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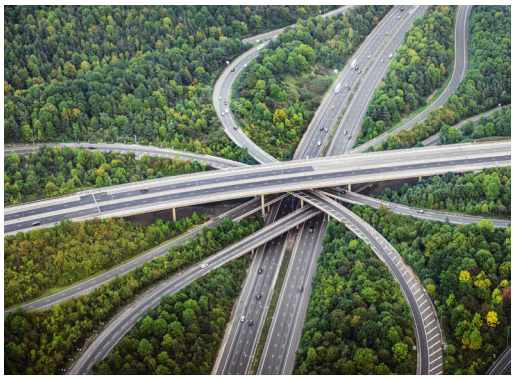


Utility Conflict Management Guidance Manual

First Edition

TABLE OF CONTENTS

INTRODUCTION

Utilities are a form of transportation. Utilities transport gas, water, power, communications, and other critical services in benefit to the public. Utilities may be owned by various entities, including private investors, public agencies such as municipalities, Tennessee Department of Transportation (TDOT), cooperatives, and other federal and state agencies. Utilities co-exist with other transportation assets, such as roads and highways, in rights-of-way (ROW) through a variety of legal property methods and agreements. Roadway projects impact utilities, and utility projects impact roadways; they are interdependent. With this in mind, TDOT must ensure that planning, design, and construction decisions serve the public's interest within the existing legal framework. This means that the impacts to both taxpayers and ratepayers must be considered in decisions regarding cost, schedule, safety, and functionality. The management of transportation issues, as they relate to TDOT projects, needs to consider the perspectives of both TDOT and utility owner. In general, the process of considering both of these perspectives is referred to as "**Utility Coordination**."

"Utility Coordination is the active effort to communicate, share information, and interact productively with all applicable stakeholders about utility involvement, adjustment, and relocation during all phases (planning, design, construction, operation, and maintenance) of the delivery of a transportation project."[1]

1 Thorne, J., D. Turner, and J. Lindly, Highway/Utility Guide, Report FHWA-SA-93-049, Federal Highway Administration, Washington, D.C., 1993, pp. 1–4.

INTRODUCTION

Utility Coordination is a broad term whose activities include identifying utility involvement, correspondence and communication of project goals, utility investigations, utility conflict identification, utility conflict resolution and/or management, utility avoidance/deconfliction, reimbursement agreements, adjustment/installation schedules, and more. It is beneficial to think of the implementation of Utility Coordination in terms of *Who, What, Where, When, Why,* and *How* on both a program and project level.

The earlier in the Project Development Process (TDOT's Project Delivery Network [PDN]) that the presence, character, and position of utilities is determined and considered by the Design Team, the faster, cheaper, and better the outcomes will be to the DOT project. This sentiment comes from several applicable studies performed over previous decades which found the same conclusions:

- Utility owners rarely have records robust enough for highway design purposes
- Utility owner records come in a variety of formats not conducive to combining and sharing
- Utility owners do not have the resources to always meet project design schedules
- It is often beneficial to avoid a utility relocation or perform a minor adjustment than it is to execute a utility relocation
- Utility investigations and utility coordination are iterative processes throughout the project development process.

Given the likelihood that multiple utility owners, DOT departments, and consultant tasks may be affected by a project, it is incumbent upon the project owner to be fully aware of the impacts involving utilities and employ the necessary actions to properly address them.

Project teams have long attempted to design highway projects without this full understanding with the assumption that parties involved later in the PDN would "coordinate" with utility owners to appropriately "react" to the highway design. Failure to fully appreciate the impacts of the roadway project design on utility infrastructure and rely on utilities for a timely relocation of their facilities, regardless of the resulting implications, is poor practice and a root cause of project delays and cost overruns. Many DOTs have relied upon this poor practice and the result

has led to years of frustration and project challenges for all involved, including the public. These practices have resulted in millions of dollars of waste and unnecessary inconvenience to the traveling public, local businesses, and the ratepayers of utility services. Although there is a cost to collect and depict all utility information, there are many more benefits to expending the time and effort to do so.

Perhaps the most important benefit of properly coordinating utilities within TDOT highway projects is in reliably delivering the TDOT Program. When each project is delivered timely and on budget, the entire TDOT program can be planned and managed appropriately. This reliability allows for improvement in relationships with all stakeholders, and particularly our utility partners. When all parties can appropriately plan for infrastructure improvements, all experience the benefits. When utility information is not adequately collected and subsequently coordinated, important and costly decisions are made that undermine the ability to be reliable.

This manual has been developed to provide guidance in alignment with the existing PDN for both TDOT-led and Consultant-led projects, while allowing for flexibility based upon individual project characteristics. The manual provides tools and techniques to identify and manage utility risks in order to maximize and balance both Program and Project return on investment. The success of implementing this guidance relies heavily upon a thorough understanding by all parties of the relationships between utilities and highway projects.

TDOT encourages all staff to remove preconceived ideas and constructs regarding utility coordination/deconfliction allowing for the full engagement of new methods, timings, and applications of principles outlined within this manual. **Our team must always be committed to an attitude of continuous improvement.**

CHAPTER 1:
THE ESSENTIAL FOUNDATIONS FOR UTILITY CONFLICT MANAGEMENT/DECONFLICTION

Why Utilities Occupy the Highway Right-of-Way

It is important to understand why and how utilities occupy public ROW. This understanding informs all subsequent processes, decisions, and actions performed by TDOT and consultants in regard to utilities.

The Code of Federal Regulations (CFR) requires that the ROW must be devoted exclusively to public highway purposes. However, 23 CFR 1.23(c) permits certain non-highway uses of the ROW which are found to be in the public interest—such a public interest finding has been made for utilities. The CFR also provides clarity that utility occupancy cannot adversely affect safety or impair the highway or its aesthetic quality. The public interest of allowing utilities in public ROW requires states to develop pertinent regulations and accommodation policies in this regard. These policies must reflect the intent of the public interest finding, allowing the placement of utilities within the ROW without compromising the fundamental purpose of the ROW, which is public highway use.

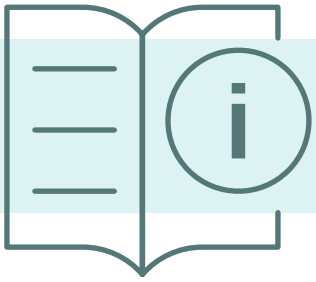
Inherent in the public interest finding to accommodate utility occupancy is the responsibility to safely operate and maintain highways with an overall "public interest" approach. The public needs both highways and utilities. This public interest has implications for the way utilities are accommodated within public ROW and for how project teams should coordinate utilities within projects. The ROW belongs to the public and TDOT is a steward of the ROW. TDOT must apply this public interest mindset to their policies and procedures, and in the development, delivery, and maintenance of their projects. While this mindset is applicable in utility accommodation policies, it does not imply that the cost and burden of accommodating utilities is the DOT's responsibility alone. In fact, it implies there is a mutual responsibility of TDOT and

each utility that chooses to occupy this ROW to share these responsibilities. While TDOT is accountable to manage their projects and ROW, the utility is accountable to appropriately share the costs of this management.

From the CFR, the public interest mindset must be applied in the development, delivery, and maintenance of highway and bridge projects. The notion that utilities must "get out of the way" does not reflect the public's best interest. Project teams must understand the complete picture and implications of relocating utilities within the public ROW and make the most appropriate decisions to effectively balance the highway project's needs with the public's needs in affordable utilities. This does not imply that utilities should not offer appropriate partnership, responsiveness, and responsibly to interact with the highway project. All parties must ask themselves, **"How might we best serve the public?"**

In Summary:

- It is in the public's best interest to accommodate utility facilities serving the public within the highway ROW provided that the use and occupancy of the ROW (including location, constructability, operations, and maintenance) does not adversely affect highway or traffic safety; impair the highway's operation, maintenance, stability, or its aesthetic quality; hinder the future highway expansion; or conflict with the provisions of Federal, State or local laws and regulations.
- The highway network serves as a corridor for utility facilities as well as ease of access for maintenance.
- Locating utility facilities within the highway ROW can save utility owners time and money by eliminating the need to acquire private property, which also helps reduce the risk of delays to the start of highway construction. It may also lower long-term maintenance costs, such as those associated with annual vegetation clearing.



For more information on why utilities occupy TDOT ROW, see 23CFR.205 and the 2003 FHWA Program Guide. Additionally, see Chapter 1680-6-1 for TDOT rules and regulations for accommodating utilities within highway ROWs.

CHAPTER 1: THE ESSENTIAL FOUNDATIONS FOR UTILITY CONFLICT MANAGEMENT/DECONFLICTION

How Utilities Occupy the Right-of-Way

There are two main modes of occupancy for utilities accommodated within TDOT rights-of-way. First, utilities may seek to install their infrastructure within public ROWs by permit without an association with adjacent highway projects. Second, existing utilities may be required to relocate their infrastructure within the ROW associated with the needs of a highway project. These are discussed in more detail below.

Non-Highway Project Related Installations

- Chapter 1680-6-1 Rules and Regulations for accommodating utilities within highway ROWs (Utility Rules and Regulations) and subsequent Utility Instructional Bulletins govern utility owners and individuals seeking a permit for installation of facilities within state ROWs.
- Public utility providers, individuals, or companies can apply for one of three types of permits for the installation of their facilities:
  - An Individual Permit (one-time installation),
  - A General Agreement (county and/or statewide facilities),
  - A Private License (for non-public serving facilities).
- Each permit is reviewed by the Regional Utility Coordinator and may be subject to review by FHWA, Department Divisions, and field inspections depending on the length and complexity of the utility installation.
- In addition to the permit issued by TDOT, the utility owners and individuals shall also obtain permits from other authorities having jurisdiction in the area such as Local and Environmental agencies.
- The issuance of a permit does not convey a property right but simply allows for the installation of a utility within the public ROW, subject to the rules of the permit.

Highway Project Related Relocations and Installations

- Once a highway improvement project is identified, utility installations and/or relocations within the ROW are coordinated through the Regional Utility Office throughout the planning, design, and construction phases of the project.
- The utility relocation scope of work is evaluated based on the existing and future conditions associated with the project, and the Go-To-Work Authorization associated with an executed contract between TDOT, and the utility serves as the permit to occupy TDOT ROW.
- Utility installations and relocations can be performed by the utility prior to project construction commencing or performed by TDOT's contractor. The terminology of 'Move

Prior' is reserved for Chapter 86 relocations. This type of relocation ahead of project letting falls under a "percent public/private relocation."

The Importance of Effective Utility Coordination

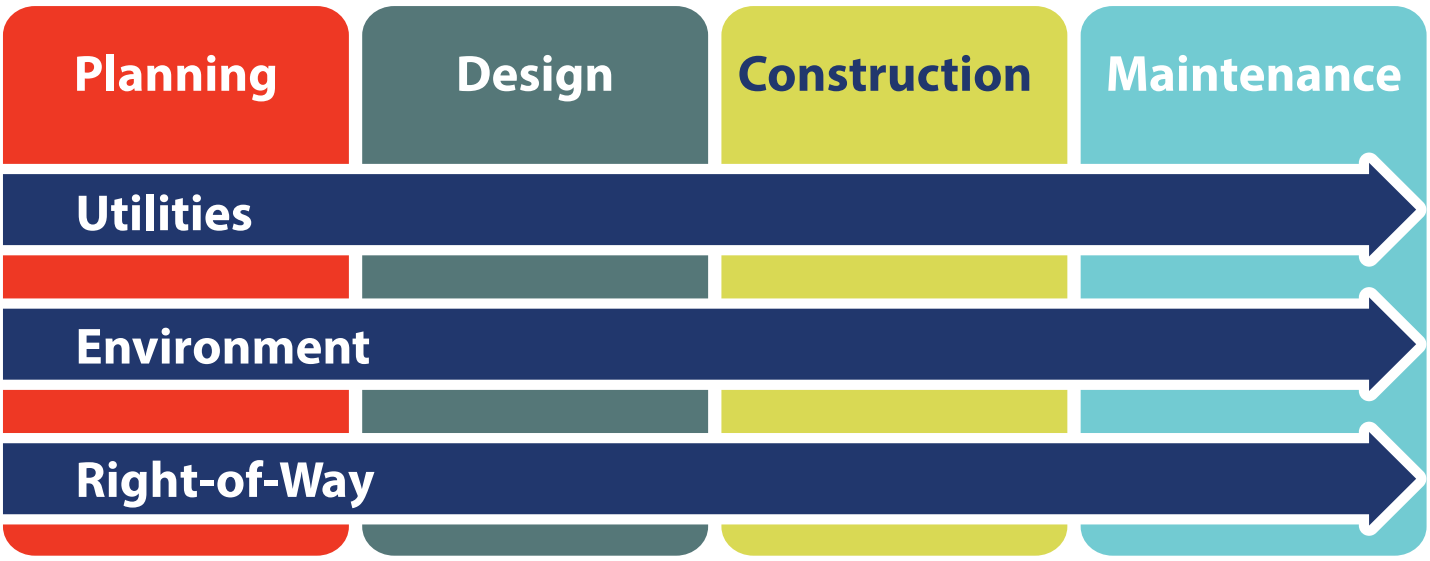
Increasing Complexity and Congestion

The increase in federal funding for infrastructure, and public demand, has increased the need for appropriate levels of coordination between highway projects and utilities. Billions of dollars of investments in utility infrastructure are occurring simultaneously with increased development in highway, residential, and commercial construction. As a result, ROWs are more congested with new utility installations and often with facilities that have been retired/out of service/abandoned. Undoubtedly, the time has come for project teams to understand that the responsible approach to delivering highway projects must include an accurate and complete understanding of the existing infrastructure which includes existing utility facilities. Project teams must plan and execute strategies that include a full awareness of the location and attributes of utilities and the implications in cost and schedule to relocate those facilities. These factors (the public interest finding, the increased congestion of the ROW, and infrastructure investments) point to a greater need to have a Utility Awareness when planning, developing, and delivering TDOT projects.

The coordination of utilities within TDOT projects demands a diverse and competent team. Utility Coordination teams cannot operate successfully as a silo simply reacting to other disciplines. Utility Coordination is the responsibility of the entire project team, as referenced in the PDN. Project Managers (PMs) must regularly communicate a utility awareness in team meetings and in decision making. Utility coordinators/engineers play a vital role in connecting the various disciplines that engage in project delivery. Design engineers must lead the effort to depict utility information and share that information as needed for project design and decision making. The environmental team must seek out existing and proposed utility information as they complete the National Environmental Policy Act (NEPA) process and obtain environmental permits. The entire project team must understand and account for all utility impacts to the environment. ROW is often needed to accommodate utility relocations. Therefore, the utility coordination and ROW team must discuss how to address these needs in a timely and efficient manner. Construction must have utility awareness when discussing project constructability, scheduling, site access, maintenance of traffic, sequencing of work, and site restorations. Maintenance of the highway and of the utility must also be considered as project designs and relocations of utilities are coordinated. Funding and data management are also involved in much of the coordination of utilities. As such, Utility Coordination is a task that involves every part of the transportation life cycle.

