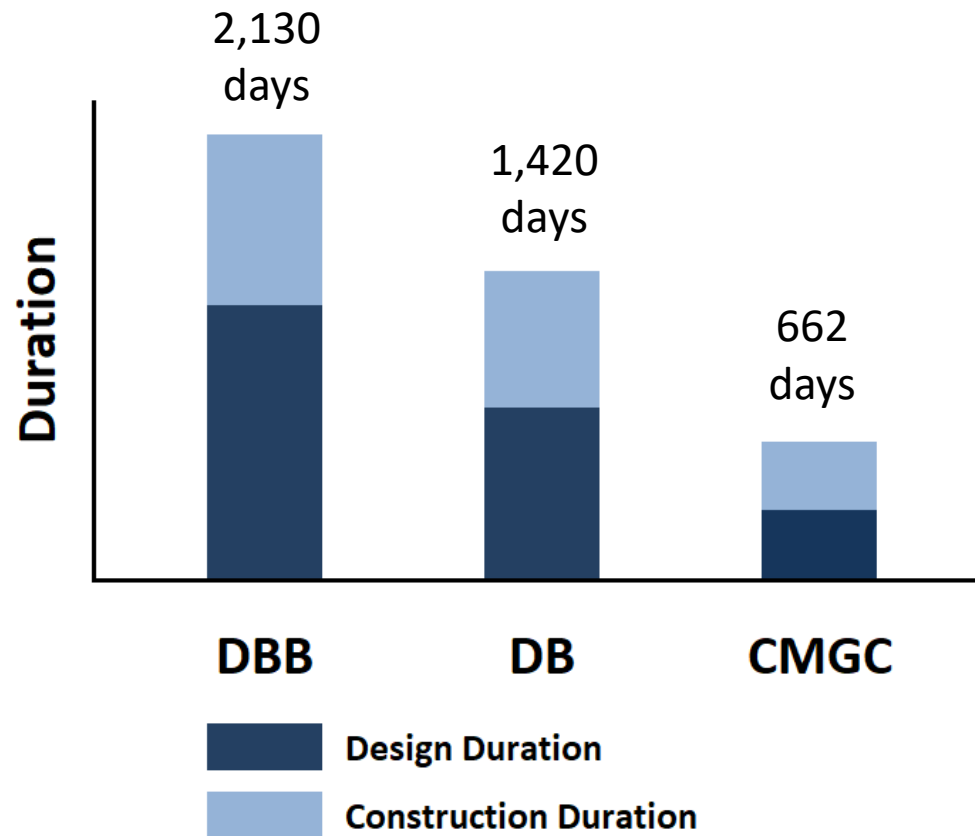






Source: Alternative Contracting Method Performance in U.S. Highway Construction  
FHWA Publication No: FHWA-HRT-17-100, Table 14





Source: Alternative Contracting Method Performance in U.S. Highway Construction  
FHWA Publication No: FHWA-HRT-17-100, Table 8



