

Better Managing Utility Conflicts in Delaware through the SHRP2 Solution: *Identifying and Managing Utility Conflicts (R15B)*



Utility conflict management (UCM) is a comprehensive multi-stage process that involves the systematic identification and resolution of utility conflicts during project delivery. Identifying utility conflicts as early as possible facilitates the implementation of optimum strategies to resolve those conflicts. The R15B second Strategic Highway Research Program (SHRP2) product, *Identifying and Managing Utility Conflicts*, includes several tools that agencies can incorporate in existing business practices to identify and resolve utility conflicts. These tools include a standalone template for utility conflict lists, a utility conflict data model and database, and a one-day UCM training course.

As part of the SHRP2 Implementation Assistance Program (IAP), 18 state departments of transportation (DOTs) received grants from the Federal Highway Administration (FHWA) to conduct pilot implementations of the R15B product tools. The goals and scope of the implementations varied widely depending on the needs of the individual state DOTs, but generally ranged from implementation of the standalone utility conflict list at a sample of pilot projects to the development and implementation of enterprise system modules to automate specific UCM features. As part of the IAP, FHWA provided one session of the one-day UCM training course to each of the states.

The Delaware Department of Transportation (DeIDOT) grant focused on a standalone implementation of the R15B product tools. The long-term goal at DeIDOT is to be able to document potential conflicts; more easily discuss these conflicts with utility owners; document proposed resolution strategies; and minimize conflicts during construction. The goal also includes the ability to track and have a record of various components associated with utility coordination and implement the UCM process as an integral tool during project delivery.

Challenge Facing the Transportation Agency Using the Product

DeIDOT did not have a formal utility conflict list or software to manage utility conflicts. Typically, utility coordinators would send plans at various stages of design to utility owners. DeIDOT would then rely on meetings, phone calls, and emails to discuss the proposed transportation project and potential utility relocations. Through the reviews and discussions, potential conflicts were discovered and resolved in various ways. The process lacked formal documentation and conflict resolution practices. Inefficiencies were common, especially when there were design or personnel changes.

DeIDOT Objectives

DeIDOT objectives as part of the pilot UCM implementation were to:

- Provide one-day UCM training to DeIDOT officials (Figure 1).
- Use the standalone UCM approach at three pilot projects (Figure 2):
 - T201200104 – 40 & 7 Intersection Improvements
 - T201200108 – 72 & Old Baltimore Pike Intersection Improvements
 - T201609502 – Crawford Carroll Ave. Extension

- Develop user manual
- Conduct outreach with utility owners
- Identify integration requirements with DeIDOT systems, including scheduling software and the web-based Utility Permit Application (UPA) system



Figure 1. One-Day UCM Training Course at DeIDOT

Conflict ID	Drawing or Sheet No.	Utility Type	Size and/or Material	Conflict Status (Actual/Potential/ No Conflict)	Utility Conflict Description
C1	13	Communications	Vault with 2 Lids	Potential	Proposed Curb run through existing manholes
C10	13	Communications	6 Ducts	No Conflict	Proposed curb over existing facilities
C11	13	Water	20" DI	No Conflict	Proposed curb over existing water line.
C12	13	Water	20" DI	No Conflict	Proposed curb over existing water line.
C13	13	Water	12" Water Valve	Actual	Water valve in area of mill and overlay
C14	13	Communications	Iron Pipe?	No Conflict	Iron Pipe below proposed curb
C15	13	Communications	Iron Pipe?	No Conflict	Iron Pipe below proposed curb

Figure 2. Utility Conflict List

Approach Taken by the Agency to Implement the Product

DeIDOT is undertaking several activities to ensure the long-term sustainability of the UCM approach at the agency. As part of the pilot implementation, DeIDOT prepared a UCM workbook and a user guide. The UCM workbook is a customized version of the R15B standalone utility conflict list template and includes the following worksheets: utility

conflict list worksheet, cost estimate analysis worksheet, field and column descriptions worksheet, and drop-down lists worksheet. The user guide is included as a worksheet in the UCM workbook.

DeIDOT also started the process to implement UCM concepts into internal design policy and process documents, as well as develop stakeholder training. In addition, DeIDOT is evaluating the feasibility of using 3D utility data modeling techniques, including clash detection, as an additional tool to enhance their 3D design and construction environment.

Future implementation activities include identifying service connections as part of the utility coordination process, ensure utility investigation deliverables are reviewed for accuracy, oversee utility fieldwork, document as-built locations, and make sure utility owners update records so utility facilities are properly marked in response to utility notification requests.

UCM Benefits

DeIDOT identified the following benefits resulting from the implementation of the UCM approach:

- The UCM approach provides a standardized method and form for tracking utility conflicts and resolutions.
- The utility conflict list enables the agency to create a record of utility conflict investigation and coordination efforts.
- Using UCM systematically enables all stakeholders to be on the same page.
- The UCM approach results in overall less work by avoiding last minute issues and construction conflicts.

Lessons Learned

Lessons learned at DeIDOT from the implementation of the UCM approach include the following:

- Start at the top to get buy-in. DeIDOT identified champions at the executive level who understood the importance of managing utility conflicts effectively and the connection between UCM and project schedules and costs.
- Identify the issues that the UCM approach addresses. DeIDOT recognized early into the process what the UCM approach was as well as what it was not. Maintaining the focus was important during discussions with leadership and utility stakeholders.
- Keep things simple. DeIDOT focused on small tasks to keep the momentum going and generate trust on internal and external stakeholders. The need to keep things simple was one of the main reasons DeIDOT focused on a standalone UCM implementation instead of pursuing an enterprise UCM development. It was also critical in order to address concerns by staff members who were concerned that using the UCM approach would create more work.
- Include all stakeholders in the process. DeIDOT officials made sure to keep internal and external stakeholders informed about the progress of the pilot UCM implementation.
- Include the UCM approach into policy documents. DeIDOT recognized the need to update policy documents to ensure the long-term sustainability of the UCM approach.
- Share the UCM utility conflict list with construction personnel. DeIDOT found it beneficial to discuss utility conflicts and the corresponding resolution strategies with construction managers as a strategy to proactively manage risk during construction.

Expectations for Integrating this Product into Normal Business Practices

DelDOT prepared a UCM workbook, which is a customized version of the R15B standalone utility conflict list template. The workbook includes a user guide. DelDOT is implementing UCM concepts into internal design policy and process documents. In addition, DelDOT is evaluating the feasibility of using 3D utility data modeling techniques, including clash detection, as an additional tool to enhance their 3D design and construction environment. DelDOT is also planning to implement strategies such as reviewing utility investigation deliverables for accuracy as well as inspecting fieldwork and documenting as-built conditions.

For more Information:

To learn more about Delaware's use of *Identifying and Managing Utility Conflicts* (R15B), contact Eric Cimo, DelDOT State Utilities Engineer, at eric.cimo@delaware.gov.

To learn more about SHRP2 and the *Identifying and Managing Utility Conflicts* product, contact Julie Johnston, FHWA Utility & Value Engineering Program Manager, at Julie.Johnston@dot.gov.

AASHTO SHRP2 Website: <http://shrp2.transportation.org/Pages/UtilityRelatedProducts.aspx>

AASHTO's product page offers case studies, training modules, presentations, factsheets, guidance documents, and a list of other states implementing the SHRP2 utility products.