CHAPTER 1: THE ESSENTIAL FOUNDATIONS FOR UTILITY CONFLICT MANAGEMENT/DECONFLICTION

Project Development Process



The relocation of utilities is assumed to be the responsibility of the utility owner/operator, who are accommodated in public ROWs, with their coordination managed by a Utility Coordinator. Some utilities refer to this relocation effort as "legal mandate work." The compensation for this work comes from increases in rates when utility companies install and then relocate their facilities without reimbursement. Even when fully reimbursed for their relocation efforts, there is no profit associated with that effort, and they are only able to reestablish existing services to current customers. Additionally, the lack of labor resources, materials, and other issues often make it difficult to prioritize relocation work and especially to prioritize it in harmony with the range of the highway projects that impact a utility. This burden of project volume and insufficient resources of utility companies contributes to utility-related claims as one of the leading causes of construction delays across the nation. This fact also points to the need for highly skilled and qualified personnel to perform Utility Coordination, as these individuals must be aware of these demands on utility partners and be prepared to proactively communicate, coordinate, and cooperate with internal and external partners.

CHAPTER 1: THE ESSENTIAL FOUNDATIONS FOR UTILITY CONFLICT MANAGEMENT/DECONFLICTION

A Complex Skill Set is Helpful to be a Successful Utility Coordinator

Utility Coordination is a complex discipline requiring a broad spectrum of skills similar to those of project managers. It is important to recognize that **successful Utility Coordination is proactive** in nature rather than reactive. Proactive Communication, Coordination, and Collaboration are foundational to successfully delivering highway projects with utilities involved. Coordinators and all project team members must choose to implement these 3Cs internally and with external partners as well. **Utility Coordination requires experience and proficiency in technical and soft skills to be effective.** Some of these helpful skills are noted below.

Hard Skills

- Plan reading for highway and utility designs
- Risk assessment
- Conflict identification, management, and resolution
- Understanding fundamentals of ROW, Environmental, Design, Construction, and Maintenance
- Understanding of SUE services, investigation techniques, and tools
- Understanding of estimates, invoices, and legal agreements

Soft Skills

- Communication
- Data Management
- Time and self management
- Schedule and file managment
- Correspondence tracking
- Solution focused/Problem solving
- Flexibility and adaptability
- Managing successful meetings/facilitation
- Negotiation
- Humility, peacefulness, and patience

Utility Coordination Is More than a Checklist

Successful Utility Coordination practices from across the country and mandated here at TDOT are very similar to project management. PMs are given certain tasks, goals, data, conditions, and teammates to deliver a particular project. Similarly, utility coordinators must learn which utility owners are involved on a project, what they operate in the project area, how those facilities fit into the utilities' larger operation and system, characteristics of those facilities, such as age, material, and condition, and where that infrastructure is located geospatially. That data must be integrated into the earliest decision-making efforts of the TDOT project. Coordinators then proactively partner with all disciplines involved in the project development process to ensure both the highway project and any impacted utility facilities are appropriately addressed. Coordinators are forced to interact with various internal and external teammates and partners, even with parties who are not signatories to any project contracts. They must identify and understand real estate and legal matters. Coordinators learn to understand various

types of utility designs and standards, as well as highway design and construction. Effective Utility Coordination is iterative and proactive beginning when the project scope and budget are determined and substantially completed with the as-builts, closeouts, and utility data management.

To assist utility coordinators, checklists are helpful to guide and confirm necessary actions are taken. An example of such a checklist is presented in Appendix D.

Ideally, when all the interdisciplinary teams within TDOT maintain a utility awareness in their duties to plan, develop, and deliver highway projects, the outcome will be a **significantly enhanced partnership with utility operators.**

Utility coordination is a discipline that spans most every other TDOT functional group. Long range planning, project management, survey, design, environmental, ROW, construction, and maintenance all have significant involvement with utilities. The various functional groups must be aware of how they interact with utility infrastructure and partner with the utility coordinators appropriately. This partnership will cause increased communication of long-range and immediate plans for both TDOT and Utilities to coordinate and prepare for such projects with appropriate financial and human resources. Utilities will be accommodated and permitted with a forward view of potential projects. ROWs will be acquired with utility impacts in mind. The geospatial position of utilities will be collected and maintained for future concerns. Projects will collect accurate utility location and attribute data early and comprehensively. Project goals and design will be made with an awareness of potential impacts to the utilities and the public needs for reliable roadways and utility services. Having a **full utility awareness in all TDOT decision making will ultimately lower TDOT risk for on time and on budget delivery of individual projects and the entire TDOT program**.

Deconfliction is About Assessing and Managing Risk

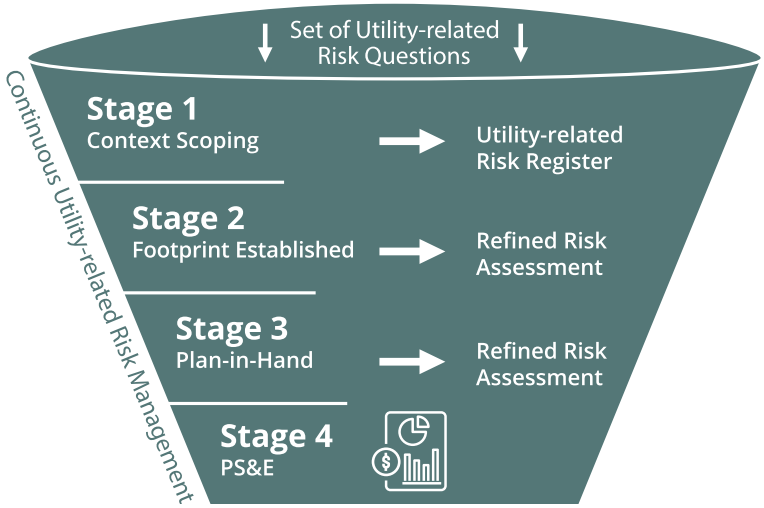
Highway improvement projects often involve complex interactions with existing utilities, which can pose significant risks to the project's scope, schedule, and budget. Therefore, **utility risk assessment and management are critical activities** during the design development phase of a project.

In the PDN process, risk management begins with the development of the **Risk Register** at

A **risk assessment** is an ongoing process that evaluates how the impact or relocation of utilities may affect a project. It considers various factors, including the location and condition of the infrastructure, the utility owner's budget, design process and requirements, permitting requirements, easement acquisition, and more. These elements directly influence the project's exposure to risk. Additionally, poor participation, lack of communication, and constructability issues can exacerbate risks.

Risk management is a continuous effort aimed at reducing the level of risk as the project develops. Effective risk management involves monitoring and addressing each risk element during the design development phase. The goal is to identify potential risks and establish a plan to accept, transfer, mitigate, or avoid them. Taking timely actions to mitigate or eliminate risks can result in substantial cost and time savings.

the kickoff meeting. The Risk Register serves as the foundation for the **Risk Management Plan**, which is regularly updated to incorporate new risks, opportunities, and mitigation strategies. Early risk analysis and workshops help identify potential risks, formalize the Risk Register, and integrate mitigation strategies into project documents. The Project Manager, with input from the project team, continuously updates the register throughout the project development process addressing risks related to pre-construction, construction, and post-construction phases, including challenges related to resource availability, communication, schedule, budget, and technical features. Risk management discussions and workshops are scheduled periodically to monitor progress, assign responsibilities, and resolve issues, while fostering innovative solutions to improve the project.



As the TDOT project advances through various stages of development, new information becomes available, allowing for a more refined assessment of the probability and impact of each risk identified in the Risk Register. Below is a series of questions based on the **top 20 utility-related risk factors** identified in NCHRP Research Report 1110 – Minimizing Utility Issues During Construction. Considering these questions will assist in identifying utility-related project risks to include in the Risk Register.

CHAPTER 1: THE ESSENTIAL FOUNDATIONS FOR UTILITY CONFLICT MANAGEMENT/DECONFLICTION

Project Basic Questions

1. Does the project scope, schedule, and budget accurately reflect current site conditions related to existing utilities?
2. Is this project using an alternative delivery method that will require changes to standard procedures and expectations?
3. Are SUE consulting services being performed early enough to inform key project decisions?
4. Have there been significant changes (e.g., private or commercial development, new utilities) since the latest utility investigation effort?
5. Does the project schedule accelerate the standard 120-day period provided to utilities to review the plans and provide an A-Date package?
6. Has the Utility Coordinator received timely updates regarding the project schedule and changes to the project scope?

Collected Information & Depiction Questions

1. Are there any utilities reported that were not collected during the survey or shown in the Present Layout?
2. Are there gaps of information or inconsistencies in utility size or connectivity for the existing utilities shown in the Present Layout?
3. Are there any utility locations identified in the survey that do not belong to a known utility owner in the area (i.e., private installations)? If so, how will these be noted in the plans?
4. What level of confidence do we have in the collection and depiction of utility locations and attributes?
5. Are any utility owners in conflict unresponsive or unwilling to cooperate and participate in project correspondence and meetings?
6. Can power companies provide a list of communication facilities located on their existing pole lines if communication companies have not responded?
7. Do we have sufficient utility information to generate accurate “Z” coordinates in our 3D model?
8. Are there discrepancies between the facilities shown in the utility’s A-Date package and those in the Present Layout sheet, such as differences in size or location?

Relocation Questions

1. Have utility owners been provided with relocation plans from other utility owners on the project to ensure proper coordination using the most up-to-date information?

2. Do the utility relocation plans include any necessary temporary relocations to accommodate phasing and the construction schedule?
3. Are the utility owners participating and responsive to requests to modify their relocation plans to accommodate the project and/or other necessary utility relocations?
4. Are there any buildings, signs or physical obstructions required to be removed to allow for utility relocations?
5. Do roadway construction activities (e.g., grading, widening, structure removals, etc.) need to occur first to provide adequate space for utility relocation? If so, how will this impact other Move-Prior or Move-In-State relocations?
6. Are there Move-Prior utilities on the project planning to relocate within the proposed ROW, but waiting for certain tracts to close prior to beginning relocation?
7. What is the risk of a utility relocating incorrectly, potentially delaying other utilities or the highway contract?
8. Do we anticipate any long lead times related to utility material availability or Buy America/ Build America (BABA) compliance?
9. Have the utilities provided a clear and logical schedule, including necessary dependencies, for relocation to begin? When reviewed against other utilities, are there overlapping dependencies that may cause delays?
10. Have utilities under a Move-Prior agreement indicated that relocation will begin after ROW acquisition is complete?
11. Is there confirmation that the location of Move-Prior relocations, completed prior to the project letting, conforms to the roadway and utility relocation plans?
12. Are there significant Move-Prior relocations shown outside the existing ROW that will require private easements?
13. Do any Move-Prior relocations require easements for adequate working space, considering that construction easements will not be active or available for use until construction begins?
14. Have utilities requiring private easements made progress with acquisition since receiving Go-To-Work Authorization?
15. Are there guy anchors located outside of ROW that will require private easements?
16. For cooperative power companies that typically do not require easements on properties, how will coordination and documentation be handled for Move-in-State contracts?
17. Was a negotiation held between the utility and the Region Utility Office before the utility's relocation schedule was approved?

18. Have past delays or changes in the project schedule caused utility owners to hesitate in proceeding with the relocation design necessary for project development?
19. On projects using shared poles or duct banks for relocation, has the primary utility owner been contacted by secondary utilities intending to share the infrastructure to ensure there is sufficient capacity?
20. Have all necessary permits been obtained by the utilities for relocation construction?

Design Questions

1. Have utility owners received all necessary design information (e.g., traffic control plans, haul road designs, lighting plans, signal plans) to identify and resolve conflicts?
2. Has there been a request for the design team to avoid an underground utility that has not been located by SUE QLA or QLB?
3. Do the current plans provide enough detail to clearly communicate the project scope and footprint, enabling utility owners to identify conflicts and plan relocations?
4. Do the plans include temporary or future widening information, if applicable, to help utilities design for future conditions and reduce the need for additional relocations?
5. Have there been significant ROW or Letting plan revisions processed since the latest A-Date or B-Date submittal?
6. Is the demarcation of service line relocation responsibilities clearly defined in the utility plans?
7. Do any proposed ROW revisions change the need for private utility easement?

Environmental Questions

1. Is any tree clearing required, and is there a plan in place to perform it in compliance with environmental regulations?
2. Are there utility relocations within the limits of sensitive environmental features (e.g., wetlands, streams, ephemeral streams, etc.) that will require additional permits?
3. Are environmentally sensitive locations, such as streams, properly identified in utility relocation plans, and are related installation requirements clearly noted?

At a minimum, these questions should be reviewed and discussed throughout the project development phase to monitor their likelihood of occurrence on the specific project and to establish a plan of action.

The project team's Utility Conflict Management and Deconfliction process should align with the level of risk exposure identified in the Risk Assessment. For example, a high-risk project requires extensive coordination and conflict management, whereas a lower-risk project requires less effort.

CHAPTER 1: THE ESSENTIAL FOUNDATIONS FOR UTILITY CONFLICT MANAGEMENT/DECONFLICTION

Effectively understanding and managing utility risks is crucial to the successful execution of transportation projects. This process requires continuous assessment, proactive management, and a well-structured utility conflict management approach to keep the project on schedule, within budget, and aligned with its objectives.

Designing to Avoid Utilities - The Core to Success

As noted previously, utilities are allowed to occupy TDOT-managed ROW because it is in the public's best interest. This principle of public interest must also be kept in mind during project design and development. The role of designers in applying this mindset can be a significant practice for addressing utilities with advantages to both the project and the utilities. Designers are thus tasked with the responsibility to avoid or minimize impacts to existing utility infrastructure when it makes sense to do so. Since TDOT seeks to increase reliability in delivery across the entire program, avoiding unnecessary risk and additional costs is essential to that success. **One key element to help accomplish that goal is to avoid utility relocations whenever it is feasible or appropriate.**

FHWA has long communicated that successful project designs should seek to avoid impacting utilities whenever feasible. The focus is not on when it is possible, but rather when it is appropriate and feasible. To accomplish this, with support from the project team, the designer must maintain utility awareness throughout the design process. **This utility awareness should be embedded in TDOT's culture and integrated and emphasized throughout each stage of the PDN.** The aim is to change the mindset from designing in a vacuum without regard for utility impacts, to a more comprehensive approach—one that fully accounts for how proposed designs may lead to significant utility relocations, potentially affecting both the project schedule and budget.

Therefore, the project team, especially the designer, must avoid making assumptions without conducting a thorough engineering evaluation of all relevant design factors to best serve the public. This is an essential element of Utility Conflict Management and Deconfliction. The more common factors to be considered in designing with utility awareness, which will be explored in this section, include examining different project circumstances and design considerations. The objective is to evaluate the feasibility and practicality of designing a project that avoids utilities, as well as the factors that make it appropriate to do so. It is essential that designers more thoroughly analyze designs that appear to impact a utility. Applicable circumstances in evaluating the feasibility of designing to avoid utilities are discussed in this section.

CHAPTER 1: THE ESSENTIAL FOUNDATIONS FOR UTILITY CONFLICT MANAGEMENT/DECONFLICTION

When considering conflicts, designers should raise their utility awareness by considering both the presence, attributes, locations, and conditions of utilities, and the potential issues associated with relocating these facilities. Factors such as safety, maintenance, TDOT and utility standards, policies, material types and conditions, material availability, costs, schedules, human resources and more, must all be part of the decision-making process to determine the best approach for how the roadway design interacts with utility partners. **When project teams develop this foundational utility awareness, design decisions are made for the benefit of both TDOT and utilities, while ultimately serving the public.**

In all cases, the safety, functionality, and long-term maintenance of the roadway remains the highest priority. When conflicts are identified and documented with a conflict list, the project team is positioned to evaluate strategies which may yield the best resolution of that conflict. There are many generic conflict types, the most common of which include:

- Proposed design impacts with an existing utility,
- Proposed utility relocation impacts with another existing or proposed utility,
- Constructability concerns of the proposed design with existing utilities,
- Federal and State Laws and Policies, or Industry standards of the utility,
- Long term maintenance needs of the roadway, bridge, and the utility,
- Clear zone requirements, ADA (Americans with Disabilities Act requirements), and other such design criteria

A component of deconfliction is employing an iterative, team effort to apply the most effective strategies to address all identified conflicts. The first solution to consider is designing to avoid the conflict when appropriate while considering all relevant factors such as cost, schedule, labor availability, and so forth.

