DIVISION V

SECTION 5900

UTILITY COORDINATION FOR CAPITAL IMPROVEMENTS PROJECTS

Best Management Practices

(March 17, 2010)

DIVISION V
DESIGN CRITERIA

5900 Utility Coordination for Capital Improvements Projects

APPROVED AND ADOPTED THIS 17 DAY OF MARCH 2010

KANSAS CITY METROPOLITAN CHAPTER

OF THE AMERICAN PUBLIC WORKS ASSOCIATION

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5901.1 Introduction

With increasing frequency, conflicts with utilities have had significant negative impacts on Public Works projects throughout the metropolitan Kansas City area. Owners report that conflicts with utilities have become a leading issue in the design and construction of projects. As more and more assets are placed underground, the likelihood for these costly conflicts continues to grow.

Extra costs associated with the mitigation of conflicts after construction begins can be significant. They include not just the construction change orders, but serious delays and service disruptions to the public and poor public relations within the community. The costs of relocation to the Utilities also affect the community with higher rates and user fees, as the Utilities recover the extra costs.

The ultimate cost of any Public Works project is the total cost to the community, including the Owner and all affected. The Owner, the Utility, the Contractor, the property owners, and the community all have a stake in the total project cost.

Historically, utility coordination mainly has been a reactive undertaking, often only occurring towards the end of a design project, rather than a proactive process that begins at project conception. Proper planning, locating, and coordination between involved stakeholders will minimize costs and delays and lead to the best possible project at the lowest ultimate combined cost to the community.

5901.2 Purpose

Mission Statement: "To affect a streamlined method of accurately depicting utilities for public improvements, providing timely relocations utilizing a standard process and accommodation policy."

This document is intended to provide Best Management Practices that can be implemented by all parties to produce the most cost effective means to manage utility relocations.

SECTION 5902 Utility Coordination

5902.1 Introduction

Utility coordination creates open exchange of information among Owners, utility providers, Engineers, and Contractors. Utility coordination also fosters cooperation among all groups in planning, design, and construction of projects that can be an overall benefit to participating and non-participating stakeholders.

Utility coordination is a responsibility shared by essentially 3 entities: Owners, Engineers, and Utilities. The next three sections provide general guidance, responsibilities, and Best Management Practices that can be implemented by these three entities in the coordination of Infrastructure projects, both public and private.

5902.2 Benefits

Specifically the following is a list of benefits that can be realized through proper and timely utility coordination. Proper utility coordination:

- Reduces subsequent Contractor claims for delays resulting from unexpected encounters with utilities.
- Allows for flexibility and time for Utilities/Engineers to develop the most cost effective relocation plan.
- Reduces delays to the Contractor during highway construction caused by cutting, damaging, or discovering utilities that were not known.
- Allows the Owner to determine early in the process what additional Rights-of-Way need to be acquired.
- Avoids unnecessary utility relocations. Accurate utility information is available to the designers early enough in the development of a project to design around many potential conflicts.
- Eliminates unexpected conflicts with utilities. The exact location of virtually all utilities is known and accurately shown on the construction plans.
- Reduces delays and costs caused by redesign when construction cannot follow the original design due to utility conflicts.
- Reduces delays to the project caused by waiting for utility work to be completed.
- Enhances safety. When excavation or grading work can be shifted away from existing utilities, there is less possibility of damage to a utility that might result in personal injury, property damage, and releases of product into the environment.
- Avoids damage to utilities and the subsequent untimely loss of utility service.
- Helps with the proper placement of utilities, which aids in the future maintenance of the utilities as well as the infrastructure.
- Reduces the inconvenience to the community.

SECTION 5903 Owner - Best Management Practices and Considerations

5903.1 Introduction

The Owner is in the driver's seat to assure proper and successful Utility coordination. Most projects are initiated by an Owner who has to make the decision on the level of effort and cost it is willing to incur early in the project to reap the benefits at the end of the project. It is recommended that the Owner and the Engineer work together at the earliest stages of a project to determine an appropriate level of Utility coordination for each project.