# Progressive Design Build Experience

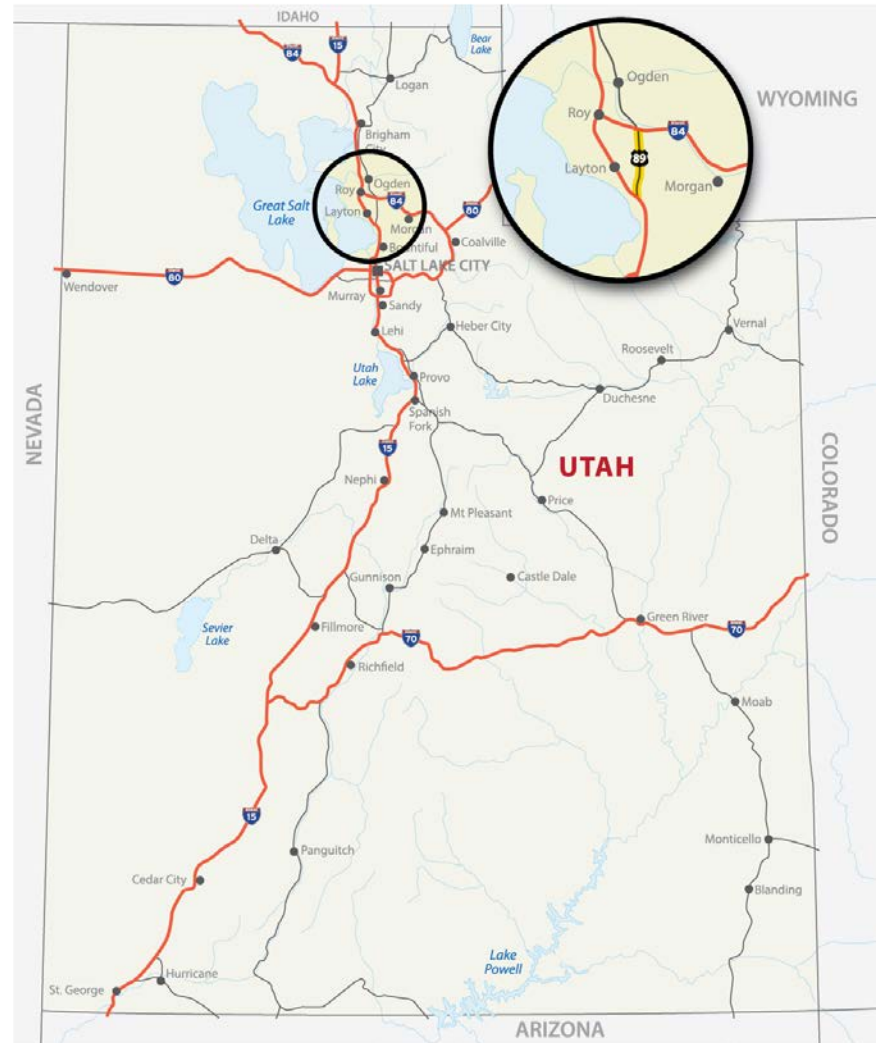
## Utah US-89



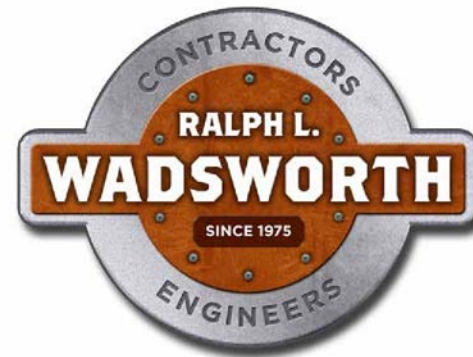
# US-89 Corridor Improvements

- 1<sup>st</sup> Big PDB for UDOT and U.S.
- 9.7 Miles
- 4 New Interchanges
- New Surface Street Connections
- Additional Travel Lanes

<https://udot.utah.gov/us89/>



## ***Oak Hills Constructors***



- Residential Impacts
- Environmental Concerns
- Funding (\$275M Programmed vs \$365M Estimate)



- A “Learning” Project
- Want the “Correct” project for PDB
- Using PDB to address public concerns
- Pricing allows UDOT to “menu shop” options
- Will convert to DB summer 2019
  - Have 60% design
  - Risk mostly quantified
  - Will use lump sum instead of unit price



- Process Challenges
  - Writing PDB Guidelines as the project progressed
  - Using a DB ATC process; ATCs ultimately incorporated into the project
  - Hired a Program Manager to provide transparency
    - Additional cost
    - Additional activities delays schedule
    - Complicates process





- Successes
  - Up front effort is more streamlined than DB
  - Getting the “Correct” Project
  - Projected to save costs and schedule