CHAPTER 1: THE ESSENTIAL FOUNDATIONS FOR UTILITY CONFLICT MANAGEMENT/DECONFLICTION

When conflicts are identified and documented with a conflict list, the project team is positioned to evaluate strategies which may yield the best resolution of that conflict. A component of deconfliction is to employ an iterative, team effort to apply the most effective strategies to address all identified conflicts. The first solution to consider is to design to avoid the conflict when appropriate, considering the full awareness of the circumstances involved. This consideration of factors includes cost, schedule, and all other factors. Project teams must exercise due diligence to appropriately understand the implications to the roadway, the traveling public, and also the implications when relocating the utility. It is important to remember the utility partner's ability to serve the same citizens. **The general strategies designers and coordinators employ to avoid or minimize impacts to utilities** are:

- Modifications of the proposed design, such as:
  - Changing the horizontal and/or vertical alignment of the design which is most appropriate in the earliest discussions of these alternative design features
  - Altering the proposed drainage design, which is likely the most common and judicious course of action to avoid unnecessary relocations
  - Modifying the structure or adjusting the location of a design feature such as a mast arm and/or pole foundation
- Using a "protect in place" approach
- Request an exception to a TDOT policy or a utility standard
- Assist a utility to adjust their proposed utility design when it conflicts with another utility in place

See a more complete list of examples of design modifications in Utilities and Design

However, it is not always apparent when design should avoid utilities. At first, it may seem inefficient to take the time and effort to avoid utilities which could result in creating a design that is nonstandard or more costly to construct. Determining when it is feasible to design to avoid utilities is a prudent practice to address with the designer and project team. The following will provide the project team with discussion points for an appropriate analysis sufficient to make this determination. It should be noted that this requires engineering judgement and may be beyond the typical norms or standard designs. In fact, these avoidance decisions may require policy exception requests. The engineering judgement used should be based upon project circumstances and facts, not mere presumption or simple common practice.

Project teams must understand that collecting factual data early in a project is important because, when design has significantly advanced, there is often a reluctance to "redesign,"

especially to avoid a utility. This is another reason utility coordination must begin early, and be performed by those who understand the larger picture and have utility expertise. While this effort takes time, designers must be aware that redesign may be significantly less than that of coordinating a utility relocation, with all that a relocation may entail. Also, when an unnecessary relocation is avoided, it will reduce TDOT risk.

It is fundamental that utility awareness and coordination begin as early as possible in PDN stages 0 and 1. Conversations with various functional groups and utility owners seeking critical data for the project team are necessary to make good decisions. Gathering factual utility data is just as critical as material lead times, industry standards, availability of human resources, and more, is as critical as other design factors.

In addition to cost analysis, the following are some of the more common considerations when determining the suitability and feasibility of avoiding a utility impact:

Safety

A project must never compromise the safety of the traveling public nor the ability to safely maintain the roadway or a utility. Keeping everyone safe is the **top priority** for all involved.

Environmental

When a project contains environmentally sensitive areas such as wetlands, cultural and historic resources, or 4F resources which should or must be avoided, it becomes equally important to increase the evaluation of relocating utilities. Special consideration must be given to avoiding unnecessary utility conflicts, the relocations of which may impact environmental features. Otherwise, the utility relocation's impact to the environmental feature must be addressed in the TDOT environmental document and environmental permits.

To assist in the design feasibility analysis, the utility coordinator must partner with an affected utility to identify alternatives for relocating the utility that do not impact the environmental feature. This may create a circuitous routing of a utility with higher costs to the public and longer construction schedules. Normal means and methods for avoiding utility relocations may not be suitable when environmental features are present, and moving the utility may be the most effective solution in spite of the aforementioned potential for circuitous routing of relocated utilities. Context will largely govern the appropriate course of action based on the overall impact to the project and the public, regardless of who is paying for any potential relocation.

CHAPTER 1: THE ESSENTIAL FOUNDATIONS FOR UTILITY CONFLICT MANAGEMENT/DECONFLICTION

Right-of-Way

When site conditions make acquiring new ROW problematic, the design team must carefully consider how to avoid unnecessary design impacts to utilities. Similar to environmental considerations, the utility may have to reroute if ROW is not sufficient to relocate within the project ROW. This would likely cause the utility to acquire new easements or to find existing ROW on another route sufficient for their operational needs and services. The acquisition of new utility easements may have serious repercussions for a project. It is paramount that control of the schedule remain with the project team, rather than being handed to a disinterested third party. Regardless, the inflated time and cost of a circuitous utility reroute should be evaluated against the available design adjustments, costs of ROW, and construction costs.

Topography and Geology

Tennessee has various topographical conditions that make it difficult for road construction and utility installations. Project teams must discuss these concerns to identify the conditions a utility will encounter, as well as the time and cost for relocation as opposed to the additional cost to design to leave an existing utility in place. The schedule impact alone to relocate may be significant in some circumstances. At a minimum, the project schedule must adequately adjust to allow the utility the necessary time to relocate if the relocation cannot be avoided.

In some cases, a project may encounter significant rock, which may also impact the feasibility of a utility to relocate timely and cost effectively. In these matters, it is important not to advance design assuming a positive outcome for a utility relocation without factual information being considered as early as possible. A successful practice is sharing and discussing geotechnical reports with utility partners to assist in their designs and construction efforts.

Legal Concerns

Various statutes and regulations govern federally funded projects, some of which may pose significant difficulty to project development. The project team must remember that if a utility is eligible for reimbursement, they must meet the requirements of Build America Buy America (BABA). This may not be a feasible alternative for a utility if their materials are not produced in America. This issue cannot be ignored as being solely the utility's problem to address, as it may completely stall the TDOT project. Meeting ADA, clear zone, and other legal and design requirements are all considerations that warrant employing utility awareness in decision-making.

CHAPTER 1: THE ESSENTIAL FOUNDATIONS FOR UTILITY CONFLICT MANAGEMENT/DECONFLICTION

Project Goals

There are times when the project has critical goals outside of meeting a letting date. Goals such as having all, or a portion of a project, substantially complete at a certain date may require a complete change of the sequence of project development to allow for early design and subsequent ordering of utility materials if long lead times are an issue. The approach to design and coordinating utilities must adapt to such project goals. In these cases, a thorough analysis of the implications of relocating a utility must be made. The information should not be based on assumptions but on facts.

Schedule

A project schedule can be mistakenly understood as meeting milestones pertaining only to project development and design. In reality, however, PMs and all project teammates must understand that the project schedule extends all the way through construction. Mistaking the letting date for the final milestone can undermine TDOT's success in delivering a program, as decisions made to meet a letting date may only shift consequences into construction. PMs and the entire development team must identify and manage the schedule of all utility activities as best they can. This includes time for utility design, procurement of materials, permitting, maintenance of traffic plans, bidding, mobilizing, access to the site, sequencing of work, and more. All this scheduling should also factor into understanding when it is appropriate to avoid a utility.

Determining the suitability and feasibility of designing to avoid utility conflicts is a complex issue. There is not a universal approach for addressing utility coordination, deconfliction, and conflict management. It requires substantial wisdom, experience, and engineering judgment to effectively deliver a reliable program and each individual project with a utility awareness. However, this is a necessity for delivering projects and the TDOT program reliably. As TDOT teams plan and initiate project development, it is especially important to have an awareness of the risks associated with relocating utilities. This risk commonly results in delays for the public and frustration for all involved. It is crucial to have awareness and a plan in place to address utility infrastructure within the project area, keeping the public interest in mind. It is extremely important to have experienced, utility-aware project teams to partner with utilities involved from the earliest project decision-making stages and continue this collaboration throughout the project. This partnering and awareness greatly increases the likelihood of successfully delivering TDOT's program while also benefiting the utility partners.

Utility Conflict Management/Deconfliction

The purpose of this manual is to describe the procedures, phasing, and responsibilities to address impacts of existing and proposed utilities with TDOT projects. Historically, the term

CHAPTER 1: THE ESSENTIAL FOUNDATIONS FOR UTILITY CONFLICT MANAGEMENT/DECONFLICTION

"*Deconfliction*" was used to describe the reaction of TDOT and utility owners deemed in conflict with project elements to "deconflict" the multiple proposed relocations, and at times redesign components of the project. Deconfliction was normally conducted at later stages of project development and generally reactive in nature. With this manual, the Deconfliction process is incorporated into a broader practice called "Utility Conflict Management" (UCM), an iterative concept to identify and manage TDOT risks involving utilities as early as possible and throughout project development. UCM is proactive in nature, as it seeks to identify and appropriately manage proposed impacts as the project phases through development. For the purposes of this manual, we will use both terms or processes for this effort: *Utility Conflict Management and Deconfliction*, as appropriate.

The UCM process is foundational to project decision making in regard to utilities. Accurate and comprehensive data regarding utility locations and attributes are necessary to make quality decisions which, in turn, increase the likelihood of a successful project. With each successful project, TDOT is improving reliability in delivering the entire program, which makes everyone's work more enjoyable and meaningful.

UCM is also a team process that begins with the correct mindset, which is presented in this chapter.

The practice of UCM has immediate implications and long-term benefits. The effective implementation of a conflict management approach yields the following:

- Better communication within the TDOT team and with utilities
- Improved proactive relationships with utilities and created lasting partnerships
- Early and effective solutions that lead to more reliability in delivering the TDOT program
- Reduced TDOT risk of projects being delayed
- Reduced costs to the taxpayer and ratepayer of unnecessary relocations of utilities
- Reduced service disruptions to customers

CHAPTER 2:
INTEGRATING FUNCTIONAL GROUPS WITH UTILITY CONFLICT MANAGEMENT

Utilities and Environmental

The National Environmental Policy Act (NEPA) was signed into law on January 1, 1970. NEPA requires projects with federal funding to assess the environmental effects of their proposed actions prior to making final project decisions.[2] The range of actions covered by NEPA is broad and includes:

- Making decisions on permit applications
- Adopting federal land management actions
- Constructing highways and other publicly owned facilities

Using the NEPA process, TDOT evaluates the environmental and related social and economic effects of their proposed actions, and provides opportunities for public review and comment on those evaluations. One key element in determining how to address all actions that may affect both the human and natural environments for TDOT projects is to appropriately coordinate utility actions induced by these projects.

There are multiple levels of NEPA studies depending upon proposed impacts, with the amount of ROW to be acquired being a fundamental factor in determining the level of NEPA study required. Three basic "classes of action" are allowed and determine how compliance with NEPA is carried out and documented.[3]

Categorical Exclusion (CE)

Categorical exclusion means a category of actions that do not individually or cumulatively have a significant effect on the human environment...and...for which, therefore, neither an environmental assessment nor an environmental impact statement is required (40 CFR 1508.4).

[2] U.S. Environmental Protection Agency - NEPA

[3] Environmental Review Toolkit – U.S. Department of Transportation, FHWA (Toolkit Link)

CHAPTER 2: INTEGRATING FUNCTIONAL GROUPS WITH UTILITY CONFLICT MANAGEMENT

Environmental Assessment (EA)

Environmental assessment means a concise public document for which TDOT projects using federal funds is responsible that serves to (40 CFR 1508.9):

- Briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact
- Aid TDOT compliance with the Act when no environmental impact statement is necessary
- Facilitate preparation of a statement when one is necessary

The EA Document shall include brief discussions of the need for the proposal, of alternatives as required by section 102(2)(E), of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted.

Environmental Impact Statements (EIS)

NEPA requires TDOT to prepare environmental impact statements for major TDOT actions that significantly affect the quality of the human environment. An EIS is a full disclosure document that details the process through which a transportation project was developed, includes the consideration of a range of reasonable alternatives, analyzes the potential impacts resulting from the alternatives, and demonstrates compliance with other applicable environmental laws and executive orders. The EIS process is completed in the following ordered steps: Notice of Intent (NOI), draft (DEIS), final (FEIS), and record of decision (ROD).

CHAPTER 2: INTEGRATING FUNCTIONAL GROUPS WITH UTILITY CONFLICT MANAGEMENT

NEPA studies aim to identify all environmentally sensitive areas and account for any impacts to these areas. Because NEPA studies are usually approved prior to understanding the likely utility relocations, **conducting an environmental review of any proposed utility relocation is essential to ensure that the delineated environmental features are not adversely affected and are properly addressed in the TDOT NEPA study.** This effort is prudent regardless of any study provided by the utility or the applicable NEPA class of action. Recommended approaches for each NEPA study are as follows:

CEs	Even if a project qualifies for a CE, utility owners should be notified, and any potential conflicts with existing utilities should be documented within the NEPA process. While impacts on utilities in these cases may be temporary or minor, early utility relocation assessments are beneficial.
EAs	Incorporate a dedicated step for utility coordination in the EA process to identify all utility impacts—both permanent and temporary—early on. This ensures that alternative routes or methods to minimize utility impacts are considered in the analysis.
EISs	Since alternative analysis is a fundamental part of the EIS process, utility impacts should be integrated into the analysis of alternatives, as utility conflicts could lead to delays or increased costs if not adequately planned for.

This will allow the environmental process to accurately account for impacts that are deemed caused by the TDOT project when utilities are required to be relocated due to the impacts of the project.