5903.2 Owner's Responsibilities

- Explain to elected officials the benefit of Utility/Engineering coordination.
- In conjunction with the Engineer, determine the appropriate level of effort in the coordination of utility relocations.
- In conjunction with the Engineer, determine the appropriate Utility Quality Level of SUE to be used.
- Ensure and foster open communication between the Engineer and the Utilities.
- Establish requirements for Utilities locating in the R/W.
- Acknowledge that reasonable corridors are necessary for utilities and take responsibility for establishing *acceptable* corridors *for utilities* as necessary and appropriate.
- Obtain required Rights-of-Way and easements in advance of requesting commencement of utility relocation work. In the interest of keeping project on schedule, Owner should consider establishing utility easements.
- Ensure timely notice is given to Utilities.

- Review and determine utility relocation and project design solutions that consider cost impacts to everyone, not just the Owner.
- Act as mediator between Contractor/Utility and between *Engineer*/Contractor.
- Ensure that regular and timely communication between Engineer, Owner, and Utilities occurs.
- Work with Engineer to establish a project schedule that provides a reasonable amount of time for Utilities to design and complete relocations
- Accept responsibility for extra relocation costs to Utilities that are incurred due to plan change after relocation efforts have begun.
- Accept responsibility for communications to *the community* that may be affected by the project, and for public relations and inquiries.
- Require proper inspection to ensure utilities are relocated per plan.
- Ensure as-built drawings of utility relocations are submitted.

SECTION 5904 Engineer - Best Management Practices and Considerations

5904.1 Introduction

The Engineer has the key role in the coordination and determination of the project's impact on Utilities. The Engineer is the nexus for the Owner and the Utility. Careful attention to Utility impacts and early coordination in the design process will assure the overall least-cost solutions and the lowest impact to the public. Included as an appendix to this document is an example of language that should be considered when preparing the Engineer's design contract with the Owner.

5904.2 Engineer's Responsibilities

- Communicate importance of good Utility coordination to Owner and obtain assurance from Owner for good Utility coordination.
- In conjunction with Owner, determine appropriate level of effort in coordination with Utilities.
- In conjunction with Owner, determine appropriate Utility Quality Level of SUE. to be used.
- Identify any known policies that apply to Utility coordination and accommodation.
- Identify key utility impacts at project concept.
- Organize project utility coordination team.
- Schedule Utility coordination meetings.
- Identify factors that will affect relocation of utilities (easements, funding, scheduling, etc.)
- Be flexible in design to accommodate utilities and to minimize required relocations.
- Facilitate agreement by Utilities on establishing corridors for relocations.
- Identify utility relocations for which the Owner will be financially responsible and work with the affected Utility to estimate relocation costs to the Owner.
- Assist Owner with Utility agreements
- Include a reasonable amount of time in project schedule for Utilities to review project plans and design appropriate relocations.
- Communicate schedule expectations
- Include in the construction contract provisions that communicate utility work to be performed during construction.
- Coordinate utility relocation activities that occur prior to construction with the utilities.
- Be proactive during utility relocation work that occurs prior to the project to ensure relocations are being completed in accordance with the relocation plan.
- Coordinate utility relocation activities that occur during construction with Contractors and Utilities.
- Invite Utilities to PreBid meeting and/or PreConstruction meeting as appropriate for the complexity of utility relocations
- Communicate any and all design and/or schedules changes during construction phase to all Utilities.

- Obtain and provide GPS information on relocated utilities.

SECTION 5905 Utility - Best Management Practices and Considerations

5905.1 Introduction

Utilities have the opportunity to provide valuable input during the design phase regarding their options, constraints, and costs required to undertake a relocation. Utilities uniquely understand the benefits of appropriate utility coordination and their impacts on the public they serve.