# DOT&PF Horizontal CMGC Experience





## CMGC Facilitation

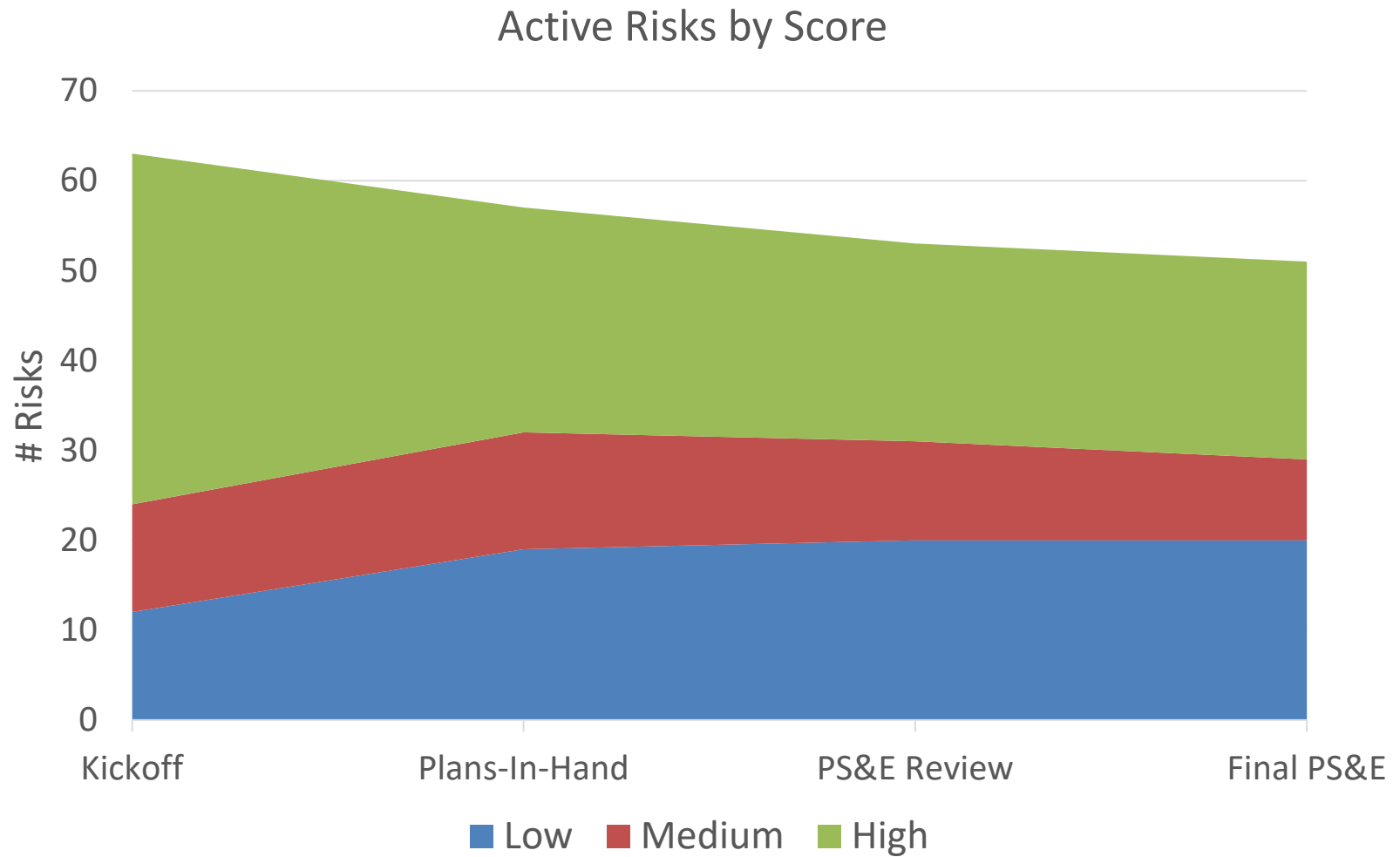
- Michael Baker – Facilitation
- Brooks and Assoc. – Outreach
- Stanton Constructability - ICE

## CMGC Projects

1. Parks Hwy MP 237 Riley Creek Bridge
  - Completed 2015
2. University Avenue Rehab
  - 2 Phases Complete; 3 in Design
3. Parks Hwy MP 231
  - Design 75% Complete
4. Tok Cutoff MP 38-50
  - Design 100% Complete
5. Cordova Whitshed Road
  - Started March 2019
6. Ketchikan Herring Cove Bridge
  - Starting in April 2019

- Manage Risk
- Introduce Innovation
- Meet Budget Goals
- Optimize Schedule
- Transfer Knowledge
- Reduce Contract Growth
- Protect Owner's Interests

