Utility Coordination on LPA Project

Natalie Parks,
Utility & Railroad Coordinator

Eric Farny,
Project Manager

March 10, 2015
What to Expect

• Interactive – ask questions as we go
• General background information
  – utility coordination process
  – who is involved
  – importance
• Real world examples and success stories
What’s the Big Deal?

• Utility relocation is a costly part of a project
• Successful utility coordination minimizes
  – relocation efforts
  – surprises
  – delays
  – Bottom line – COSTS
Why?

• Minimal INDOT involvement
• Majority of work falls on the Designer
• Understand
  – basics of the coordination process
  – changes to the process that effect the bottom line
  – responsibilities of ERC
Answering the Questions

• Why this process?
• What is the process?
• Who is involved?
• What is the expected time line?
• What about reimbursements?
• Why post-letting services?
• What deliverables should I expect?
• How does this affect my bottom line?
Why this process?

- Constant communication
- Brings the utility on as a partner
- Looks at risks and constructability
- Reduces unknowns in the field
- “Cradle to Grave”
- “Everyone knows where everyone goes”
What’s the Process

• 105 IAC 13 Process
  – Initial Notice
  – Verification Plans
  – Preliminary Plans
  – Preliminary Final Plans
  – Utility Coordination Certification
  – Post-Letting Follow Up

• Agreements
Highlights of Design Manual

• **Section 1 – Initiation Phase**
  – Obtain all pertinent project information
  – Prepare risk evaluations

• **Section 2 – Research Phase**
  – Determine facilities potentially involved
  – Prepare spreadsheet
Highlights of Design Manual

• Section 3 – Initial Notice
  – Send letters w/ aerial to each utility
  – Request copies of maps, easement documents
  – Record responses
  – Contact via phone all utilities
  – Review risk evaluation report
Highlights of Design Manual

• **Section 4 – Verification Phase**
  – Send letters and plans to each utility
  – Record responses
  – Coordinate with Project Manager to update plans
  – Revise Plans
  – Begin looking at R/W, Constructability issues
  – Begin looking at reimbursement situations
  – Hold Early Utility Coordination meeting
Highlights of Design Manual

• **Section 5 – Conflict Analysis**
  - Send preliminary plans to each utility
  - Conduct internal conflict analysis review
  - Record and Review responses from utilities
  - Review R/W needs
  - Review design alternatives
  - Discuss need for potholing/additional survey
  - Conduct Preliminary Field Check Meeting
  - Review risk evaluation report
Highlights of Design Manual

• **Section 6 – Work Plans Phase**
  – Send preliminary final plans to each utility
  – Record responses
  – Conduct quality control review of each utility’s plans
  – Comprehensive review of all utility relocation plans
  – Prepare overall utility relocation plan
  – Prepare Gantt chart of all relocation plans
  – Constructability review of relocation plans
  – Review Risk Analysis report
  – Assist in determining project time set
  – Hold Utility Coordination review meeting with utilities
Highlights of Design Manual

• **Section 7 – Agreement Phase**
  – Review basis for reimbursement
  – Prepare agreements and exhibits
  – Coordinate execution of agreements
  – Coordinate funding with INDOT District
Highlights of Design Manual

• Section 8 – Utility Construction Phase
  – Prepare and send Notice of Plan Approval
  – Prepare and send Notice to Proceed
  – Attend final field check meeting, if held
  – Review risk analysis report
  – Constructability Review
  – Attend Pre-Con
  – Stay on-point through construction
  – Complete Buy America Certification
Who is involved in this process?

1. Certified Utility Coordinator
2. Project Manager
3. Utilities
4. LPA ERC
5. INDOT
1. Certified Utility Coordinators

• Why use a certified coordinator?
  – Trained by INDOT (Certified)
  – Understands
    • importance
    • impacts
    • the process and paradigm
  – Experience
1. Certified Utility Coordinators

• What to expect
  – Develop utility coordination deliverables
  – Works directly with utilities
  – Works directly with design team
  – Analyzes risks
  – Review of information provided
  – Provides ongoing coordination until completion
2. Project Manager

• Main point of contact
• Works with utility coordinator
  – project budget
  – right-of-way limits
  – schedule
• Reviews proposed design changes
• Communicates significant issues
3. Utilities

- Are **NOT** the enemy
- Provides facility information
- Attends utility coordination meetings
- Reviews project plans
- Offers suggestions to alleviate relocation
4. LPA ERC

• Provides guidance on overall design
• Authorizes
  – changes that affect budget
  – SUE work
  – utility work-in-contract
• Signs
  – agreements between LPA & Utility
  – Notice of Plan Approval/Notice to Proceed
• Remits payment to a reimbursable utility
4. LPA ERC

• Work with project manager and utility coordinator
  – Risk analysis of involved utilities
  – Critical milestones
  – Target dates

• Determine use of advanced clearing & staking

• Works with design team on practical design
5. INDOT

• Project Manager
  – Oversees overall project
  – Oversees project budget
  – Oversees schedule

• Utility Coordinator
  – Direct involvement when utility is reimbursable
  – Can be involved if there are unresolved issues
### Project Development & Timeline

INDOT’s new paradigm requires early utility involvement, which enables better cooperation, right-of-way planning, and designs, while fostering partnership between designers and utility companies.