5905.2 Utility's Responsibilities

- Assign a Utility representative as point of contact for the project and provide contact information to the Owner and Engineer.
- Respond to communications from the Engineer and Owner in a timely manner.
- Attend project utility coordination meetings as requested or provide notice when not attending.
- Provide digital information, if available.
- Assist the Engineer in obtaining utility location information.
- Provide Engineer with information regarding conflicts between existing utility facilities and design proposals.
- Verify accuracy of existing private utility easements where applicable.
- Communicate with the Engineer or Owner anticipated need for additional Rights-of-Way or easements to complete utility relocations.
- Develop utility relocation corridors in cooperation with the Owner, the Engineer and with other Utilities, as applicable.
- Provide utility relocation plans/drawings.
- Provide a timetable of utility relocations for the project.
- Provide a timetable of utility relocations required to be completed during construction of the project, in particular work that would affect the Contractor's schedule
- Provide projected utility relocation costs and work with the Engineer and Owner to develop relocation agreements, as applicable.
- Provide as much notice as possible of staking and clearing requirements.
- Coordinate utility relocation activities that occur prior to construction with the Engineer and other Utilities.
- Coordinate utility relocation activities that occur during construction with Contractors and other Utilities.
- Notify Engineer and Owner when utility relocation commences.
- Notify Engineer and Owner when utility relocations have been completed.
- Provide as-built utility relocation plans/drawings.
- Provide updated digital information, if available.

SECTION 5906 Appendices

- Appendix 1 – Example Language for Agreement Between Owner and Engineer.
- Appendix 2 – S.U.E. Quality Levels*
- Appendix 3 – Example Utility Coordination Practice (appendix to be developed)

* It is strongly recommended that the use of Subsurface Utility Engineering (SUE) be considered. This is an engineering process that has evolved considerably over the past few decades. It has been used primarily by State transportation departments (DOTs), local highway agencies, utility companies, and highway design consultants. The SUE process combines civil engineering, surveying, and geophysics.

It utilizes several technologies, including vacuum excavation and surface geophysics. Its use has become a routine requirement on highway projects in many states (Appendix 2).

SECTION 5907 Other References

- Guide for Accommodating Utilities within Right-of-Way for Counties & Small Cities in Kansas
- Utility Accommodation Policy – Kansas Department of Transportation, Bureau of Construction and Maintenance
- Utility Accommodation Policy – Missouri Department of Transportation, Sec. 643.3 – Policy, Standards & Regulations
- *Best Practices – Common Ground Alliance*

Appendix A

Example Language for Agreement Between Owner and Engineer

APPENDIX A

Example Language for Agreement between Owner and Engineer

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The following is suggested wording that, when added to standard design engineering contracts, will help ensure a proactive approach to utility coordination:

1. During the Study and Report Phase the ENGINEER shall:

    a. Identify all Utilities that may be affected by the project. Make contact with those Utilities and determine generally the facilities involved and their locations.
    b. Employ Subsurface Utility Engineering (S.U.E.) practices, level C & D, to determine utility locations sufficiently to proceed to preliminary design. Obtain verification from the utilities.
    c. Provide Owner recommendations and estimated costs for additional SUE services that would improve the quality of the design and provide information that will help the contractor manage risk of utility conflicts during construction and reduce total project costs for all stakeholders.
    d. Identify any known policies that apply for utility coordination or accommodation and the impact of these policies on the project.

