Contract Time Incentives: STRATEGIES FOR OWNERS AND CONSTRUCTION MANAGERS

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District Department of Transportation

- Project Manager for the Woodrow Wilson Bridge Project for VDOT
- Regional Transportation Program Director in charge of VA Mega Projects Program
- MS in Structural Engineering
- BS in Civil Engineering
- Member of AASHTO
  - Standing Committee on Highways and Structures
  - Structure and Bridge Subcommittee
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Executive Project Manager – Woodrow Wilson Bridge Project
Parsons Brinckerhoff

- 39 years of CM experience
- 28 years active duty: US Army Corps of Engineers
- Managed a variety of projects with PB
- Masters of Engineering (Civil – Structures)
Presenters

Mimi Kronisch, PE, CCM
Project Manager
RK&K

- 15 years of CM experience
  - Contractor and Owner
- 8 years in Virginia managing contracts for VDOT’s Woodrow Wilson Bridge Program
- BS in Civil Engineering
- Registered PE in Virginia
This afternoon we are going to…..

- Use lessons learned from WWB Program:
  - How to implement I/D clauses
  - Explore pros and cons for I/D
- Recognize applicability of incentives or disincentives
- Understand and apply practical examples
- Understand and apply contract language related to I/D
- Feedback from SHA Districts, OOC and Design

Choose Best Course for Project
Location / Overview of Project

Metropolitan DC Area

Virginia

Washington, D.C.

Alexandria

Maryland

Woodrow Wilson Bridge Project

PROJECT LOCATION
7.5-mile Corridor on I-95/Capital Beltway

Not Just a Bridge Replacement, but a New Transportation Infrastructure System

- Telegraph Road Interchange: $400M
- U.S. Route 1 Interchange: $623M
- River Crossing Interchange: $830M
- Interstate 295 Interchange: $297M
- MD Route 210 Interchange: $165M
Woodrow Wilson Bridge Overview

- Opened 1961
- Anticipated Design Year Traffic Volume: 75,000
- 6 Lanes: Very narrow shoulders
- Current Traffic Volume: 195,000
- Anticipated Year 2020 Traffic Volume: 295,000
Importance of This Project

• Safety

  … nearly twice the accident rate of similar highways in Maryland and Virginia as well as the American Legion Bridge …

• Traffic Volume

  … burdened with seven hours of congestion daily and frequent several-mile backups …

• Wear and tear on the 40-year old bridge required the facility to be replaced in the near term

• At least 1.3% ($58 Billion) of trucked GDP crossed the Bridge in 1993.
Rainbow Chart Handouts
Construction Timeline

2000 – Began construction with river dredging

2001 – Began bridge foundations, VA & MD soil improvement and MD interchange work

2003 – Began bridge superstructure and VA & MD tie-in projects

2006 – Completed 1st new bridge, switch traffic, demolished old bridge

2008 – Completed 2nd new bridge and bulk of US Route 1, I-295 and MD 210 Interchanges

2013 – Complete Telegraph Road Interchange
Management Structure

• Maryland State Highway Administration
  – Maryland Interchange Contracts
  – Bridge Contracts

• Virginia Department of Transportation
  – Virginia Interchange Contract

• Federal Highway Administration
  – Oversight for Program

• General Engineering Consultant Joint Venture
  – Parsons Brinckerhoff (Lead)
  – URS Corporation
  – RK&K
  – 13 Active Subconsultants (8 DBEs)
GEC Management Advantages

• Involved early during pre-construction phase for ALL 22 major construction contracts
• Key staff continuity
  – Applied lessons learned
  – Institutional knowledge
• Sponsoring agencies coordination
Delivered On Time and On Budget
In-part because of our continued lessons learned and creative I/D contract language
Contract Interface

- Long Duration Contracts
- Traditional D-B-B Delivery
- FHWA Buy-In
- Risk on Owner for contract interfaces
- VDOT and MSHA mutually liable for delays
- Milestones included in original contract language had to forecast 4-5 years ahead for major traffic realignments
- Interface management achieved with milestone incentives/disincentives