<table>
<thead>
<tr>
<th>Design</th>
<th>Utility Coordination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOPOGRAPHIC SURVEY</strong></td>
<td>INITIAL NOTICE</td>
</tr>
<tr>
<td>- Evaluate Risks</td>
<td></td>
</tr>
<tr>
<td><strong>TOPO PLANS</strong></td>
<td>VERIFICATION PLANS</td>
</tr>
<tr>
<td></td>
<td>- Early coordination meeting with utilities</td>
</tr>
<tr>
<td></td>
<td>- Verify existing information</td>
</tr>
<tr>
<td></td>
<td>- Discuss need for SUE</td>
</tr>
<tr>
<td></td>
<td>- Evaluate risks</td>
</tr>
<tr>
<td></td>
<td>- Determine reimbursable utilities</td>
</tr>
<tr>
<td><strong>STAGE 1 PLANS 30%</strong></td>
<td>PRELIMINARY PLANS</td>
</tr>
<tr>
<td>- Revise utility information</td>
<td>- Preliminary field check meeting with utilities</td>
</tr>
<tr>
<td>- Early coordination meeting</td>
<td>- Identify sig conflicts</td>
</tr>
<tr>
<td>- Evaluate risks</td>
<td>- Evaluate risks</td>
</tr>
<tr>
<td><strong>PRELIMINARY FIELD CHECK</strong></td>
<td>- Schedule SUE</td>
</tr>
<tr>
<td>- Preliminary field check meeting with utilities</td>
<td>- Begin 3D analysis</td>
</tr>
<tr>
<td>- Review ROW needs</td>
<td></td>
</tr>
<tr>
<td>- Review design alternatives</td>
<td></td>
</tr>
<tr>
<td><strong>STAGE II PLANS 60%-80%</strong></td>
<td>PRELIMINARY FINAL PLANS</td>
</tr>
<tr>
<td>- Finalize design changes</td>
<td>- Final design changes</td>
</tr>
<tr>
<td>- Final utility constructability review</td>
<td>- Final constructability review</td>
</tr>
<tr>
<td>- Final preconstruction utility coordination meeting</td>
<td>- Begin agreements</td>
</tr>
<tr>
<td><strong>STAGE III PLANS 90%</strong></td>
<td>- Final preconstruction utility coordination meeting</td>
</tr>
<tr>
<td>- Finalize 3D analysis</td>
<td>WORK PLAN</td>
</tr>
<tr>
<td>- Verify conflicts remediated</td>
<td></td>
</tr>
<tr>
<td><strong>TRACINGS</strong></td>
<td>- Complete overall relocation plan</td>
</tr>
<tr>
<td>- Establish time set</td>
<td>- Gantt chart</td>
</tr>
<tr>
<td><strong>CONSTRUCTION</strong></td>
<td>TRACINGS</td>
</tr>
<tr>
<td></td>
<td>- Establish time set</td>
</tr>
<tr>
<td></td>
<td>- On point throughout utility relocation</td>
</tr>
<tr>
<td></td>
<td>- Mitigate unexpected conflicts for smooth construction completion</td>
</tr>
</tbody>
</table>

**ROW COMPLETE**

- Establish ROW needs with utilities
- Discuss assisting in ROW acquisition

**NEPA**
Project Development & Timeline

• Critical points!
  – Project Onset
  – Stage 3

• Develop Schedule in two phases:
  a. Project onset to Preliminary Plans
  b. Stage 3 to Preliminary Final Plans
Project Development & Timeline

• a. Project Onset to Preliminary Plans
  – Utility research
  – Initial Notice (*before* survey begins)
  – Verification Plans approx. 45 days after initial notice
  – Early Coordination Meeting
  – Preliminary Plans 45 days after Verification Plans
  – PFC
Project Development & Timeline

• Major design and conflict decisions made between Preliminary Plans & Preliminary Final Plans
• R/W set
• Determination of SUE needs
• Determination of Reimbursable utilities
Project Development & Timeline

• b. From Stage 3 back to PFP
  – Utility certification is due
  – Send PFP between 6 and 8 months before Stage 3
    • Allows for delinquent utility responses
    • Allows for necessary design changes
    • Allows for agreement processing
Project Development & Timeline

For a 2-year design life...
...utility coordination will take approximately 18 months
When a utility is reimbursable...