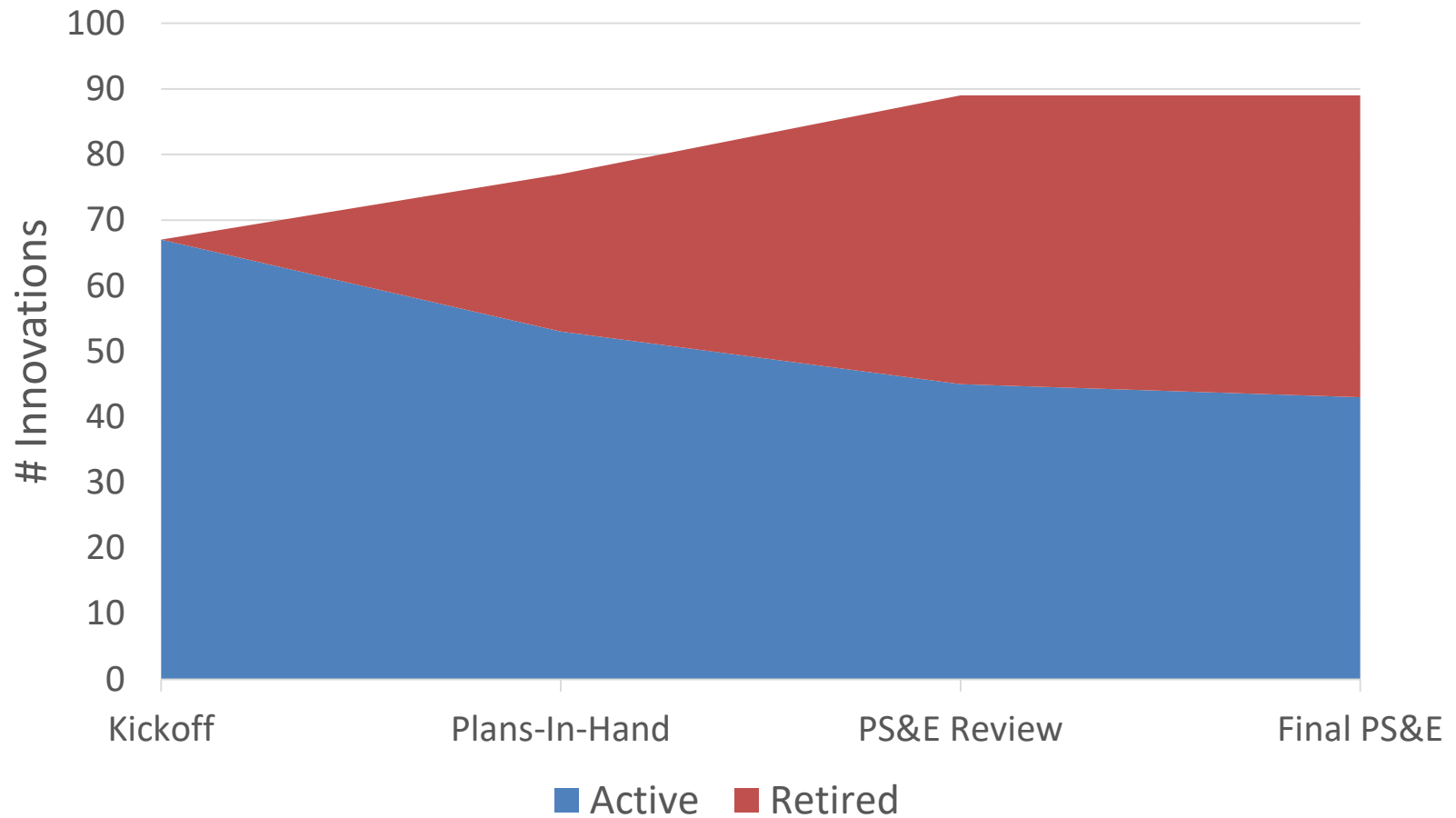




- Manage Risk During Design
- Focus on High Risk Items
- Parks 237 Riley Creek
  - Mitigated All Risk During Design