2. During the Preliminary Design Phase the ENGINEER shall:

    a. Based on the risk of utility conflict (measured by the consequence of a utility damaged during construction), establish a Utility Quality Level as defined by CI/ASCE 38-02 for data collection during design. And, establish a plan for data collection with the utilities affected.
    b. Communicate with each Utility individually at least _____ times(s) (to be proposed project) to determine preliminary scope of relocations that may be required. Identify Utilities that will require Relocation Agreements to be executed between the OWNER and the Utility. Through working with the Utilities, identify relocation costs to the Owner, where applicable, and include in the revised opinion of probable Total Project Costs.
    c. Identify location where right-of-way limitations might adversely affect utilities ability to complete relocation within existing or proposed right-of-way; include analysis of how this may affect proposed project schedule for temporary easements to be obtained. Provide all affected Utilities field check and/or right-of-way plans.
    d. Provide Utilities project plan and profile sheets in a digital format, when requested

3. During the Final Design Phase the ENGINEER shall:

a. Meet with all affected Utilities collectively at least _____ time(s). Communicate scope of project, speculated construction sequencing, and project schedule. Determine each Utility's status with respect to Relocation Agreements, as applicable. Communicate each Utility's projected design and construction schedule.
b. Assist Utilities when needed to collectively coordinate relocation schedules.
c. Provide all affected Utilities office-check plans. Provide Utilities project plan and profile sheets in a digital format, when requested.
d. Identify significant design or schedule changes.

- If relocations are expected to begin or to be completed prior to bid letting, the following additional language should be considered for inclusion:

  Provide appropriate project control staking, benchmarks, and other ground control sufficient for Utilities use in field staking relocation work.

4. During the Bidding Phase the ENGINEER shall:

   a. Provide all affected Utilities approved, bid sets of plans. Provide Utilities project plan and profile sheets in a digital format, when requested.
   b. Identify any significant design or schedule changes.
   c. Request Utility representation at Pre Bid meeting (if one is planned). (To be determined by municipality.)

5. During the Construction Phase the ENGINEER shall:

   a. Request Utility representation at Pre-Construction Conference.
   b. Hold utility coordination meetings monthly (or as determined by municipality) to review Utilities' and Contractor's updated and projected schedules, and to communicate any changes in the project.
   c. Identify any significant design or schedule changes.

Appendix B

S.U.E. Quality Levels

APPENDIX B

S.U.E. Quality Levels

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Highway plans typically contain disclaimers as to the quality of utility information. The use of quality levels in the SUE process allows designers to certify on the plans that a certain level of accuracy and comprehensiveness has been provided. There are four quality levels:

- **Quality Level D** information comes solely from existing utility records. It may provide an overall "feel" for the congestion of utilities, but it is often highly limited in terms of comprehensiveness and accuracy. Its usefulness should be confined to project planning and route selection activities.

- **Quality Level C** involves surveying visible above-ground utility facilities, such as manholes, valve boxes, posts, etc., and correlating this information with existing utility records. When using this information, it is not unusual to find that many underground utilities have been either omitted or erroneously plotted. Its usefulness, therefore, should be confined to rural projects where utilities are not prevalent, or are not too expensive to repair or relocate.

- **Quality Level B** involves the use of surface geophysical techniques to determine the existence and horizontal position of underground utilities. This activity is called "designating". Two-dimensional mapping information is obtained. This information is usually sufficient to accomplish preliminary engineering goals. Decisions can be made on where to place storm drainage systems, footers, foundations, and other design features in order to avoid conflicts with existing utilities. Slight adjustments in the design can produce substantial cost savings by eliminating utility relocations.

- **Quality Level A** involves the use of nondestructive digging equipment at critical points to determine the precise horizontal and vertical position of underground utilities, as well as the type, size, condition, material, and other characteristics. This activity is called "locating." It is the highest level presently available. When surveyed and mapped, precise plan and profile information are available for use in making final design decisions. By knowing exactly where a utility is positioned in three dimensions, the designer can often make small adjustments in elevations or horizontal locations and avoid the need to relocate utilities. Additional information such as utility material, condition, size, soil contamination, and paving thickness also assists the designer and utility owner in their decisions.

The end product (the CADD file or project plans) may contain any or all of these quality levels.

Appendix C

Example Utility Coordination Practice

(pending development)