

Utility Coordination on LPA Project

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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

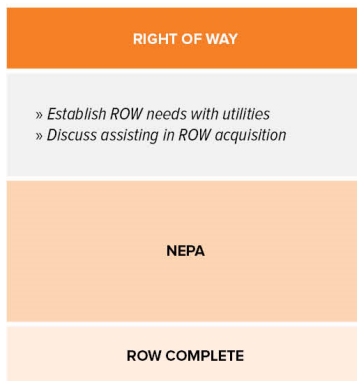
- Work with project manager and utility coordinator
 - Risk analysis of involved utilities
 - Critical milestones
 - Target dates
- Determine use of advanced clearing & staking
- Works with design team on practical design

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.



DESIGN	UTILITY COORDINATION
TOPOGRAPHIC SURVEY	INITIAL NOTICE
» Evaluate Risks	» Obtain existing maps » Obtain easement information » Evaluate risks
TOPO PLANS	VERIFICATION PLANS
STAGE I PLANS 30%	» Early coordination meeting with utilities » Verify existing information » Discuss need for SUE » Evaluate risks » Determine reimbursable utilities
» Revise utility information » Early coordination meeting » Evaluate risks	PRELIMINARY PLANS
PRELIMINARY FIELD CHECK	» Preliminary field check meeting with utilities » Identify sig conflicts » Evaluate risks » Schedule SUE » Begin 3D analysis
» Preliminary field check meeting with utilities » Review ROW needs » Review design alternatives	PRELIMINARY FINAL PLANS
STAGE II PLANS 60%-80%	» Finalize design changes » Final constructability review » Begin agreements » Final preconstruction utility coordination meeting
» Finalize design changes » Final utility constructability review » Final preconstruction utility coordination meeting	WORK PLAN
STAGE III PLANS 90%	» Complete overall relocation plan » Gantt chart
» Finalize 3D analysis » Verify conflicts remediated	TRACINGS
TRACINGS	» Establish time set
» Establish time set	CONSTRUCTION
» On point throughout utility relocation » Mitigate unexpected conflicts for smooth construction completion	

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 letting 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

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