a critical element in the plan

better ways to deliver
an introduction

IPD Construction Team
Purpose of and Role in IPD

IPD is…

• Reviewing the existing project delivery process
• Researching best practices from other DOTs
• Getting feedback and ideas from DOT units
• Generating ideas and recommendations for process, procedure and policy changes
• Developing products and training based on the recommendations
Who Are We?

Construction Team

Paul Petrich
HNTB

Lamar Sylvester
NCDOT State Construction Engineer

Raymond Hayes
AECOM

Ricky Greene
Stantec

Clint Morgan
Atkins
First question…what is your main role now?

- Planning and Environmental
- Design
- Construction
- Operations
Plan of Action

• What we’ve learned
• Input received
• Current construction process
• Ideas for improvement
what we’ve heard so far

internal and external interviews
Peer State Research

- Florida
- Georgia
- Texas
- Utah
Peer State Research

Q1: What changes have you made in your program to improve the construction process?

Q2: What changes would you like to see to see to improve project delivery?
Common Themes

Early Involvement is Critical \ Communication

1. States are implementing required participation by construction staff
2. Post-construction assessment

Moving Utilities Effectively

2. Early Notification & Involvement
3. Pre-approved contractors to expedite relocations
4. Avoidance is the best option
Common Themes

R/W Early Acquisition
- Find opportunities to start acquisition early (total takes)
- Reduce / eliminate second takes

Alternative Delivery Elements
- Make Design-Bid-Build more like Design/Build
- Earlier Contractor Involvement
Good Ideas So Far...

**Team Members**
- Early communication with Utilities/RR and update as needed
- Mechanism to hold utilities financially responsible for cost of utility delays

**Communication**
- Early (and often) construction involvement
- Field visits by design team
- Design interaction during construction

**Delivery**
- “Make DBB more like D/B”
- Earlier contractor involvement
- Break project into smaller packages

**Game Changer**
- Modification to WZTC contractor responsible for development and revisions
about the process

the project delivery process now
NCDOT Division Organization - Construction

Division Engineer

Division Construction Engineer

Asst. Division Const. Engineer

Resident Engineers

Asst. Resident Engineers
Construction Process
Construction Process

Preconstruction Conference → Clearing & Grubbing → Erosion Control → Utility Relocation

Utility Construction → Rough Grading → Structures → Bottom Drainage

Top Drainage → Fine Grading → Pavement → Signs/Signals

Post-construction Assessments → Final Acceptance → Punch Work → Final Inspection
Construction Process

1. Preconstruction Conference
2. Clearing & Grubbing
3. Erosion Control
4. Utility Relocation
5. Utility Construction
6. Rough Grading
7. Structures
8. Bottom Drainage
9. Top Drainage
10. Fine Grading
11. Pavement
12. Signs/Signals
13. Post-construction Assessments
14. Final Acceptance
15. Punch Work
16. Final Inspection
17. Final Acceptance
18. Punch Work
19. Final Inspection
The Great Divide

Construction

Design
Challenges

- Communication
- Utilities
- Right-of-Way
- WZTC
Bridging the Gap
How do we overcome these challenges
Early involvement

• Begin with the end in mind!
• Early involvement from construction and maintenance
  • Scoping meetings
  • Engagement through final design
  • Make it mandatory (if necessary)
  • Important!
• Everyone on the same page
• Some Division CE’s spend half of their time on project development
Early engagement

Utilities

The sooner...

Rail

The better!
Right-of-Way

Identify problems EARLY
Right-of-Way

Early acquisition...

Sometimes it really is **THAT** obvious.

Know when to say when!
Constructability reviews

- Constructability review at 30%
- Preliminary approval by Division as part of 30% approval
Continuity through construction

- DOT and consultant PMs are available and actively participate throughout entire project delivery process
- Technical leads attend pre-construction conferences
  - Environmental, planning and design
- Post-design service contracts for designer
Make information available

• Share information from the field
  • What works?
  • What doesn’t?

• Post-construction assessments
  • Lessons learned

• Repository of information
  • Interactive database of information
  • Quarterly webinars
Maybe its time to ROCK the BOAT
Work Zone Traffic Control

- **Current process**
  - Design engineer prepares, signs and seals final WZTC plans
  - Developed after 65% plans
  - Level of detail is excessive
  - Largest set of plans

- **Field modifications**
  - Changes can be problematic
  - Contractor may have a better plan
  - May require design revision
  - Limited flexibility
  - Schedule killer
What if......

• Design engineer develops preliminary WZTC plans
  • Coordination at 30% plan development
  • Basic phasing
  • Restrictions

• Contractor develops final sealed plans
  • Preliminary WZTC plans available at 60%
  • Provides opportunity for innovation
  • Greater flexibility
  • Simplifies field modifications
  • Potential to limit schedule impacts

Chuck gives it two thumbs up!
Guest Speaker

- Randy Park
- UDOT (Retired)
project punch list

summary statement
THINK BIG & MAKE IT HAPPEN
Questions or Ideas to Share?

https://tinyurl.com/NCDOTIPD
Thank you!