## Innovation Summary

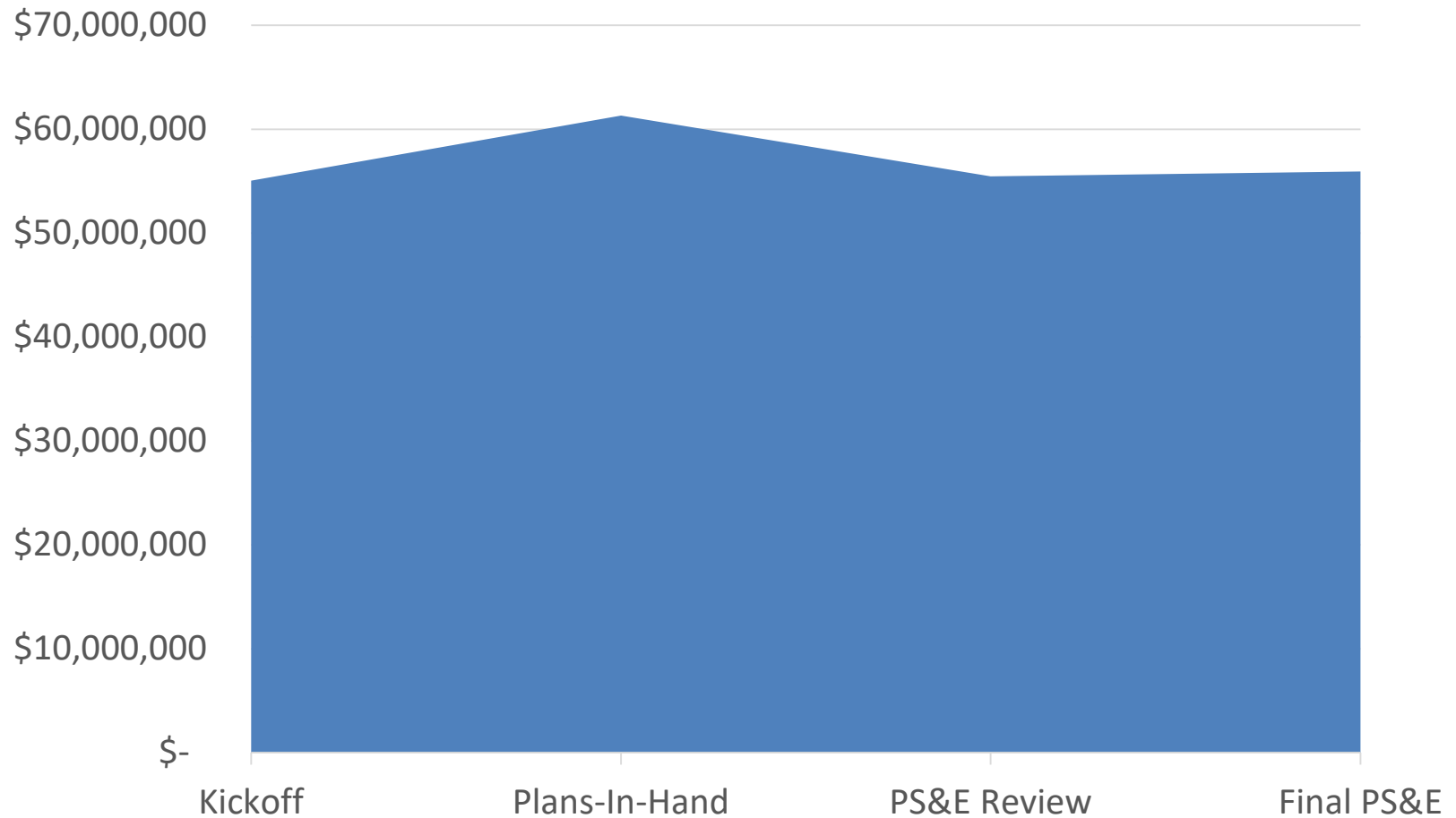


- Riley Creek Bridge
  - Pile Pre-Bore CS Item
- Tok Cutoff
  - Multiple Material Sources
  - Shot Rock Embankment
  - Eliminate Detour
- University Avenue
  - Bore under Chena River for Comm. Utilities