Overall It Worked!
Benefits of Time Incentives

- Coordination of multiple concurrent projects on Mega Programs
- Gives owners and CM’s flexibility
  - Industry and public expects on time delivery
- Funding for incentives built into original budgets
  - If milestone missed, can reallocate for other contingency
- Fosters partnering relationship among team members
- Disincentives can always be removed
  - Used to negotiate away other claims/issues
- Reduction in claims
- Ability to control adverse impacts to stakeholders
- Integrated Program Schedule – Tool for Acceleration
Drawbacks of Time Incentives

• Contractor chasing $
  – Quality impacts
  – Open to traffic ≠ finished product
    ▪ Lane closures needed to complete work

• Requires diligence with schedule reviews
  – Independent critical path for each milestone
  – Delay impact management critical = staff = $

• Contractor bids
  – Although incentives are not earned at bid time, contractors assume earnings and include in bid

• Caution… Choose your contract language carefully
Tools of the Trade - Incentives

• Lump sum fixed date
• Graduated incentives
  – $ value per day for 30 days for a maximum....
• Fixed time duration
  – 6 months for a temporary detour
• Incentive for claim waivers
Tools of the Trade - Disincentives

- Lump sum one time penalty
- Graduated disincentives
  - Damages per day
- Liquidated damages
  - Overhead
  - Calculated loss of road use
Bridge Contracts

BR-1 Dredging
Bridge Contracts

BR-1 Dredging

- Contract language specified regardless of NTP, fixed completion date will be met
- Contract Language included $2 million disincentive for not meeting time of year restriction
  - No work could be performed Feb to Oct
- Approved disposal site for all contractors given at ad
- A max $500K incentive was also included

It Worked!

- Realistic expectations with hefty penalty
Bridge Contracts

BR-2 Foundations
Bridge Contracts

BR-2 Foundations

• 15 separate complete by date disincentives
  – Cumulative disincentives – significant $

• Anticipated that program would need portion of the foundations ready for the next Bridge Contract

• No Incentives, only Disincentives

• Unforeseen conditions – owner responsibility

It Did Work, Partially

• No Incentives – set wrong tone
• Late completions traded for owner delay
• None were imposed (superstructure bid bust)
Bridge Contracts

BR-3A, BR-3B, BR-3C
Bridge Opening Milestones

BR-3A, BR-3B, BR-3C

• Three contracts tied together and constructed concurrently
• I/D was the only tool owners and CM’s had to maintain schedule
• All switch dates were made, but OL was messy
  – Outer loop traffic switched first so existing bridge could be demolished
  – Outer loop commissioning and testing of bascule not started prior to switch
    ▪ “open to traffic?”
  – Inner loop switch contingent on adjacent roadway contracts
Bridge Contracts – OL Opening

BR-3A, BR-3B, BR-3C
• All three were offered incentives for having outer loop ready to open
• Predecessor to existing bridge demo
• $500K total for each contractor
• Disincentives included on Milestone

It Did Work!
• Fostered global settlements which mitigated claims
• No I/D paid or assessed
• Incentive budget used for Global Settlements to mitigate claims
BR-3A, BR-3B, BR-3C

- To encourage cooperation among three contractors, incentives were offered to all three for completing gates, ITS devices, lighting and striping for each span.
- Only $100K total for each contractor
- All three had to meet dates or none received incentive

It Did Not Work!

- Incentives not enough $
- None paid!
Bridge Contracts

Steel Escalation

40,000 Tons of Structural Steel
Bridge Contracts

BR-3A, BR-3B, BR-3C

• Steel Escalation
  – Huge loss to contractors at height of market
  – Owner agreed to assist in cost to contractor
    ▪ In return contractors agreed to mitigate other claims
    ▪ Added new disincentive contract language
      ▪ Contractor required to meet schedule or money is taken back

It Did Work!

• Fostered global settlements
• Mitigated claims
• Achieved Schedule
Maryland Interchange Contracts
Maryland Interchange Contracts

- MD Contractors Earned most of the originally planned Incentive $
- Small $ values ($30-$70K, one was $150K)
- $15k/day disincentives with only a max of $30k incentive, at $2k/day
- Same Contractor and Supervision for 5 of 6 Major Contracts
- Access to the WWB big issue
  - Incentive included in MA-4 for haul road access
Maryland Interchange Contracts

• **MA-4 added milestone and incentive to original contract work**
  – Completion of Ramp T and Q
  – $70 K
  – Needed for National Harbor Opening

It Did Work!
Virginia Interchange Contracts
Virginia Interchange Contracts

- VA 6/7 “No Excuse Bonus” option for Inner Loop Bridge Opening
  - $5 Million Dollars!
  - No claims for time or money from Contractor allowed if accepted
  - Declaration 2 years prior to Milestone Date
  - Owner needed connecting roadway in order to open Inner Loop Bridge
  - VA was scheduled to be ready last

It Did Not Work!