- Utilities **are** reimbursable when
  - own an exclusive property interest
  - municipally owned utility on same municipalities right-of-way

- Utilities **are not** reimbursable if
  - located within public right-of-way
  - in a general utility/drainage easement
  - not in right-of-way owned by the same municipality
  - performing maintenance or an upgrade
When a utility is reimbursable...

- Agreements
  - Reimbursable agreement
  - Work-in-contract Reimbursable agreement
  - Work-in-contract Non-reimbursable agreement
  - Subordination agreement
- Relocation drawings & estimate
- Agreement is between LPA & Utility
When a utility is reimbursable...

- Agreement signed by ERC
- Agreement processed by coordinator
  - Sent to utility for signature
  - Sent to LPA for signature
  - Sends executed agreement to INDOT for PO & FMIS approval
  - Sends copy of agreement & NTP to utility
When a utility is reimbursable...

- During Construction the Coordinator
  - Issues NTP
  - Communicates with utility regarding work start and end
  - Issues Work Complete letter
  - Issues Request Final Bill letter
When a utility is reimbursable...

• Invoicing
  – Utility sends LPA an invoice once work is complete
  – *Utility should copy coordinator*
  – Coordinator reviews invoice and provides feedback to LPA
  – LPA pays Utility
  – LPA requests reimbursement from INDOT

• Buy America Certification
Cradle to Grave

• **REQUIRED** by INDOT design manual
• Coordination **starts** at project onset
• Coordination **ends** when last utility has completed relocation efforts
Cradle to Grave

• Includes
  – all pre-design coordination
  – pre-construction meeting
  – on-site meetings, progress meetings
  – in-field conflict resolution
  – final agreement paperwork

• Should be included in initial fee for utility coordination
Deliverables

• Comprehensive list of involved utilities
• Risk analysis report
• Memo describing utility conflicts
• Relocation drawings & work plans from each utility
• Master utility relocation plan
• Gantt chart showing project timeline
Bottom Line

1. Partnering with utilities helps to know where everyone is
2. Partnering with utilities helps to know where everyone goes
3. It avoids conflicts…
4. …which saves time…
5. …which saves money!
Real World Examples
Main Street, USA

• Fictitious project
• Highlights
  – some major utility issues
  – use of practical design
  – partnering with utilities
  – major steps from cradle to grave
Main Street, USA

• Existing conditions:
  – 2 lane roadway
  – At grade railroad crossing
  – Drainage via curb and gutter and ditches
  – 40’ R/W (20’ of centerline)
  – Wetland adjacent to roadway
Main Street, USA

• Existing Known Utilities
  – Liquid fuel pipeline crossing
  – Natural gas
  – Telephone
  – Overhead transmission and distribution electric
  – Cable
  – Fiber
  – Municipal water and sanitary
Main Street, USA

• Proposed Design
  – Reconstruction & Widening
  – New curb & gutter throughout
  – New bridge over railroad
  – New pedestrian path & sidewalk
Main Street, USA

• Project needs
  – Assess best location for new roadway alignment
  – R/W acquisition
  – Utility Coordination
  – Environmental
Main Street, USA

- Project kick-off meeting
  - Discuss scope
  - Discuss schedule
  - Discuss obstacles
  - Discuss project approach
Initial Notice
Main Street, USA

• Initial Notice & Research
  – Design Ticket
  – Existing projects
  – Permits
• Send out initial notice with aerial
• Follow up with phone call
Verification Plans
Main Street, USA

• Determine project schedule
• Determine project deliverables
• Review list of utilities and existing maps
  – Discuss red flags with project manager
  – Reach out to utilities that may have property interest
  – Determine need for SUE
Main Street, USA

- Verification Plans
  - Review survey plans
  - Compare with utility information

- Hold Early Coordination Utility Meeting
  - Discuss potential major conflicts
  - Discuss reimbursement needs
  - Determine use of SUE
  - Review R/W Needs
Preliminary Plans
Main Street, USA

• Preliminary Plans
  – Set preliminary alignment
  – Review utility impacts & risk assessment
  – Send plans to utilities
Main Street, USA

• Preliminary Field Check
  – Conflict points with utilities
  – R/W needs
  – Points for SUE
  – Project goals for working with utilities
    • Practical Design
    • Utility responsibilities
  – Begin RR Coordination
Main Street, USA