In addition to the NEPA evaluation, another critical element of coordination is to **understand the required environmental permits for the transportation project and to evaluate if the utility may directly or indirectly violate any of the permit conditions** which may cause TDOT to perform additional mitigation for these impacts. Even when utilities are required to obtain their own environmental permits, it is important that their actions align with TDOT permit conditions. Common permits are:

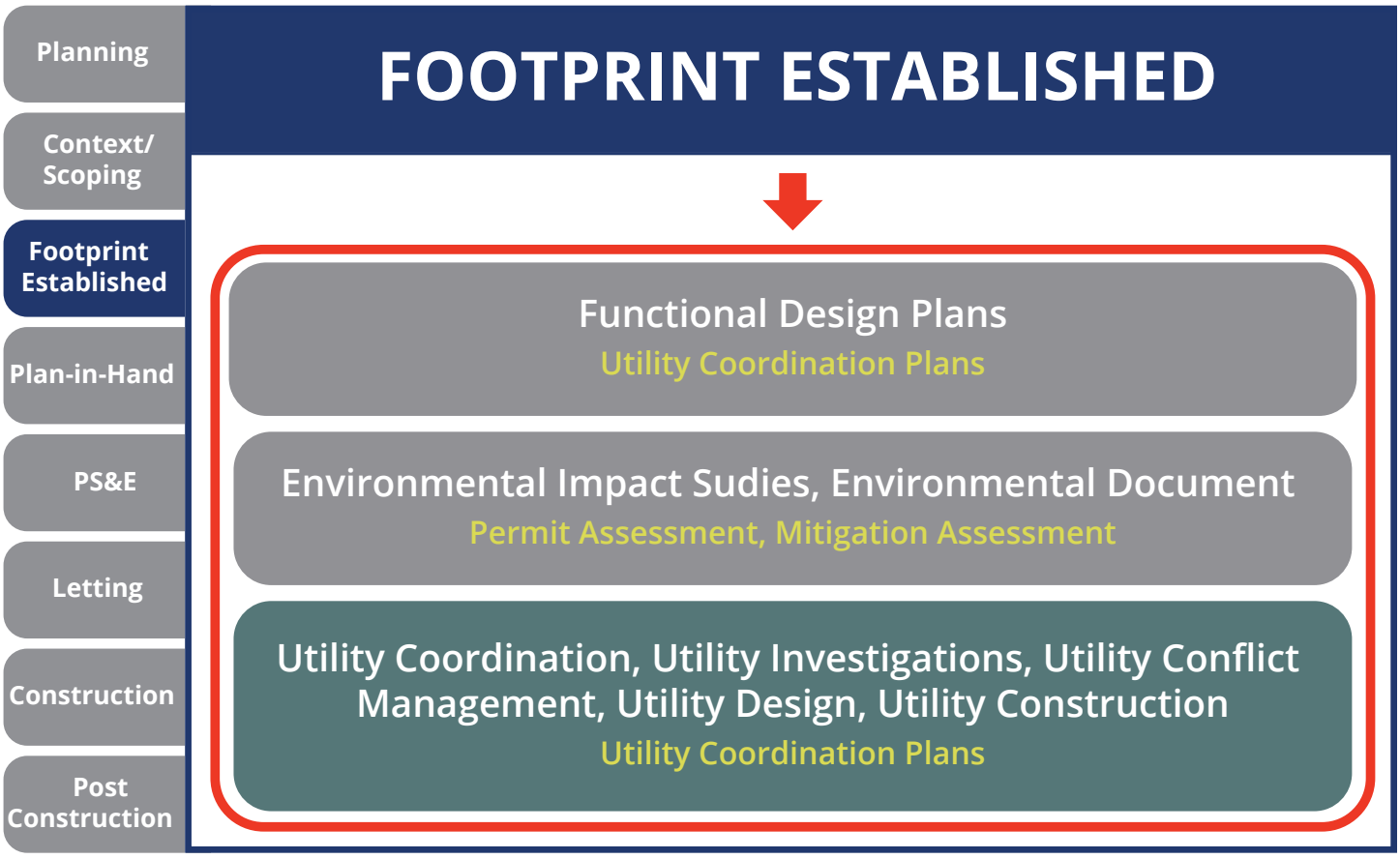
- Federal and state aquatic resource permits from the U.S. Army Corps of Engineers (USACE), the Tennessee Department of Environment and Conservation (TDEC), and the Tennessee Valley Authority (TVA) - (impacts to streams and wetlands)
- The National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit - (erosion prevention and sediment control)

CHAPTER 2: INTEGRATING FUNCTIONAL GROUPS WITH UTILITY CONFLICT MANAGEMENT

TDOT utility coordinators should **understand the environmentally sensitive and environmentally protected areas and review utility relocation plans against those.** It is a successful practice for the design team, utility coordinators, and environmental team to review all proposed actions and have a mitigation plan for unavoidable impacts. Again, even though a utility may be required to address their environmental impacts and permits on their own, it is important that their actions, which are caused by the TDOT project, do not cause unplanned impacts to the environment or permits that were to be otherwise undisturbed by TDOT.

The key PDN stages where the utility and environmental disciplines intersect, along with their associated activities and tasks, and needed collaboration and partnership for stages 2 and 3, are described below.

PDN STAGE 2: Footprint Established



PDN Stage 2 - Environmental and Utility Coordination Activities

2UT1: Initiate Utility Pre-Acquisition Activities

Utility Coordinators should proactively familiarize themselves with the Environmental Boundary Report (EBR), environmentally sensitive areas, and project environmental permits to ensure these aspects are considered during utility coordination efforts.

- This information can be gathered through discussions with the Environmental Division or during project progress meetings.

If Utility Coordination Plans are prepared during this stage, for projects where utility coordination task is on or near the critical path, the Utility Coordinator should collaborate with the Environmental Permit Lead to:

- Ensure that utility design and coordination efforts to this point comply with federal and state environmental regulations;
- Identify and coordinate any potential design revisions related to utilities to ensure plans are permittable and meet all regulatory requirements; and
- Review potential utility impacts to environmental features, such as streams and wetlands, and determine any required environmental permit and coordination needs with utility owners.

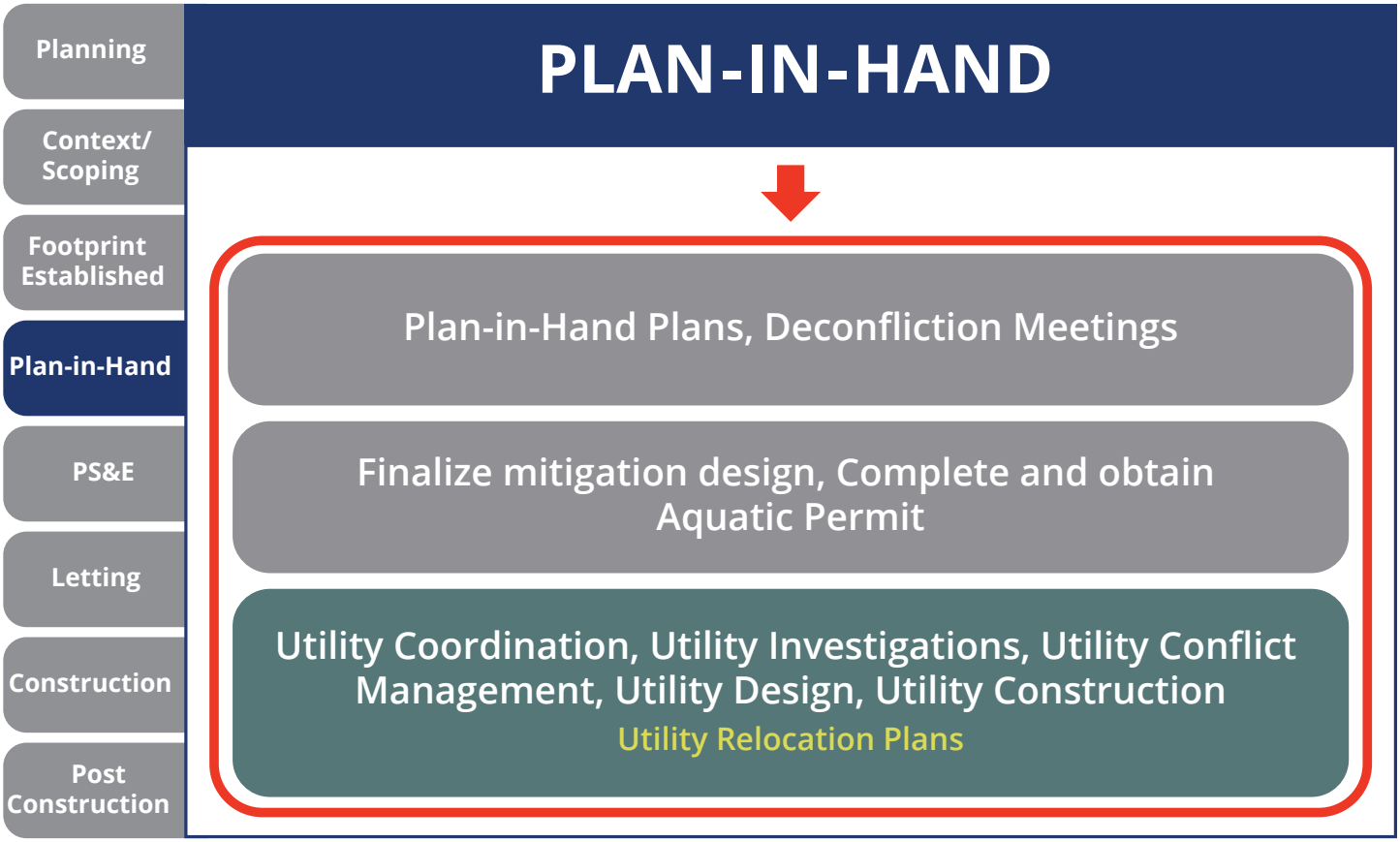
Findings serve as input to 2EN3: Conduct Permit Assessment

The Utility Coordinator should collaborate with the Environmental Mitigation Lead and Roadway Design Lead to:

- Identify unavoidable utility impacts on environmental features and incorporate them into mitigation assessments and design considerations;
- Identify potential areas where utility relocations should be avoided to ensure they are accounted for during coordination with utility owners;
- If applicable, integrate callouts and markups into the Utility Coordination Plans set to clearly indicate and mark:
  - Environmental features, such as wetlands and streams, that the utility owner should avoid during utility relocation.
  - ROW designated for environmental impacts mitigation. This ROW is typically not to be used for utility relocations for the transportation project, and efforts should be made to avoid such scenarios. However, exceptions may be considered to reduce the project's costs and schedule risks

Findings serve as input to 2EN4: Conduct Mitigation Assessment and Design

STAGE 3: Plan-in-Hand



PDN Stage 3 - Environmental and Utility Coordination Activities

3UT1: Perform Utility Coordination

Interdisciplinary collaboration between the design, utilities, and environmental team members are necessary to accomplish the following coordination activities:

- **Prior to sending out the Coordination Plans to Utility Owners -** If not already completed during Stage 2, the Utility Coordinator will collaborate with the Roadway Design Lead and Regional Environmental Technical Office (ETO) to incorporate plan set callouts and markups of environmental features that the utility owners should avoid during utility relocation.
- **During the Utility Plan Review Kickoff Meeting and/or the 60-Day Deconfliction Meeting -** The Utility Coordinator will discuss the environmental commitments and environmental areas (e.g., streams and wetlands) that should be avoided for utility relocations with utility owners, ensuring they are aware of these considerations when planning and designing their relocation efforts.

- If an unavoidable utility impact on an environmental feature is identified during this stage, the Utility Coordinator and Roadway Design Lead should communicate it to the Environmental Division so that it can be considered in the Environmental Mitigation Design.
- If a utility is determined to be within the environmental mitigation area/ROW to reduce project's costs and schedule risks, the Utility Coordinator and Roadway Design Lead will collaborate with the Environmental Mitigation Lead so that it can be considered and depicted in the Final Mitigation Design Plans.
- **After receiving the Utility Relocation Plans from Utility Owners -**
  - The Utility Coordinator will collaborate with the Environmental Division to review Utility Relocation Plans/Rainbow Plans and ensure relocation actions align with TDOT environmental commitments and permit conditions.
  - Rainbow Plans are forwarded to the NEPA Lead and Environmental Permit Lead, who will continue the permit application process to obtain the necessary permits for utilities.
    - The Technician Supervisor coordinates potential environmental reevaluations (for a utility relocation that alters impacts to environmental resources as described in the Environmental Document), additional environmental technical studies, or changes needed to the permit sketches with the Roadway Design Lead and NEPA Lead as soon as possible.
    - The Environmental Permit Lead reviews the Utility Relocation Plans/Rainbow Plans to determine if a permit action is needed and to confirm that there are no conflicts with compensatory mitigation of streams and wetlands.

Given the timing of the aquatic permit application submission for the roadway project compared to when the Utility Relocation Plans become available for review, the Environmental Permit Lead may need to modify the previously submitted application or prepare an additional application to address impacts caused by unavoidable utility relocations to certain environmental features.

The need for this additional step may not be known until the Utility Relocation Plans (aka Rainbow Plans) have been received and reviewed. **Depending on the extent of impacts, this step could considerably impact the project schedule** (e.g., delay letting).

CHAPTER 2: INTEGRATING FUNCTIONAL GROUPS WITH UTILITY CONFLICT MANAGEMENT

To mitigate delay, the Project Manager, Roadway Design Lead, Utility Coordination Lead, and Environmental Permit Lead should coordinate as early and as often as possible to:

- Identify environmental features and potential areas not to be used for utility relocations, denoting these areas on the Utility Coordination Plans;
- Support the Utility Coordination Lead in his/her meetings and discussions with the Utility Owners on relocation impacts, notably if the relocation could impact an environmental feature;
- Evaluate schedule risks for either modifying the existing permit application or preparing and submitting a new application to address utility relocation impacts.

Utilities and Right-of-Way

Continuing with the awareness that utility coordination efforts cut through all project development disciplines, this portion of the manual focuses on building an understanding of major ROW activities and the intersections of utility coordination with ROW. Multiple activities within these two disciplines require **interdisciplinary cooperation and partnership**.

For a detailed explanation of why utilities occupy TDOT ROW, refer to the Introduction section, where this is addressed in detail. Additionally, see Appendix C for a comprehensive list of ROW terms and definitions.

Identifying Property Interests at Project Onset

The initial intersection of these two disciplines begins in project planning and scoping. It is important to identify the ownership and any property interests held on all the land within the proposed project area. The provider of Title Research services must assess if the state has sufficient title/ownership to all existing and proposed ROW by identifying the dominant estate for a particular parcel. There could be a need to clear the easement rights of a utility to allow TDOT to have sufficient ROW for the project to meet FHWA requirements. (This subordination or extinguishing of existing utility easement rights is normally handled in the utility contract.) The title work and the additional discovery performed by surveyors and utility coordinators to identify property interests are vital to understanding the appropriate steps in the project development process. The scope, schedule, and budget of a project can be impacted based on this information. The project budget can be affected when utilities originally not intended for reimbursement are found to hold property interests, making them eligible for compensation as a result of the project impacts. Utility Coordinators must engage in this effort to identify such property interests and advise the Project Manager accordingly. It is also helpful for utility

coordinators to discuss reimbursement and budgets with utility companies so all parties are aware of financial responsibilities should the project design have an impact on a utility. Because acquiring ROW is time consuming and can be very costly, it is important to perform this ownership research as early as possible.

"Everyone Knows Where Everyone Goes"

Another intersection between Utility Coordination and ROW is in the establishment of project ROW and the impacts this may have upon existing utility infrastructure. These two disciplines are essentially connected in this discussion, and it is incumbent upon the project team to discuss the pertinent details. The phrase, "**everyone knows where everyone goes**" was coined primarily to remind teams to identify and plan for the entire ROW needs of the project and each utility, ensuring that cost effective and timely decisions can be made. Utility Coordinators will use the utility conflict matrix to identify potential utilities that will require relocation and need appropriate space for that relocation to take place. The project team will need to identify if additional project ROW will be acquired or if utilities need to acquire their own ROW as these decisions are critical to scope, schedule, and budget management.

There are two primary concepts to discuss: replacing an existing utility property interest, and acquiring sufficient ROW to accommodate utilities required to move from existing ROW to new ROW.

An important intersection of multiple disciplines is when utility relocation or adjustments are required as part of a project, **the extent of ROW aquisition and impacts to existing infrastructure can influence the level of NEPA documentation required**. A CE may be appropriate for small-scale utility relocations with minor ROW needed; while a more detailed EA, or in very extreme cases an EIS, might be necessary for larger-scale utility disruptions requiring relocations with significant ROW needed.