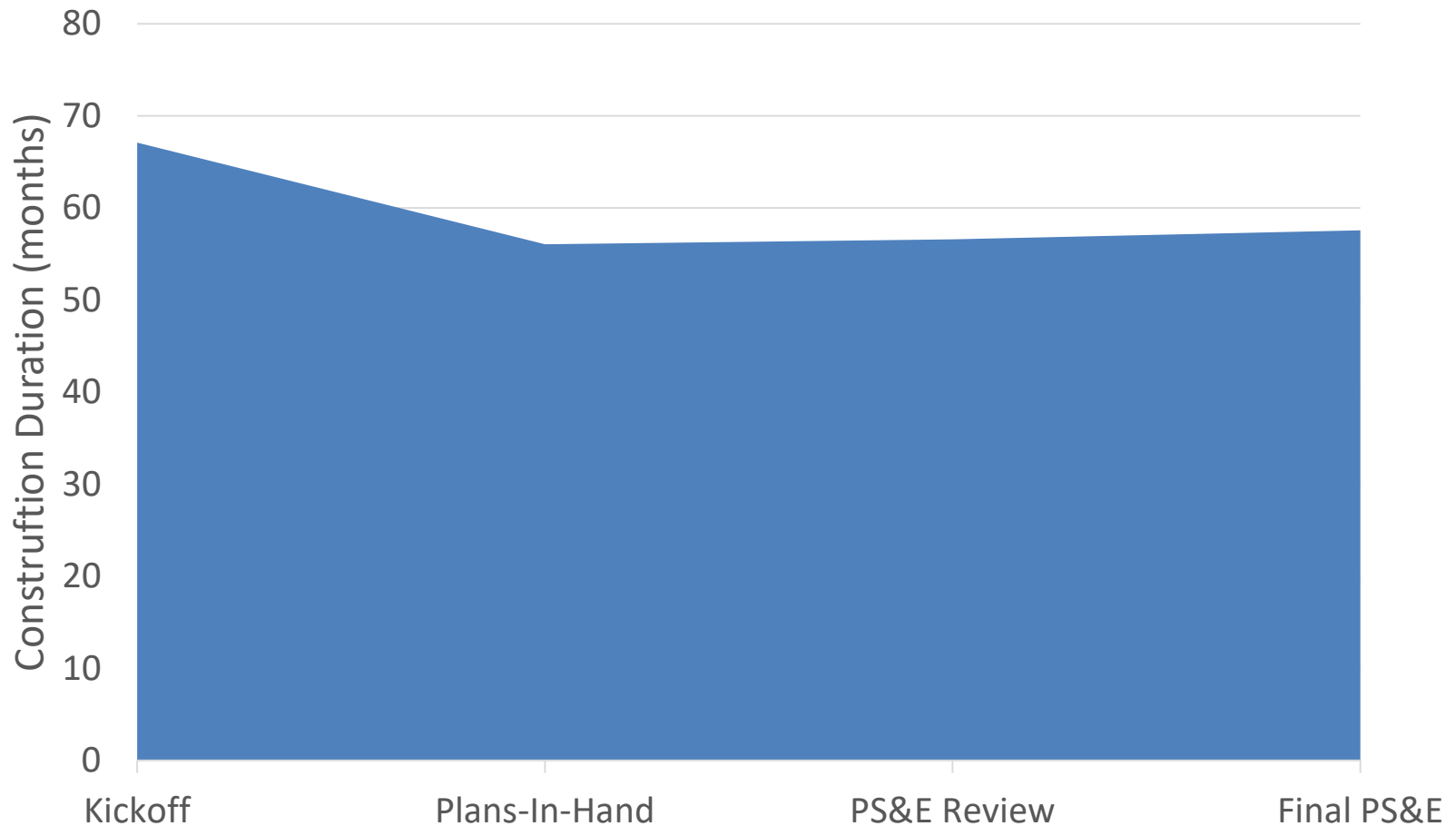
## Cost Summary



- Independent Cost Estimating is Critical
  - Cost Transparency
  - Cost Certainty
- Can Design Project Around Cost
- Knowledge Transfer



## Schedule Summary



- Riley Creek Bridge
  - Fall 2014 Construction Start ➔ Reduced Schedule by One Season
- University Avenue
  - Phased Approach
  - Identify Scope on Annual Basis
  - Contractor Input



- RFP Development
  - Pricing Criteria
- Permitting Support
  - Construction Methods Certainty
- Contractor Engagement
  - Can't Continue with DBB Mentality



# QUESTIONS?



**Michael Baker**

**I N T E R N A T I O N A L**

*We Make a Difference*