- Too much risk for Contractor
- Contractor did not accept terms
Virginia Interchange Contracts

• VA 6/7 “No Excuse Bonus” Money Reallocated
  – Contractor proposed different plan of operations to meet bridge opening
  – New milestone dates and incentives added and met
    ▪ Steel Escalation paid and disincentives consistent with bridge contracts
  – Inner Loop Bridge opened on schedule

It Did Work!

• Owner and FHWA partnered with Contractor to obtain schedule and meet program goals of opening bridge on time
• “Win-Win” for owner and contractor
Virginia Interchange Contracts

- VA 6/7 Milestone 10 Language
- Substantial Completion

“Substantially complete all bridges, roadways, (not including final surface mix asphalt pavement, striping and other weather sensitive items), sound walls, fences, visual barriers, critical lighting, and sign structures, signage and traffic signals such that traffic is in its ultimate configuration and provides ultimate traffic capacity throughout the limits of the Rte 1 Interchange.”

What is wrong with this language?
Virginia Interchange Contracts

• Substantial Completion

…… visual barriers, critical lighting, and sign structures, signage and traffic signals such that traffic is in its ultimate configuration and provides ultimate traffic capacity throughout the limits of the Rte 1 Interchange.”

1. Critical not defined in Milestone Language
2. Permanent or temporary signage? Not defined

It Did Not Work!

• Contract language not specific enough
• Traveling Public was impacted by additional lane closures for contractor to complete work
Virginia Interchange Contracts

- VB 2/3/6 Milestone 5 Language
  
  “Open to vehicular traffic Ramp A2 and the portion of Ramp A1 to enable northbound Telegraph Road traffic connection to Eisenhower Avenue. Complete installation and illumination of all interchange high-mast lighting assemblies.”

Will this Work?
Virginia Interchange Contracts

• Milestone 5

 .......... Complete installation and illumination of all interchange high-mast lighting assemblies.”

illumination required Power Company cooperation

It Did Not Fully Work!

• Contract language depended upon a third party the contractor could not control
• Language changed to delete illumination, allowing incentive to be met for ‘installation’ of the high masts
Why I/D worked on the WWB Program?

Conclusions

• Fostered cooperation among owners and contractors
• Key to managing program schedule
• Provided flexibility for mitigating potential claims and negotiating changes
• Enabled management of Owners’ risk
• Choose language carefully but be creative
• Innovative Environment
• Created Win-Win Situations for all involved
## What was in it for the Owner

### Project Budget by Element (in millions)

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<th>Cost Component</th>
<th>Budget</th>
<th>% of Total</th>
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<td>Engineering &amp; Program Mgmt</td>
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<td>Right of Way Acquisition</td>
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I/D Clauses on MD SHA Projects
Reasons for Inserting I/D Clauses into the Contract

• Minimize time road is closed
  – To gain public approval for the project
  – Save money by not phasing project
• To ensure milestone is met to not delay subsequent activity
• Incentivize contractor to plan to finish early, to become focused
• Undesirable MOT phase, minimize duration
Reasons Clauses May Not Be Effective

• For bridge rehab, find required additional scope
  – Adds time and additional effort to schedule
• Unqualified contractor cannot complete the project on time
• Unforeseen problems impacting schedule
Who is in Favor, Who is Not?

• Engineering who are dealing with the public
• Construction management – Owner and private firms
• Contractors
What is the Future?

• Falling out of favor
• We are using it a great deal
Difficulties

- Determining the $ amount of I/D
- Determining the numbers of days in the incentive
- Agreeing on additional time for additional scope
- Subjective/inconsistent assessment of success – E&S
- If not possible, contractors may bid project with disincentive
- Determining what constitutes being “finished”
- Dealing with contractor who is in the “but for” or “what if” mode