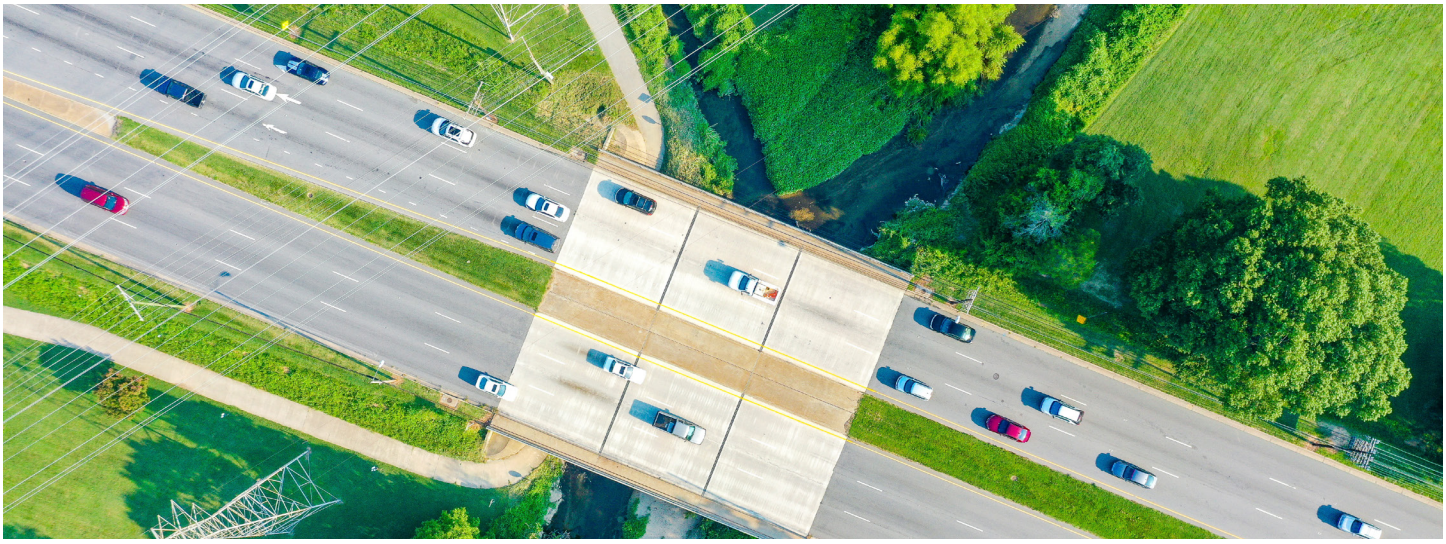
Replacing Utility-Owned Property Interests

When utilities own a property interest and have installed their facilities in an area determined to be impacted by a project, Federal funds can be used to replace the property interest and to address the impacts on the infrastructure.

Sec. 645.111 Right-of-way

- Federal participation may be approved for the cost of replacement right-of-way provided:
  - (1) The utility has the right of occupancy in its existing location because it holds the fee, an easement, or another real property interest, the damaging or taking of which is compensable in eminent domain, or the acquisition is made in the interest of project economy or is necessary to meet the requirements of the highway project, and
  - (2) There will be no charge to the project for that portion of the utility's existing right-of-way being transferred to the Transportation Department (TD) for highway purposes. (b) The utility shall determine and make a written valuation of the replacement right-of-way that it acquires in order to justify amounts paid for such right-of-way. This written valuation shall be accomplished prior to negotiation for acquisition.
- The utility shall determine and make a written valuation of the replacement right-of-way that it acquires in order to justify amounts paid for such right-of-way. This written valuation shall be accomplished prior to negotiation for acquisition.
- Acquisition of replacement right-of-way by the TD on behalf of a utility or acquisition of nonoperating real property from a utility shall be in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. 4601 et seq.) and applicable right-of-way procedures in 23 CFR 710.203.
- When the utility has the right-of-occupancy in its existing location because it holds the fee, an easement, or another real property interest, and it is not necessary by reason of the highway construction to adjust or replace the facilities located thereon, the taking of and damage to the utility's real property, including the disposal or removal of such facilities, may be considered a right-of-way transaction in accordance with provisions of the applicable right-of-way procedures in 23 CFR 710.203.

CHAPTER 2: INTEGRATING FUNCTIONAL GROUPS WITH UTILITY CONFLICT MANAGEMENT



It is important for the project team to understand a critical difference when utilities acquire replacement ROW using Federal/State funds versus their own funds. The Federal Utility Program Guide (2023) addresses this distinction in detail:

> Either a state or a utility may purchase replacement right-of-way for utility relocations.
>
> - If a State or a political subdivision of a State aquires replacement right-of-way, the requirements or the Uniform Relocation Assistance and Real Property Aquisition PoliciesAct of 1970 **(Uniform Act) apply**.
> - If a utility aquires replacement right-of-way, the requirements of the **Uniform Act do not apply**. This has been the FHWA's longstanding position.
>
> With passage of the Surface Transportation and Uniform Relocation Assistance Act (STURAA) of 1987 and its amendments to the Uniform Act, it was initially thought that the FHWA position relative to acquisition by a utility needed to be modified. The FHWA issued guidance stating that in certain situations utility acquired right-of-way must follow the requirements of the Uniform Act. However, upon further review this guidance was withdrawn and the FHWA returned to its longstanding position that the requirements of the Uniform Act do not apply to utility acquired right-of-way.

Therefore, it must be understood that utilities who are reimbursed by the project are not required by federal law to follow the Uniform Act when acquiring ROW/easements. This may create confusion for landowners about valuations of property and approaches to purchasing project ROW and utility easements. As a result, decision-making may be delayed, or unnecessary condemnations may occur. The timing of easement acquisition by the utility may complicate the state's purchase of ROW. The project team must discuss all the implications of these instances and formulate a plan that is suitable for the project circumstances.

Acquiring Sufficient ROW for the Project

In addition to those instances when projects must replace existing utility owned easements, projects must also account for the probable needs of utility relocations that are accommodated in existing ROW either by acquiring sufficient new ROW to account for utility needs or requiring utilities to acquire the easements they might need to adjust their facilities.

Often there is confusion about the ability to engineer and acquire additional ROW needed to relocate utilities using federal funds. When utilities occupy existing ROW and have to relocate within new ROW, space can be included within the project proposed ROW to accommodate these utilities. The Federal Utility Program Guide (2003) addresses this concept by stating the following:

> *"…. when a State or locality routinely dedicates or permits a portion of the road and street right-of-way for use by utilities in accordance with established standard criteria pursuant to State law, ordinance, or administrative practice,* ***such right-of-way may be considered eligible for Federal-aid reimbursement as an integral part of the project right-of-way****."* [4]

In both instances, replacing easements or acquiring sufficient ROW, proactive coordinators will speak with each utility that may be impacted by a project that subsequently may require a relocation and develop a ROW plan appropriate to the needs of the project. This must be a collaborative effort with environmental, ROW engineering, design, and the PM. A project team should not presuppose that a utility can just find suitable space especially when the existing real estate is highly congested, historic, or limited by topography.

The proactive project team and utility coordinator specifically will seek to understand where a utility might need to relocate, the amount of space that relocation requires, and any spatial restrictions from other utilities necessary to meet legal and industry requirements. It will also be important to minimize the required ROW during these conversations and partner with the utility to not seek "preferred" space but only "required" space.

Buying ROW for Utilities

When utilities own property interests that are impacted by project ROW, their easements will most often need to be replaced. The time and effort to replace these easements can put project schedules at risk. Also, when a project team makes the determination to not acquire sufficient ROW to allow for utilities to relocate from within existing ROW to proposed ROW, the utility may be asked to move to their own easements. In either case, the utility may be expected to acquire new or replacement ROW. TDOT is not required to acquire ROW for utilities. However, the schedule for that acquisition, and therefore the project schedule, is placed in the hands of the

[4] FHWA. Program Guide: Utility Relocation and Accommodation on Federal-Aid Highway Projects. (2003) Sixth Edition. https://www.fhwa.dot.gov/reports/utilguid/if03014.pdf

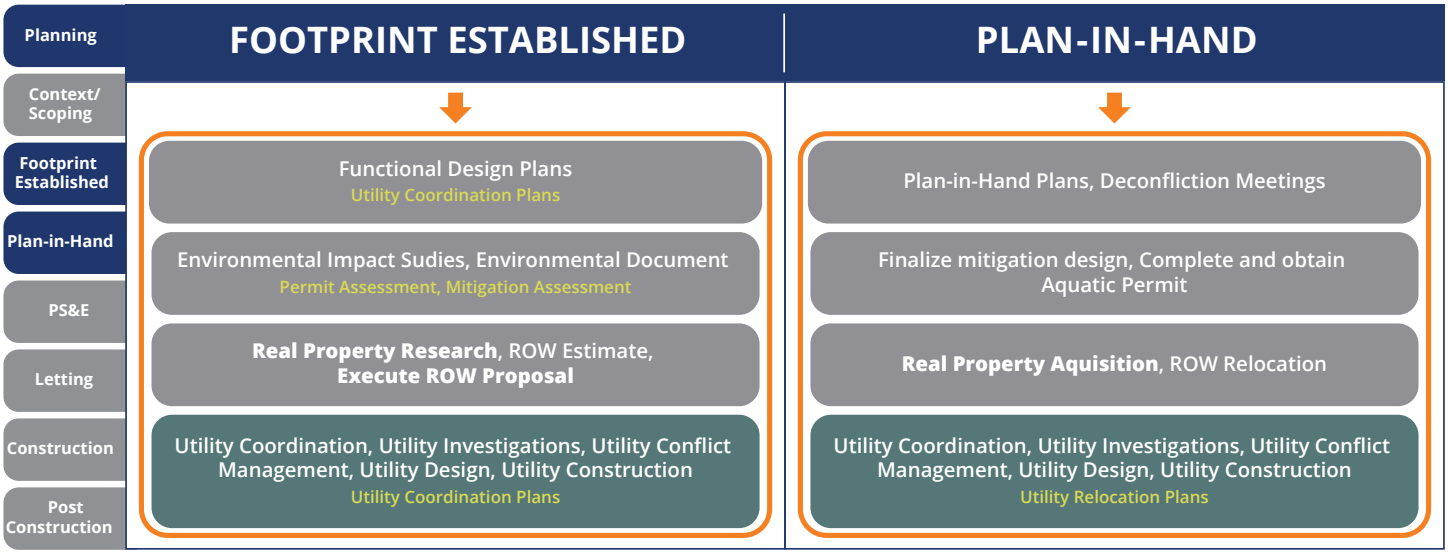
utility. TDOT must understand the risks of potential delays when utilities are acquiring their own ROW.

Prioritizing ROW Acquisition

Because utilities need a full stretch of room to work and cannot jump from one place to another, utility coordinators must be aware of parcels that are necessary for utilities to relocate. This prioritization must be communicated to project managers and ROW acquisition managers to avoid delays. Often, utility relocations are delayed because ROW that could have been acquired earlier was not addressed in time. Having this discussion with ROW managers early in the project ROW process is critical as ROW tasks are assigned. Demonstrating priority parcels, both in graphical formats and spreadsheets, can be helpful. See Appendix F for an example of a project prioritization of ROW specific to allow utility relocations.

Further, as the ROW is purchased, the ROW staff and Utility coordinator should be in regular communication so the utility can be notified when the ROW is acquired for their relocation.

The key PDN stages where the utility and ROW disciplines intersect, along with their associated activities and tasks, and needed collaboration for stages 2 and 3, are indicated below.



PDN - ROW and Utility Coordination Activities

CHAPTER 2: INTEGRATING FUNCTIONAL GROUPS WITH UTILITY CONFLICT MANAGEMENT

Utilities and Design

Why is the Depiction of Utility Information Essential to Deconfliction and Utility Conflict Management?

A common misconception is that utility coordination is sufficiently completed in isolation and is performed by the utility group. However, this could not be further from the truth. Successful and efficient utility coordination requires collaboration among most disciplines involved in project development. A utility awareness in Planning, Design, ROW, Environmental, Construction, and Maintenance is essential to effectively delivering TDOT's program. One major component requiring such collaboration is the depiction of utility information in project designs. Representing utilities in project plans is critical for effective coordination among utility companies and project teams to identify and manage conflicts with utility infrastructure. It is essential for all parties involved to understand which utility providers are involved and the locations and attributes of those utility facilities. Best efforts to provide comprehensive and accurate utility depictions is the most effective manner in which to communicate this vital information to all parties.

To ensure the depiction represents a more complete understanding of the existing infrastructure, key elements should be noted in addition to the depiction of lines with attribute details such as the utility owner, material type, the size of the utility, its age, and the source of the utility information—whether from SUE, surveys, or utility-provided maps. Ideally, on complex utility projects, SUE data gives the most useful data to stakeholders. When SUE services are scoped to involve a full investigation of a project area, there should be significant time and risk reduction to TDOT. However, utility representation in project plans can also be derived from a combination of SUE and SUM (survey of utility data collected from topographic surveys and from utility records from various sources). When utility lines are depicted with an indicated level of certainty of that location (quality level information provided by SUE partners), the project team can proceed with confidence.

Some may argue that the time, effort, and costs associated with accurate mapping and depiction may not be worthwhile. However, studies from state DOTs using SUE, FHWA, and NCHRP projects show the benefits far outweigh the costs. Proceeding with a design that lacks complete utility information can lead to decisions made without adequate data, resulting in additional time and costs in unnecessary utility relocations, project delays due to unknown utilities found in construction, re-design efforts, and additional expenses. All of these require additional human resources to address.

Utility Conflict Management or Deconfliction is best performed when the utility information is comprehensive and accurately depicted within the project area. TDOT has developed a Utility Investigations Manual that complements Utility Coordination efforts.

CHAPTER 2: INTEGRATING FUNCTIONAL GROUPS WITH UTILITY CONFLICT MANAGEMENT

The depiction of vertical position of utility information is a concern for many. There are multiple options to be considered and explored for this depiction:

- The SUE CAD deliverable (reference file) will provide the vertical position to the center (if known) of the utility. The SUE consultant will be using a mixture of geophysical readings, measurements at exposed portions of utility systems, interpolations of gravity system inverts, test hole excavations, and engineering judgement. This vertical line is uncertain, has no accuracy associated with it, and must be used with caution. When design features are near this vertical position, test holes are prudent to confirm an accurate depiction.
- Designers can collaborate with the utility engineer/coordinators to create an assumed vertical position based upon experiences and utility types (when design features are near this vertical position, test holes are prudent to confirm an accurate depiction).
- Designers can drape the utility at a depth below the surface; this manner is certainly the most uncertain approach.

The benefits of accurately depicting the horizontal and vertical locations of utilities in project plans extend beyond the design phase. Including Rainbow Plans (which constitutes a master relocation plan) in project documents provides contractors with a dedicated map that details utility locations, along with additional information that may not be included in the main plans. It is essential for everyone involved to have access to all relevant information, as this can help ensure that projects are completed in a timely, cost-effective, and safe manner. For Move in State contracts, utilities must submit detailed relocation plans, specs, and item numbers (B date package) for inclusion in the final utility sheets, the final design plans letting package, and bid documents.

Designers play a pivotal role in minimizing or avoiding impacts to existing utility infrastructure when it makes sense to do so. This approach enhances project reliability and helps avoid unnecessary risks and additional costs by minimizing utility relocations. Designers are urged to maintain a utility-focused perspective throughout the project's design and development process. This means they should move away from designing in isolation without considering utility impacts, instead adopting a comprehensive approach that considers how proposed designs might lead to significant utility relocations, affecting both project schedule and budget.

