2016 AASHTO Right of Way, Utilities, Outdoor Advertising Control & National Alliance of Highway Beautification Agencies Conference

Sunday, May 1–Thursday, May 5
Rosen Centre Hotel
Orlando, Florida
Project R15C Pilot: Utility Conflict Matrix (UCM)

Maryland State Highway’s Experience

Nelson Smith
Statewide Utility Engineer, Office of Construction
Maryland State Highway Administration (MSHA)
Utility Process Challenges

• Utility issues: Top reason for project delays
• Critical factors contributing to inefficiencies:
  • Lack of adequate information about the location and other attributes of utility facilities that might be affected by a transportation project
  • Ineffective communication among stakeholders
  • Lack of appropriate strategies to resolve conflicts
Utility Process Inefficiency Impacts

- Disruptions during construction
- Damage to utility installations
- Project delays and cost overruns
- Unnecessary utility relocations
- Unplanned environmental corrective actions
SHRP 2 R15C: Pilot Implementation

• Objective:
  • Work with MDSHA to conduct a pilot implementation of the SHRP 2 R15B products

• Deliverables:
  • Report describing application and lessons learned
  • Updates to SHRP 2 R15B products
First MDSHA Training Course

• Conducted on 01/17/2013

• 36 participants:
  • MDSHA: 29
  • Utility owners: 4
  • Consultants: 2
  • FHWA: 1

• Strong emphasis on hands-on exercise
  • Seven groups
UCM Training Course
Second UCM Training Course

• Conducted on 09/30/2013
• About 40 participants
  • Mostly MDSHA designers
  • FHWA
• Strong emphasis on hands-on exercise
  • Eight groups
<table>
<thead>
<tr>
<th>Dist.</th>
<th>Project</th>
<th>Project Status at the Start of the Pilot</th>
<th>UCM</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>MD 210</td>
<td>&lt;30%</td>
<td>Yes</td>
<td>District completed first UCM. Consultant prepared second UCM version.</td>
</tr>
<tr>
<td>3</td>
<td>MD 212</td>
<td>&lt;30%</td>
<td>No</td>
<td>On hold, MDSHA hiring consultant for additional design work.</td>
</tr>
<tr>
<td>4</td>
<td>MD 147 at Joppa</td>
<td>60-90%</td>
<td>No</td>
<td>Project delayed due to design changes. No construction funding yet, but expected soon.</td>
</tr>
<tr>
<td>4</td>
<td>US 40</td>
<td>60-90%</td>
<td>Yes</td>
<td>District completed first version and revised update of UCM. District ordered and received test holes. Updated plans expected by the end of 2013. Utility coordination meeting planned.</td>
</tr>
<tr>
<td>5</td>
<td>Wayson’s Corner</td>
<td>90%</td>
<td>Yes</td>
<td>District provided final UCM.</td>
</tr>
<tr>
<td>7</td>
<td>MD 32</td>
<td>30-60%</td>
<td>Yes</td>
<td>District completed first and revised update of UCM. Received test hole reports. Utility coordination meeting held in October 2013.</td>
</tr>
</tbody>
</table>
MD 32 Road Widening: Lessons Learned

• Avoided $500,000 gas line relocation, resolved utility conflicts by changing drainage design
• 4-6 months time savings
• Changed construction sequencing, which avoided other conflicts
• Improved working relationship with utility owners, creating goodwill for future projects
• UCM challenged designers to think out of the box, facilitated teamwork
  • Made designers aware of utility issues on the project
  • Helped utility coordinators understand design process better
  • Brought district staff closer together

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UCM Approach Benefits

- UCM is useful for documenting utility conflicts and for discussing and resolving utility conflicts
- UCM raises awareness about utility impacts
- UCM helps to avoid utility unnecessary relocations
- Tangible economic and time benefits
- UCM facilitates coordination with utilities and contributes to better working relationships
- UCM process facilitates agency’s internal teamwork
Improvement/Challenge Areas

- Developing UCMs took longer than originally expected
  - Need to monitor time and effort needed
  - Front-end investment with expectation of benefits later during the PDP
  - Realistic scope of work for consultants
- More guidance on use of UCM needed
- Limit UCM updates to major milestones
Maryland’s Unexpected Benefit

• Upon completion of the Pilot program, MSHA began implementing the UCM approach into MSHA’s overall Utility Coordination Process. We discovered:

• Highway Design had a Utility Coordination Process and the Utilities Sections in the Districts had a different Utility Coordination Process

• Both processes were incompatible with each other

• Neither process was effective
District Utility Section’s Process

Construction Plans Reach Design P.I. Stage - 30% Plans

1. Initial Contact w/Utility - Plot & Identify Utilities on Plans
2. Field Measurements Taken for Prior Rights - DUE
3. Prior Rights Information [RW57] to Acquisition Section [R/W to Determine Cost Responsibility]
4. Utility Agreements Initiated - DUE

4. Utility Work Incorporated into SHA Contract:
   A. Receipts & Disbursements bills Utility Monthly/Final Billing
WHY?

But We've ALWAYS Done It This Way
Revised Utility Coordination Process

HDD Typical 18 Month Design Schedule

- 1.5 - Planning/Design Transition
- 2.4 - Design Initiation Meeting
- 3.2 - Obtain Topographic Surveys, Mapping and Utility Designation (QL-C)
- 3.5 - Develop Design Files for PI
- 3.7 - Concept Drainage, SWM, E&S, Environmental, Traffic, Structures, Noise Barrier Design
- 4.1 - Prepare Plans for PI Distribution
- 4.2 - Preliminary Field Investigation (PI) and Report Process
- 5.2 - Utility PI Coordination Meeting / 8.6 - Utility Prior Rights Process
- 5.3 - Request Test Pits
- 5.5 - Receive Final ROW Requirements from Support Divisions & Submit to Plats & Survey
- 5.11 - Drainage, SWM, E&S, Environmental, Traffic, Structures, Noise Barrier Design Process
- 8.9 - Environmental PS&E Submittal
- Bid 5.12 - Agreement Process

- DUE to follow-up on any MUTicket no responses & request Pole (Aerial) Inventory
- Plats & Surveys to submit Miss Utility Design Ticket (QL-D)
- Determine SUE QL-B needs
Request SUE designation
Develop Initial Utility Conflict Matrix

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Quality Depends on Good Data

- Garbage
- Accurate Data
- Utility Conflict Matrix
- Bad Decisions
- Good Decisions

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Questions
Thank You!

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