• R/W Acquisition
  – Determined that there is not 40’ R/W throughout
  – No curb & gutter = R/W at edge of pavement
  – Discuss utility R/W needs
  – Determine necessity for new and/or replacement easements
Main Street, USA

- Environmental
  - Wetland extends farther than originally thought
  - R/W impacts to Environmental
Main Street, USA

• Utility Information
  – Transmission Electric
    • Located on exclusive easement
    • Proposed alignment requires relocation
    • Relocation cost = $1 million
    • Poles take 52 weeks to order/receive
Main Street, USA

- Utility Information
  - Liquid Fuel Pipeline
    - Crosses project diagonally
    - Crosses perpendicular to railroad
    - Exclusive easement
    - No work/structures within 25’
    - Cost of lowering/relocation = $2.5 million
Main Street, USA

• Utility Information
  – Distribution Electric
    • Underbuild on transmission electric poles
    • Transfers to own poles
    • Exclusive easement includes some poles
    • Underbuilds located on poles
    • Relocation of underbuild on transmission poles included in reimbursement
    • Relocation of poles on easement = $75,000
    • Relocation of poles not on easement = $150,000
Main Street, USA

• Utility Information
  – Telephone
    • Underground manholes & conduits
    • Copper and fiber facilities
    • Service lines & pedestals
    • Not on easement
    • Cost to relocate = $750,000
    • Time to relocate > 180 days
    • Crosses under roadway
Main Street, USA

- Utility Information
  - Cable
    - Underbuild on electric poles
    - Relocation cost = $50,000
    - Relocation time = 30 days
  - Fiber
    - Underbuild on electric poles
    - Relocation cost = $20,000
    - Relocation time = 15 days
Main Street, USA

• Utility Information
  – Long line Fiber
    • Located on Railroad right-of-way
    • Reimbursable utility
    • Relocation cost = $10,000
    • Relocation time = 7 days
Main Street, USA

• Utility Information
  – Natural Gas
    • Parallels roadway along existing south r/w line
    • Entirely within roadway right-of-way
    • 6” main with services
    • Crosses under the railroad
    • Relocation cost = $200,000
    • Relocation time = 30 days
Main Street, USA

• Utility Information
  – Municipal Utilities (Water main)
    – Back of curb on north side
    – Hydrants and valves
    – Older line
    – Relocation costs = $750,000
    – Relocation time = 3 months
Main Street, USA

• Utility Information
  – Municipal Utilities (Sanitary)
    – Gravity lines in existing pavement
    – Utility thinks around 10’ deep
    – Goes under the railroad
Main Street, USA

• Utility Information
  – Railroad Utilities
    • Overhead electric line parallels railroad
    • Owned and operated by railroad
    • Fiber communications line parallels roadway
    • All utility conflicts with railroad owned utilities are reimbursable
Main Street, USA

- Utility Information
  - Conflict analysis review
    - Significant critical points
    - Review critical points with LPA
    - Determine SUE
    - Communicate with utility on depth needs
  - Risk Analysis assessment
  - Schedule assessment
Main Street, USA

• Utility Information
  – Design Phase
    • Practical Design
    • Work with utilities to find solutions
  – Critical Elements
    • Railroad R/W
    • MSE walls for overhead structure
    • Wetland location/boundaries
    • Electric Easement location/boundaries
Preliminary Final Plans / Work Plans
Main Street, USA

• Utility Information
  – Preliminary final plans to utilities
  – Work plans received (approx. 2 months to stage 3)
Main Street, USA

• Work plans
  – Transmission Electric line
    • Relocation costs and times as expected
    • Requested shift of alignment ~5’ to avoid completely
    • 52 week lead time on some materials
Main Street, USA

• Work plans
  – Liquid Fuel line
    • Location of MSE walls requires full relocation
    • Relocation costs = $5 million
      – include new easement and new pipeline alignment
    • Relocation time exceeds 6 months
    • Suggest spanning line with bridge
    • Materials have 2 month lead time
Main Street, USA

• Work plans
  – Distribution Electric
    • Due to wetland location & alignment - relocation of poles necessary
    • Submitted estimate of $300,000
    • Claiming prescriptive rights on poles located outside of edge of pavement and easement
    • Will require a replacement easement
    • Crosses over railroad which will require raising the line and a railroad permit
Main Street, USA

• Work plans
  – Telephone
    • SUE information shows depths are generally okay with a few exceptions
    • Due to location of high points, significant relocation necessary for fiber line
    • Critical vault located at beginning of project; relocating would be 180 days
    • Submitted cost estimate of $300,000
    • Will require a RR permit if relocating
Main Street, USA