This approach requires a thorough evaluation and application of engineering judgement to all relevant design factors to best serve the public. It involves considering various factors like safety, maintenance, standards, policies, material types and conditions, costs, schedules, and human resources in the decision-making process. Therefore, the design decisions should benefit both TDOT and utilities, while ultimately serving the public interest, with the safe functioning and long-term maintenance of the roadway as the top priority.

CHAPTER 2: INTEGRATING FUNCTIONAL GROUPS WITH UTILITY CONFLICT MANAGEMENT

The following sections present example instances of how design variations or modifications can be considered within the project team. The final decisions are made by applying engineering judgement as a project team on a case-by-case basis for each project.

Drainage

Utility conflicts can be created by many components and features of a highway improvement project, but one of the most common conflict items pertains to drainage. On a highway project, the drainage system is critical for the safety, integrity, and sustainability of the highway facility.

Despite the many requirements associated with capturing and controlling stormwater, **there are scenarios to avoid and opportunities for innovative and creative solutions to accommodate utilities.**

Challenging Areas:

- **Acute Angled Pipe Junctions:** It is common to experience acute angled pipe junctions for the closed storm sewer system on a highway project. The junctions take place where area drains, side road inlets, or existing systems connect to the primary storm sewer trunkline. When acute angled connections are used, the size of the storm structure must increase to provide adequate pipe separation inside the structure wall. The increased storm structure size can encroach into the grass strip between the back of curb and sidewalk and restrict the available area that underground utilities typically relocate their facilities. In some cases, the Utility Coordinator can collaborate with the Roadway Design team to identify opportunities to modify the proposed drainage design to reduce the storm structure footprint by increasing the angle and separation between pipes.

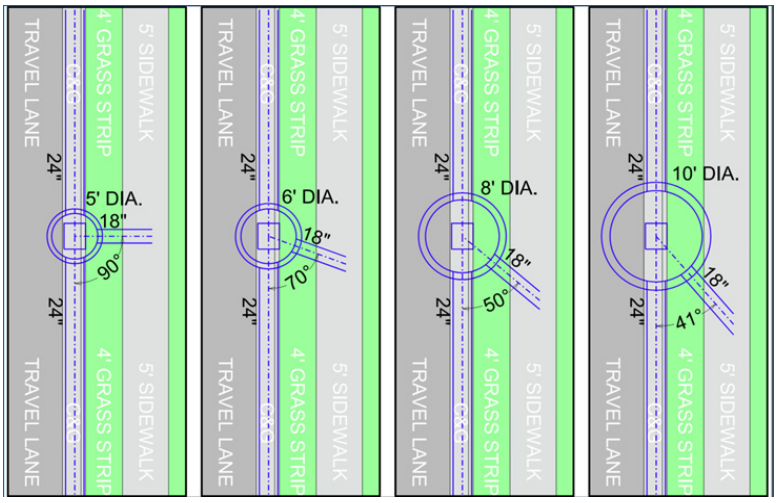


***Figure 1** - Example of Angled Junctions on a 24" Trunk Line*

- **Jack-in-Place Installations:** Jack-in-place pipe installation is commonly used where storm pipe crosses the roadway. The pipe jacking method prevents the need for open cut installation, which allows traffic to remain open during installation. Like utility bores, the Jack-in-Place/jack and bore installation requires a relatively level working area for equipment and materials to send and receive the pipe as it is pushed under the roadway embankment. The send/receive pit as well as the working area should be reviewed for potential conflicts since culvert installations take place early in the construction sequence.

- **Roadside ditches:** Roadside ditches, predominantly used for stormwater runoff on rural roadways and occasionally in urban contexts, are established by a set width and side slope conforming to roadway geometric criteria and hydraulic capacity requirements. Not visible in the Proposed Layout sheets, these ditches can be identified by the "Cut" slope line in the Present Layout sheets and cross-referencing the Typical and Cross-Section sheets. The plans depict special ditches with differing offset or side slope dimensions compared to typical sections along the corridor. These ditches purposefully maintain positive drainage and guide stormwater runoff to the desired location. Their purpose can be recognized by examining the Proposed Layout and Profile sheets.

Utility conflicts can occur longitudinally along the roadside ditch or at perpendicular crossing locations. Conflicts near a special ditch often have less flexibility for grading adjustments to mitigate utility conflicts due to pre-existing constraints like terrain, hydraulics, existing conditions, etc.

Modifications to a roadside ditch to mitigate utility conflicts can be considered on most projects, provided safety and hydraulic requirements are upheld. Side slopes can be modified to reduce excavation depth or shifts of the bottom away from the roadway. Alternatively, they can be steepened to reduce the footprint. A flat bottom ditch could replace a V-shaped ditch to meet capacity requirements with a less deep design.

However, ditch modifications, particularly longitudinal ones, can negatively impact the project footprint or budget. Therefore, alternative solutions should be analyzed to weigh the initial and long-term costs against the benefit of avoiding conflicts. Modifications necessitating long stretches of guardrail and slope stabilization for steeper side slopes, or flattened ditch sections with low flow velocities are typically undesirable due to long-term maintenance, operational issues and costs.

Using Alternate Storm Sewer Structures:

Currently round catch basin structures are the default storm structures used to improve design flexibility and reduce the pre-cast manufacturing time as well as material limitations.

- **Encroachment associated with structure type:** In some scenarios it is necessary to use an alternative rectangular or square structure to reduce the footprint required for a round structure, specifically in locations requiring a double inlet with pipe sizes equal or less than 36" dia. A simple adjustment of the structure type in this scenario could provide an additional 3-feet of horizontal clearance from a utility between the back of curb and ROW limits.

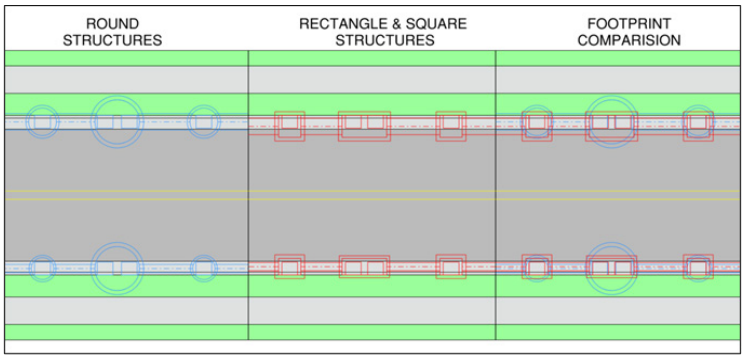


***Figure 2** - Encroachment for a Typical 18" or 36" Storm System*

- **Encroachment associated with curvature:** In urban areas with lower speeds and tighter curvature, the storm sewer trunk line will "cut the corner" due to the linear and rigid nature of the storm pipe materials. The encroachment associated with the storm sewer can impact areas with existing or proposed utilities. Placing an additional structure to cut the inlet spacing in half can drastically reduce or eliminate the encroachment; however, it may not be a feasible solution over long distances due the addition of structures that are not critical to control the spread of stormwater on the roadway. When providing an additional structure is not feasible, using an oversized square structure with the pipe cutout slid away from the encroachment area can prevent adding non-required structures.

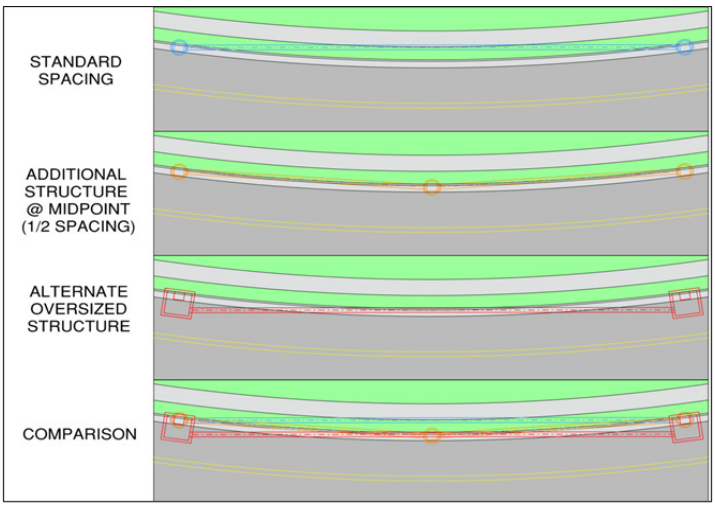


***Figure 3** - Horizontal Encroachment Example on Low-Speed Urban Facility*

- **Depth Adjustments for Perpendicular Crossings:** Every TDOT drainage structure has a required minimum depth to maintain structural integrity and adequate pipe cover. In cases where using the shallowest structure sizes and flattest slopes does not meet minimum requirements, nor does increasing the depth of the structures and pipes, an alternative pipe configuration could be considered. In some cases, the usage of horizontal oval (elliptical) pipe or dual pipes of a smaller diameter can help to reduce the required minimum depth and overall footprint of the storm pipe and utility crossing area. When using an alternative pipe configuration, it is important to verify that the hydraulic calculations meet the required criteria for capacity and velocity and that the additional width or increased structure size does not cause unintended adverse utility conflicts elsewhere.

Signalization

There ahould be an installation of signal poles requires careful consideration of both underground and above-ground utility systems to ensure safe, efficient, and compliant installation. Signal poles may present conflicts with utilities, which must be identified early in the design phase.

Signal pole foundations are typically large and deep to provide stability and require adequate access during installation. The need for access must be considered when evaluating potential conflicts with existing utilities, especially when determining pole placement. If the pole foundation interferes with an underground utility, alternative locations should be explored to avoid an unnecessary conflict with the utility. Similarly, if the pole location encroaches within minimal setback requirements for an existing aerial power line, alternative pole locations should be considered to comply with safety regulations and maintenance requirements.

When evaluating alternative pole locations, it is critical to maintain the required horizontal clearances from roadway features, such as traffic lanes, shoulders, and medians. This ensures safety and proper driver visibility, preventing the obstruction of sightlines, and maintaining clear zone requirements. In an urban environment, when signal poles are moved away from intersections with sidewalks, additional pedestal poles may be required to comply with ADA requirements. Despite leading to extra costs and potential obstructions for utilities, these additional poles have a smaller foundation and height footprint, making them a potentially viable alternative.

Lighting

On projects where lighting is deemed necessary, the inclusion of lighting in the project scope is determined under certain conditions. The department may decide that lighting is warranted based on project requirements, or it may be included at the request of a local government agency. Additionally, when replacing lighting on a non-interstate highway, this is addressed as a utility relocation matter.

CHAPTER 2: INTEGRATING FUNCTIONAL GROUPS WITH UTILITY CONFLICT MANAGEMENT

When TDOT is responsible for designing the lighting, coordination with local government agencies and utility owners is crucial. This coordination ensures that adequate illumination levels are achieved while minimizing glare, and it helps reduce the number of poles required for the system. Efforts should be made to maximize efficiency and minimize visual intrusion or hazards.

In cases where utility poles are being relocated on state highway ROW, every effort should be made to enable joint use of the poles for roadway lighting. This approach provides an economical solution by allowing utility poles to serve dual purposes: supporting street lighting and electrical distribution. Furthermore, this reduces the number of fixed objects, which are frequently involved in motor vehicle accidents. However, it is essential that the effectiveness of the lighting system not be compromised simply for the sake of utilizing existing poles.

When separate light poles are required (i.e., not shared with utility poles), careful attention should be given to the horizontal offset and mounting height of the fixtures to comply with clear zone and breakaway requirements. This ensures safety while maintaining adequate separation from overhead electrical facilities. The design of the pole foundations must also be reviewed to avoid unnecessary conflicts with storm drainage systems or existing utilities.

Since the installation of poles and conduit for lighting typically occurs later in the construction process, it is critical to plan the conduit alignment to account for both existing and proposed underground utilities. In projects with multiple runs of underground conduits—such as for lighting, signal interconnects, ITS communications, or public utilities—it is beneficial to consolidate these facilities into a designated area along the corridor. This can be achieved by collaborating with other design disciplines and utility owners to ensure a coordinated, efficient layout.

Utilities and Construction

Effective utility coordination is crucial for the success of TDOT construction projects. As the project development phase concludes, the project transitions into the construction stage where the utility conflict management plan is executed. During construction, the project stakeholder group expands to include TDOT construction staff and, eventually, construction contractors. To ensure seamless sharing of utility-related knowledge between the development and construction phases, the Regional Utility Office or assigned consultant (utility coordinator) should be actively involved in the final project development stages. As best practice, the UCM/Deconfliction Checklist should be communicated to all stakeholders during the Plan-in-Hand meeting. This checklist should also be shared at the Preconstruction Meeting, where relocation efforts and timelines are discussed. During pre-bid or preconstruction meetings, the utility coordinator should provide detailed information about complex utility items and highlight any utility notes pertinent to the project.

The primary role of the utility coordinator during construction is to assist with change orders and revisions associated with utility conflicts. The utility coordinator must ensure that any changes

in highway project construction do not create new utility conflicts. These responsibilities are outlined in several TDOT Circular Letters, including Circular Letter 105.07-01 (Utility Relocation Procedures), Circular Letter 105.07-02 (Construction Contracts and Change Orders Involving Utilities), and Circular Letter 105.07-08 (Construction Utility Compliance/Non-Compliance with Utility Contract). Additionally, the Regional Utility Office may provide minor support related to utility diaries and inspection procedures as described in Circular Letter 105.07-04.

Circular Letters Summary

The following summary presents the topics of each circular letter applicable to utility coordination during construction. The most current letter should be reviewed online at: Construction Circular Letters.

- **Circular Letter 105.07-01 – Utility Relocation Procedures:** Utility relocations must be made in accordance with FHWA guidelines. Utilities should be advised in writing at the preconstruction conference that work performed without prior notification will not be reimbursed. Proper traffic control by utility companies during construction is essential, and closer monitoring by Field Office personnel is needed. All utility/railroad activities must be recorded daily on Form DT-0667. The Team Lead will notify the Regional Utilities Office if assistance is needed in setting up proper records and advise utility companies in writing about the need for inspection of all salvaged materials.
- **Circular Letter 105.07-02 – Construction Contracts and Change Orders Involving Utilities:** After the award of a construction contract containing "Move In" utilities, the Program Operations Office reviews bid prices and costs of utilities and modifies funding based on the awarded bid. All change orders involving utilities must be analyzed and documented by the Regional Utilities Office to confirm eligibility for TDOT payment. The documentation should include details on what is eligible for reimbursement, the original estimated utility amount, and any betterment costs. The Project Analysis Section will issue invoices to the utility owner for any amounts owed.
- **Circular Letter 105.07-08 – Construction Utility Compliance/Non-Compliance with Utility: Contract** Utility coordination begins during the development of Functional plans (note: with the new UCM/Deconfliction manual, utility coordination begins at the project onset). Various types of contracts for utility relocations are available, including Chapter 86 Move Prior and Replacement Easement. Utilities must notify TDOT Construction of the intended date to begin relocation work and meet all contract obligations. This requirement should be communicated and reiterated to utility companies by the utility coordinator. TDOT can collect civil penalties from utilities that fail to complete work within the approved schedule. The Team Lead will be the project site authority who determines if the utility is causing delays and coordinates the necessary work to rectify deficiencies.

- **Circular Letter 105.07-04 – Utility Diaries and Inspection Procedures:** Form DT-0667 is used to document utility relocations. Utility inspectors must complete and submit various forms (DT-0667, DT-1716, DT-1716A) to certify installed items and final acceptance of work. The TDOT inspector shall document utility work activities performed in the daily project diaries and ensure consistency with the utility diaries. The TDOT utility coordinator may be consulted as needed for these tasks.

Additional Utility Coordinator Roles During Construction

The utility coordinator has established lines of communication with utility companies and can serve as a resource to TDOT field staff in that regard upon request. The utility coordinator should also put effort into communicating construction expectations to the utility companies.

One area of this communication is related to utility company restoration efforts on TDOT ROW. The utility coordinator should ensure or facilitate that utility companies contact construction offices for relocations prior to contract start dates. Potentially, the utility coordinator may be asked by the TDOT field staff to oversee inspections for relocations prior to construction to ensure compliance with the contract and proper restoration to the specified standards. The utility coordinator should advise the construction office on all work being conducted as relocations prior to the project start date.

Another point to be communicated to the utility companies is the importance of meeting scheduled completion dates. It is crucial to encourage utilities to begin relocation work in the areas of the highway project where construction is expected to begin. Any changes to the project's planned phasing should be communicated between TDOT construction, the TDOT utility coordinator, and the utility companies. If the utility will not, or does not plan to, adhere to its relocation schedule, this should be communicated between TDOT construction, the TDOT utility coordinator, and the construction contractor.

The Regional Utility Office may provide support related to utility diaries and inspection procedures. They can assist in setting up proper records, monitoring traffic control by utility companies, and ensuring inspections of salvaged materials. The Construction Lead should notify the Regional Utilities Office if assistance is needed in these areas.

CHAPTER 3:
UTILITY CONFLICT MANAGEMENT/ DECONFLICTION

Utility Conflict Management in Project Development (PDN)

PDN Stage 1 – Concept Activities

Development of the Concept Report & Project Initiation

The Utility Conflict Management (UCM) process begins during the long-range planning phase. At this stage, the planning department must maintain a strong awareness of utilities as they develop project scopes, schedules, and budgets. Failure to implement a utility awareness approach will potentially lead to the frequent reshuffling of projects to resolve budget issues arising from unanticipated utility costs.

In addition to leveraging historical data to estimate per-mile costs, planners should coordinate with the Utility Estimating section for refining estimates. This collaboration adds value by identifying potential schedule and budget impacts from known utilities within the project area and ensuring that cost estimates are current and appropriate to the specific project type.

The Project Manager (PM), Utility Coordinator (UC), and the entire project team should meet early in the project development process to clearly define the project scope, schedule, and budget, while also identifying any critical success factors.

Once a project becomes active in the TDOT program, the Utility Coordinator may need to conduct a Red Flag assessment. This involves a preliminary site review to identify potential utility-related issues that could impact the project's scope, schedule, budget, and its ability to meet key objectives.

Refining the scope, schedule, and budget is a critical first step in successfully coordinating and deconflicting utility-related concerns. In some cases, the findings from a Red Flag utility assessment may have a significant impact on the project's viability or its ability to proceed as originally planned.

PDN Stage 1

Utility Coordination Kickoff / Scoping Meeting (PDN 1 Context/Scoping) (1UT1)

To advance the Utility Conflict Management (UCM) process, the Utility Coordinator (UC) schedules a kickoff or scoping meeting with utility owners identified through the Early Notification Letter process. The primary purpose of this meeting is to present the project and to collect pertinent information from each utility owner, using the information collection form in Appendix D, to understand the scope of their infrastructure and the associated level of risk.

Purpose of the Kickoff / Scoping Meeting:

- **Utility Identification:** Enable utility owners to identify their facilities along the project corridor.
- **Information Gathering:**
  - Discuss any high-value facilities or complex relocations within the project area.
  - *If Survey is In Process*: Collect as-builts, record drawings or utility plans to support ongoing survey efforts.
  - *If Survey is Complete*: Confirm the survey accurately reflects existing utility locations.
- **Project Overview:**
  - Communicate the project's purpose, need, schedule and expectations.
  - Establish primary points of contact for both TDOT and each utility owner.

Timing of the Meeting:

- Should occur after the Early Notification Letters have been distributed and utility presence and owners have been confirmed.
- May be held concurrently with PDN 1SY1 – Conduct Design-Level Survey activity.
- Must take place before Line & Grade Field Review.

Suggested Meeting Agenda:

- Discuss SUE or SUM needs for the project using the SUE Decision Tool.
- Coordinate with the roadway design team to highlight critical utility facilities that should be avoided, where practical, prior to developing the Line & Grade Field Review plans.
- Begin determining reimbursable positions based on property ownership; prepare for early utility engineering authorization requests where applicable.
- Identify dependencies and future responsibilities for utilities planning to relocate early via a move-prior contract (e.g., clearing, staking, EPSC and easements).

- Populate the initial Utility Impact/Conflict Matrix:
  - Identify known or high-risk utility impacts and potential relocation schedules.
  - Correlate proposed roadway alignments to existing utility locations and evaluate opportunities for design adjustments to reduce utility conflicts.
  - *Note: At this early stage, the conflict matrix serves as a high-level evaluation rather than a final coordination tool. It should provide a clear picture of expected impacts based on the data provided and anticipated design directions.*

Prepare for Initial Risk Workshop (PDN 1 Context/Scoping) (1PM4)

Once preliminary utility information has been gathered, the Utility Coordinator (UC) should complete a utility risk assessment. This assessment will be added to the project's Risk Register and shared with the Project Manager and Team for review. The identified risk should be evaluated in the context of the project's scope, schedule, and budget as well as other critical success factors. Any Utility Red Flag items must be thoroughly analyzed to determine the potential impact on project delivery. Based on the results, the PM may need to seek adjustments to the project's scope, schedule, and budget to proactively manage utility-related risks.

After the risk assessment is complete, the project team will determine the appropriate level of utility investigation using the SUE Decision Tool , as outlined in the Utility Investigations Manual. If SUE is determined to be necessary, the initial SUE scope of work will be initiated. At this stage, achieving SUE Quality Level B is considered optimal in order to obtain reliable horizontal positioning with assumed depths. Locations requiring more precise data such as SUE Quality Level A are typically identified later in the process, once the design plans have progressed to Stage 2 – Footprint Established.

Line & Grade Field Review (30% Plans) (PDN 1 Context/Scoping) (1RD1.4)

At this stage, the appropriate utility investigations/SUE data should be accurately depicted within the plan set. This depiction must include both the horizontal location of utilities on the Present Layout sheets and their assumed vertical position in the Profile sheets. In addition to spatial data, utility attributes (e.g. size, material and condition) are essential for identifying and resolving potential conflicts (See Utilities and Design).

For ongoing and effective utility coordination to occur early in the project development process, it is critical that drainage design be incorporated into the Line & Grade Field Review plans. The Utility Coordinator must work closely with the Project Manager (PM) and the roadway design team to emphasize the importance of this need. Doing so ensures the design schedule accounts for the time required to develop the drainage layout, which plays a significant role in assessing potential utility conflicts and relocations.

CHAPTER 3: UTILITY CONFLICT MANAGEMENT/ DECONFLICTION

The Utility Coordinator, **in partnership with the utility owners*, will collaborate with the design team to identify potential conflicts prior to the Line & Grade Field Review. They will also work to determine the anticipated relocation areas along the corridor. The Utility Coordinator will update the identified impacts to utilities in the **Utility Impact/Conflict Matrix**, using the Line & Grade Review plans as a baseline. (See Appendix F).

**Note: It is critical to foster a collaborative relationship with utility owners to proactively identify and resolve conflicts during the project development phase.*

Field Review Discussion Points with Utility Owners:

- **Verify Information:** Are all the utility mains and service lines accurately depicted? If not, additional investigations may be required.
  - Note: If a comprehensive SUE investigation was scoped and completed, the SUE provider is responsible for obtaining this data or documenting its absence with justification.
- **Review Footprint:**
  - Is there adequate space available within the existing or proposed ROW footprint to accommodate relocated utilities?
  - Have ROW needs for utilities been identified and confirmed at this point in the project development process? (See Utilities and ROW section)
- **Analyze Conflicts:**
  - What design requirements or utility policies are necessitating the relocations?
  - Can the design be modified to avoid the utility conflict while still meeting project goals?
  - Is it appropriate to seek an exception to TDOT's policy or standards?
  - Is it appropriate to seek an exception to a utility owner's policy or standards?
- **Coordinate with Environmental:** Identify any environmental constraints, permitting requirements, or protected areas that may affect potential relocations.
- **Explore Constructability Concerns:**
  - Whether relocation work can occur before roadway construction begins.
  - Whether grading or other construction activities must precede the utility relocation.
  - The construction method to be used for utility relocation (e.g., boring, open cut, etc.)
  - Any seasonal limitations affecting the utility relocation (e.g., restrictions for electric or gas work in colder months).

- **Identify Relocation Responsibility:** Do the utility owners plan to perform the relocation work themselves, or would they prefer to include the relocation within the state construction contract?

PDN Stage 2

Early Utility Engineering Authorization (NEW/Added Activity in PDN for PM)

If the utility relocations are expected to significantly impact the project schedule or constructability, a Utility Coordination Plans distribution milestone should be added to the deliverables schedule. In these cases, pursuing Early Utility Engineering Authorization is advised to allow highway design and utility engineering activities to proceed concurrently.

For projects that do not include ROW acquisition, this early milestone can also serve to initiate the 120-calendar day response window for utility owners. This step can help expedite the overall project development schedule.

Conversely, if utility risk is determined to be minimal, distribution of ROW/Utility Plans following the Functional Plans Review is generally sufficient.

> ***Note:*** *If the utility is not adequately staffed to perform the engineering necessary for utility relocations, they must submit a request for reimbursement to use a consultant. See Section 3.2.4 - Processing Consultant Engineering Requests (Region/HQ) in the TDOT Utility Manual for additional information.*

Development of Functional Plans (2RD1) with Early Authorized Utility Engineering (3UT1 activities with an early start):

> ***Note:*** *The steps within this section would take place after the Functional Plans distribution (End of Stage 2 / 2RD1) in a normal workflow without Early Utility Engineering Authorization.*

Utility owners provide preliminary engineering services and submit their relocation or "rainbow" plans to TDOT for review and coordination. These plans, along with associated schedules, are reviewed for potential conflicts with the roadway design and other utilities. Any identified conflicts are summarized in a Utility Impact /Conflict Matrix, and a Utility Conflict Management meeting is held to discuss and resolve necessary design changes.

During this coordination, the Utility Coordinator, in partnership with utility owners, should evaluate both design and regulatory requirements to determine appropriate placement for relocated utilities. Active collaboration among all utilities is essential to avoid unnecessary or costly relocations. A technical significance determination should guide utility placement and must consider factors such as, but not limited to:

- Clear zone offset requirements for aerial utility poles.
- Tennessee Department of Environment and Conservation (TDEC) requirements for water utilities.

- Federal, State and Local requirements for minimum separation between underground utilities.
- Vertical alignment needs for gravity-dependent utilities, such as sanitary sewer systems.

Utility relocation plans are also reviewed in the context of construction phasing and maintenance of traffic. Specifically, any Move In-State utility relocations should be incorporated into the phasing plans for traffic control. For non-Move In-State relocations, dependencies should be identified.

> ***Example:*** *Power poles may need to be relocated before the temporary shoulder or lane widening can be constructed for Phase 1 traffic control.*

Understanding these dependencies is essential when evaluating the feasibility of reimbursable move-prior agreements as well as helping to identify any potential phasing adjustments needed in the traffic control plans.

Lastly, all necessary utility relocations reflected in the traffic control plans should be reviewed and incorporated into the design early to minimize the risk of rework during later phases of the project development.

Functional Plans Field Review (PDN 2 – Footprint Established) (2PM5)

> ***Note:*** *The coordination within this section is only possible when Early Utility Engineering Authorization has allowed for the early development of utility relocation plans.*

For the Field Review, utility relocation designs should be presented using color draft U1 sheets or in roll plot format. This format allows TDOT divisions to conduct a comprehensive review of key components including:

- ROW Acquisition impacts, including:
  - Whether adequate ROW is available for utility placement, or if private utility easements will need to be acquired by the utility owner.
  - Identification of out-of-contract utilities that are dependent on ROW acquisition prior to relocation.
- Environmental permit implications
- Constructability considerations

Field Review Discussion Points:

- **Private Easement Requirements:** Identify utility relocations that will require acquisition of private easements and establish the anticipated schedule for securing those rights.

- **Conflict Identification:** Evaluate potential conflicts between proposed utility locations including:
  - Access constraints
  - Construction phasing & sequencing
  - Equipment staging or storage
  - Environmental constraints
- **Temporary Construction Easement Adequacy:** Verify whether the TDOT temporary construction easement is sufficient to support utility relocations that will occur within the state contract.
  - If not, one of the following actions must be taken:
    - Adjust the utility relocation plan
    - Require the utility owner to acquire additional easement
    - Expand the temporary construction easement to accommodate the planned relocation.
- **Relocation Responsibility Review:** Confirm with utility owners whether they intend to relocate their facilities within the state contract or using their own forces.
- **Temporary Relocation Benefits:** Determine whether temporary utility relocations are required or if such relocations could significantly improve or accelerate the overall construction schedule.

PDN Stage 3

ROW/Utility Only Plans Distributed – End of Stage 2 – Footprint Established (3UT1.5)

Once plans are distributed to utilities, the 120 Calendar Day countdown begins for submittal of the A-Date package. This package consists of the proposed relocation plans, a Schedule of Calendar Days required for relocation, and cost estimates with corresponding reimbursement requests, if applicable.

When the Functional Plans are developed in close coordination between the TDOT design team and utility engineers through the process of Early Authorized Utility Engineering, the foundation for preliminary utility relocation alignments should be in place at this stage. While full utility design may not be completed yet, especially for Move-In-State utilities, the A-Date submittals are expected to include an increased level of detail and accuracy compared to those without Early Authorization. This includes a more refined scope of utility work, updated alignment locations

based on conflict management efforts, and detailed itemized cost estimates to assist with planning, budgeting and scheduling.

Once submitted, the Utility Coordinator reviews the A-Date relocation plans and schedules to assess alignments with proposed roadway construction, checks for conflicts with other identified utility relocations, and confirms that any outstanding comments from the Functional Plans Field Review have been addressed. A detailed Utility Impact/Conflict Matrix is typically used as a tracking tool during this process to specify:

- Exact conflict locations
- Utility conflicts requiring resolution
- Responsible parties and associated action items

After each utility revises and finalizes their A-Date package to reflect necessary adjustments and coordination outcomes, final approval is granted, and utility relocation contracts are executed during this phase.

For more detailed procedures, refer to the TDOT Utility Manual:

- Section 3.2.1 - Distribution of ROW Plans to Utilities (Region)
- Section 3.2.5 - Processing Utility Responses to ROW Plans (Region)
- Section 3.2.6 - Relocation Contract Generation (HQ)
- Section 3.2.8 – Authorizations for Utilities to Go To Work (Region)

Plan in Hand Design (Stage 3 – Plan In Hand) (3RD1)

- Traffic control plans are reviewed to ensure they accommodate Move-In-State utility relocations and that the planned utility work is properly sequenced with traffic staging.
- A construction sequence analysis is conducted and reviewed to confirm there are no conflicts between roadway construction phasing and utility relocation plans or schedules.
- For non-reimbursable utilities that depend on roadway construction activities (e.g. deep excavation, embankment construction, or alignment shifts) to complete their relocations, an updated target letting date should be provided during the Plan in Hand Field Review meeting. Any subsequent changes to this target date must be communicated promptly to maintain continuous coordination with utility owners.
- The U-sheets, including the utility relocation plans (B-Date Plans), quantity estimates, and specifications are finalized, reviewed, and approved for Move-In-State utilities. Once approved, the full package is uploaded for inclusion in the construction letting documents.
- Continued coordination is required for utility owners that were non-responsive prior to the ROW/Utility-Only plans distribution.