• Work plans
  – Longline fiber & Railroad Utilities
    • Longline fiber okay based on location of bridge MSE walls outside the RR R/W
    • Railroad fiber line okay
    • Possible clearance issue with overhead RR electric lines
Main Street, USA

- Work plans
  - Natural Gas
    - Relocation unavoidable due to existing depth of line
    - Relocation unavoidable due to MSE walls and fill
    - RR permit required
Main Street, USA

• Work plans
  – Municipal Utilities
    • Water line relocation necessary around bridge
    • Hydrants and valves relocated throughout project
    • Sanitary line relocation necessary around bridge
    • RR permits required
Main Street, USA

• Relocation Plan & Constructability Review
  – Problem 1: Gas line and proposed water line going in the same location; limited R/W availability
  – Problem 2: Overhead lines okay for roadway but could cause an issue with pile driving
Main Street, USA

- Relocation Plan & Constructability Review
  - Problem 3: telephone line relatively shallow in a few locations
  - Problem 4: cable and fiber companies unresponsive
  - Problem 5: reimbursable utilities exceed expected
Main Street, USA

• Design Alternatives
  – Realign roadway to avoid transmission lines & easement
    • Re-design cost = $20,000
    • Cost savings of $980,000
    • Time savings of 52 weeks (1 year)
  – Lengthen bridge to span over liquid fuel line
    • Spans over RR electric at required clearance
    • Re-design & cost of longer bridge = $200,000
    • Cost savings of $4.5 million
Main Street, USA

- Design Alternatives
  - Telephone
    - Determined the vault could be saved if storm sewer pipe relocated
      » Re-design of storm sewer would cost $10,000
      » Utility willing to pay for re-design?
    - Shallow areas can be encased in concrete
    - Utility willing to allow Contractor to provide concrete encasement
      » Encasement estimate $10,000
      » Utility willing to pay $10,000
Main Street, USA

• Design Alternatives
  – Municipal Water & Sanitary
    • Relocations deemed necessary
    • Will be done as a work-in-contract agreement
  – Natural Gas
    • Relocated water line to avoid gas line
    • Gas line must be bored under railroad
Main Street, USA

• Utility Information
  – Agreements
    • Reimbursable agreement necessary for Electric line relocation within easement
    • Work-in-Contract reimbursable agreement necessary for Water and Sanitary sewer relocation
    • Work-in-Contract non-reimbursable agreement necessary for telephone encasement
    • Prescriptive rights claims require Quiet Title filed in court
Main Street, USA

• Utility Coordination Review Meeting
  – Reviewed time requirements
    • clearing/staking done in advance could save time?
  – R/W includes new easement acquisition for electric
  – Reviewed Construction phasing
  – Quick field trip to determine clearing needs
    • Identified evidence of new fiber installation
    • Identified trees that need cleared in advance of letting so utilities could begin relocation
Main Street, USA

- Coordination with new fiber line begins
- Issued work plan approval to utilities
  - RR permitting
  - Material ordering
Main Street, USA

• Final Deliverables
  – Master utility relocation plan distributed
    • “Everyone knows where everyone goes”
  – Gantt chart
    • 30 month construction if Contractor does clearing and staking for utilities
    • Could save up to 6 months if clearing/staking done once R/W is cleared
  – Finalized work plans
Tracings
Main Street, USA

- LPA agrees to perform clearing & staking
  - Notice to Proceed issued to utilities
  - Gantt chart updated
  - Not all utilities can complete relocation prior to Letting
    - RR Permitting issues
    - Contractor work necessary
Main Street, USA

• Project let-t- ing successful
• Pre-Con Held
  – Utility schedules updated
  – Utility relocation dependent on Contractor discussed and coordinated
• Cradle to grave coordination
  – Coordination continues through relocation complete
Construction
Main Street, USA

• Construction
  – Locates indicated multiple fiber lines running in railroad right-of-way. RR indicated depths would be sufficient
  – Boring ran into an unknown fiber
  – Sheet piling for bridge close to telephone line
Main Street, USA

• Construction
  – The gas line was not relocated per plan
  – Guy wires for overhead lines in conflict with proposed curb ramp
  – Ditch construction uncovered sanitary sewer belonging to regional sanitary district
Main Street, USA

• Construction
  – Notice of Work Complete
  – Notice of Final Bill and Invoice
  – Invoices for reimbursable work received
    • Review shows inaccurate reporting
    • Invoice amount exceeds agreement amount
    • Invoice includes work not included in agreement
Contact Information

Natalie Parks
(317)523-7517
nparks@structurepoint.com

Eric Farny
(317)547-5580
efarny@structurepoint.com