  - Conflict management meetings and updates to the Utility Impact / Conflict Matrix should continue until the outstanding issues are resolved.
  - Utility Owners who remain non-responsive are assigned a schedule and put to work at no cost to the state.
- The progress of Move-Prior utility relocations is monitored against the Schedule of Calendar days established in the relocation agreement to ensure planned relocation activities align with project timelines.
- The Utility Certification Letter, submitted by Headquarters, confirms that all required utility coordination activities are complete. This includes confirming all utilities relocating at no cost or under contract have been put to work, confirmation of receipt of detailed construction plans, specifications, quantities, and deposits (if applicable) from Move-In-State utilities, confirmed uploading all the utility plans to FileNet, and submittal of Rainbow Plans to Environmental for utilities included in the state contract.
- Also, see Construction section of the manual for roles and responsibilities of the Utility Coordinator regarding utility relocation activities during the construction phase.

For more detailed procedures, refer to the TDOT Utility Manual:

- Section 3.2.5 - Processing Utility Responses to ROW Plans (Region)
- Section 3.2.7 – Detailed Construction Plans Submittal
- Section 3.2.6 - Relocation Contract Generation (HQ)
- Section 3.2.8 – Authorizations for Utilities to Go To Work (Region)
- Section 3.2.9 – Utility Certification (HQ)

Project Manager Roles in Utility Coordination

The project manager is responsible for providing alignment and guidance to lead the project team in maintaining the established budget and schedule to achieve the project goals. When utilities are located within the project limits, a level of risk and complexity is added to both the project budget and schedule. The role of the project manager, pertaining to coordination with utilities, is to provide the TDOT Regional Utility Coordinator and/or a consultant Utility Coordinator with timely communications concerning changes to the project's scope, schedule, or budget. The PM should establish a utility awareness within the entire team. This awareness should include an ongoing Utility Conflict Management effort across disciplines encouraged by the PM. The PM should manage project budgets to allow for early funding authorizations to utility partners when needed. The PM supports setting up coordination meetings with the

project team and ensures a level of attention that aligns with the Risk Assessments performed throughout the Project Development Process.

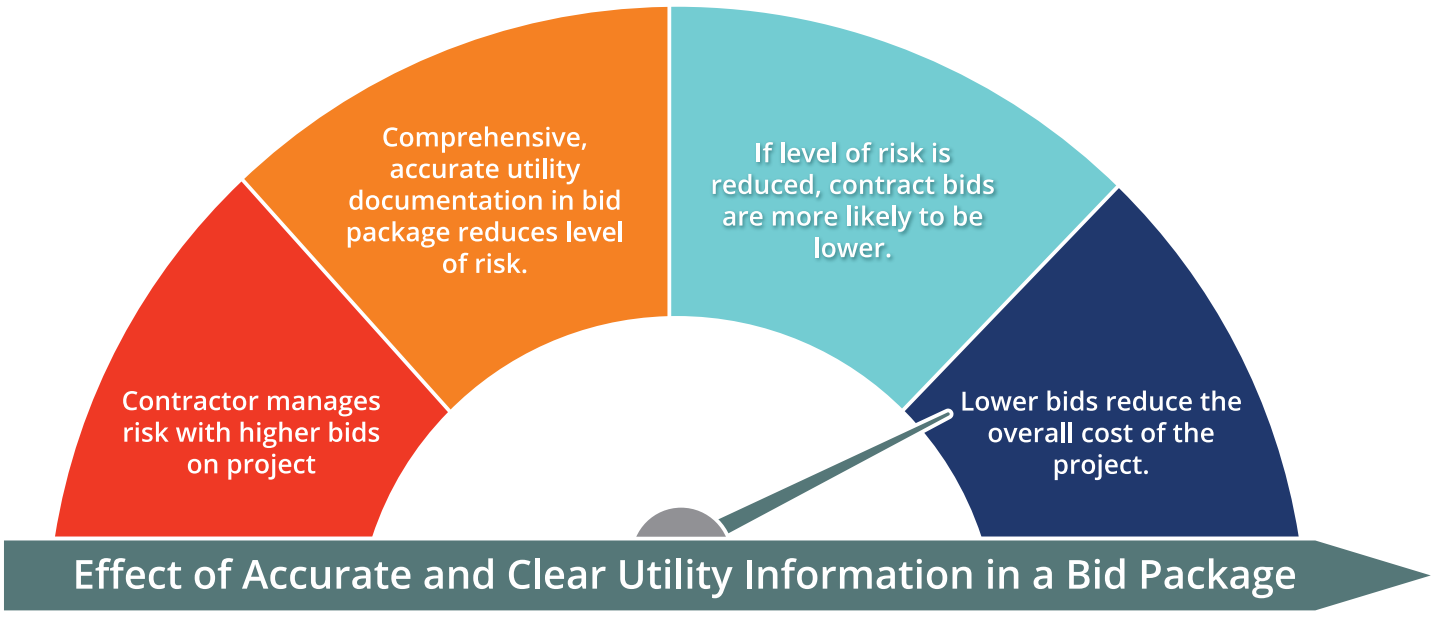
Designer Roles in Utility Coordination

The project designer is in charge of developing a design that adheres to the department's standards, within the defined project scope, budget, and schedule. Each design discipline will convene through project team meetings during the PDN process. Although utilities present within the project limits are not owned by TDOT, understanding how the design of roadways, drainage structures, bridges, signals, or light poles, etc., can impact utilities, thus unintentionally affect the project budget and schedule, is crucial.

One critical role of the design team is to depict all utility locations and attributes in the project plans. The designer's role is to collaborate with the Utility Coordinator to aid in navigating the Utility Conflict Management process. The designers must lead the team to identify apparent impacts of the proposed design with existing utilities. These conflicts are documented in the Utility Conflict Matrix. Utility Conflict Management/Deconfliction is a team effort. Designers can also assist by answering questions, providing exhibits or details, or considering feasible design alterations to minimize the impact of conflicts on a project.

CHAPTER 4:
UTILITY COORDINATION CONTRACT DOCUMENTS

One of the most critical elements of successful utility conflict management and deconfliction is the compilation of documents necessary for the PS&E/contract package. These documents represent the execution plan of the utility conflict management process. This package documents important utility information to TDOT contracts, TDOT Construction, FHWA, and to potential contractors bidding on the project. Since it is known that contractors do not absorb risk but rather factor it into their bids, it is essential to present a clear and comprehensive package of utility information that presents required actions of the contractor or identifies conflicts that affect their ability to construct any portion of the project. It is incumbent upon utility coordinators to provide accurate and comprehensive information to document the coordination efforts, utility relocation plans, and schedules of the utility partners. Clear and well-organized information eliminates confusion and assists bidders in interpreting the risks associated with the project.



TDOT recommends that any **SUE deliverables and the Utility Conflict Matrix become standard components of the contract package**. These documents are helpful for bidders to identify and understand the determinations made to address the project impacts to the existing utilities.

TDOT PS&E Utility Certification

One of the most important documents in the utility coordination process is the certification document. This document is a requirement of FHWA at the project's PS&E phase before federal funds are released for construction. Based on training provided by FHWA, which can be accessed through the following link: FHWA Essentials Utility Certification video, FHWA requires that TDOT "certify" that utility coordination has been addressed in one of three ways.

The certification should identify which one of the following statements is true for the construction contract:

- There are no affected utilities within the project.
- All affected utilities have been properly addressed prior to construction.
- Arrangements have been made for utility work to be performed concurrently with the TDOT contract.

The **essential items** necessary to properly certify that utility coordination is ready for construction are:

- Utility relocation agreement/contract
- Utility relocation drawing of sufficient detail
- Utility relocation schedule
- Itemized relocation estimate (when reimbursements are involved)

FHWA-NHI Course 134117: Preparing and Communicating Effective Utility Relocation Requirements

An Agreement (Utility Relocation Contract) Between TDOT and Each Affected Utility.

Agreements are an essential component of the utility conflict management process, as they document the negotiations between the TDOT and utility owner when utilities are in conflict with the proposed design.

A utility agreement is required even if Federal-aid highway funds will not be used to pay for a utility relocation on a Federal-aid highway. In such situations, a utility agreement is required under 23 CFR 645.203(b); 645.209(i); and 645.213, and must provide, among other requirements[5]:

- A description of the requirements for relocation, construction, protection of traffic, maintenance, access restriction, and any special conditions applicable to the installation (23 CFR 645.213(a))
- A general description of the size, type, nature, and extent of the facilities being relocated (23 CFR 645.213(b))
- Adequate drawings and sketches showing the existing and/or proposed location with respect to the existing and/or planned highway improvements (23 CFR 645.213(c))

Generally, the agreement or contract should identify the following:

- Who is responsible for any actions that will be required to accomplish the relocation plan, including any requirements of the contractor
- The schedule of all activities necessary to relocate the utility
- When the utility is reimbursable – a relocation cost estimate
- When the utility is not included in the TDOT construction contract, a proper maintenance of traffic plan for the utility work
- Any access needs, sequencing, or phasing of utility relocation efforts with the proposed construction, or with other utilities
- Site restoration appropriate to the schedule and timing of the utility work, other utility work, and the TDOT construction contract

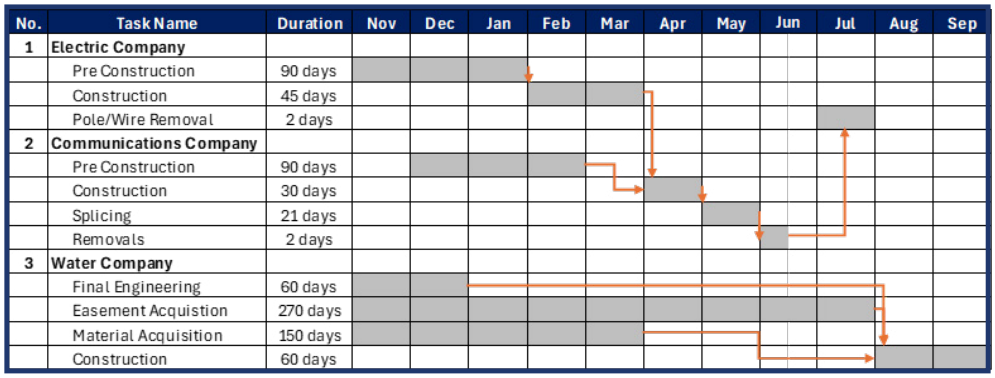
[5] FHWA, National Utility Review: Utility Coordination Process, 2018

A detailed schedule of each utility relocation

23 CFR 645.113(g)(3)

Before certifying the project to FHWA, TDOT should obtain a realistic and comprehensive schedule, in calendar days, of pre-construction and construction activities for all utilities that have not completed their involvement with the project. This **schedule should include sufficient detail to integrate utility activities into the overall TDOT construction schedule**. (Move in state utility work would not require a schedule since the selected contractor will perform the utility relocation within their overall schedule.) Schedules should include tasks such as acquiring material for the utility relocation, bidding of the utility construction when not using in-house crews or an ongoing contract with the utility, mobilization times of the utility contractor after notification to proceed, and duration of construction including any sequencing or phasing of work with others. Any work requiring other utilities or the TDOT contractor to perform tasks prior to utility relocation must be clearly identified in the schedule.

Typically, the most common way to show such a schedule is a simple Gantt chart, like the visual shown below:



No.	Task Name	Duration	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	**Electric Company**												
	Pre Construction	90 days											
	Construction	45 days											
	Pole/Wire Removal	2 days											
2	**Communications Company**												
	Pre Construction	90 days											
	Construction	30 days											
	Splicing	21 days											
	Removals	2 days											
3	**Water Company**												
	Final Engineering	60 days											
	Easement Acquistion	270 days											
	Material Acquisition	150 days											
	Construction	60 days											

More complex projects may require the use of more sophisticated scheduling tools, such as a P6 or Microsoft Project, to show relationships, durations, and dependencies. The schedule should assist all in understanding the timelines of all activities necessary to prepare and complete the utility preconstruction and construction activities.

The Schedule of Calendar Days is a required form for all utilities that have identified a conflict on the project.

- At a minimum, utility owners are required to report the estimated duration for obtaining and stockpiling materials, mobilizing their workforce, and completing the relocation.
  - The identification of dependencies for the relocation is not required, nor recognized as part of the contract terms.
- The total duration that is provided to the Utility Office is used to establish the duration for the relocation contract. The Schedule of Calendar Days form is attached to the contract as an exhibit.

See Appendix E for additional assistance in building relocation schedules.

A drawing of sufficient detail

23 CFR 645.213(c)

Utility coordinators are aware that obtaining drawings with sufficient detail is very challenging. Relocation plans are of crucial importance in the Utility Conflict Management and Deconfliction processes, especially when working in complex urban environments. These drawings are critical so that TDOT and the utilities will know if the proposed relocation can be successfully constructed. A relocation drawing should be to scale, with appropriate stationing, and show elevations at every structure crossing or when there is a crossing with another utility. For some utilities, the difficulty is a lack of technical ability to produce such a drawing; and for others, it is a software issue where the utility platform is totally different from TDOT. Regardless, at a minimum, the proposed utility relocation should be transferred to TDOT plans and then vetted with the utility prior to TDOT approving the alignment and plan detail. The U-sheet development is a collaborative effort to collect and depict all utility relocations in one drawing. This allows a thorough review of the proposed relocations. It is important to understand the vertical and horizontal position of proposed utilities.

While TDOT encourages early engagement in order to let utilities select a preferred location for relocation when feasible, the utility coordinators will have to evaluate all proposed alignments. Coordinators will partner with each utility in an effort to manage the ROW appropriately and to allow for long term maintenance of both the TDOT and the utilities infrastructures.

Relocation cost estimates

23 CFR Part 645, Subpart A

An itemized estimate is required when a utility is reimbursable. FHWA requires that TDOT review and approve the estimate as reasonable and similar to what the utility would spend when not reimbursable.

The estimate form is required for any utility seeking reimbursement for engineering, private easement replacement, and/or construction for the relocation of their facilities. Any work associated with betterment (upgrading existing facilities) is identified separately and excluded from the reimbursable costs. Any salvage material should be shown as a credit to TDOT.

For utilities not seeking reimbursement, a short form of the estimate can be filled out with a box checked for *NO COST/NO REIMBURSEMENT*. It's more common for the utility to provide this declaration via email or formal letter.

Utility Specifications (Special Provisions)

For utilities relocating within the state contract (Move-In-State), the utility provides their specifications as part of their B-Date submittal to set forth the directions, provisions, and requirements that apply to the contractor(s) installing their facilities.

Special Provisions are unique conditions that apply to, and are written for, the particular project when needed. The Special Provisions supersede both the standard specifications and

supplemental specifications if there are discrepancies. Since utility relocations are often on the critical path of construction, the most common Special Provision associated with utility relocation is SP108B (Project Completion and Liquidated Damages) where the construction duration and target completion date information are provided for the bidding contractors.

When a utility relocation is occurring concurrent with the TDOT contractor's work, the provisions must include any expectations of the contractor to work in the same area as the utility. Any specific tasks the contractor must perform, such as cuts and/or fills, staking, clearing, matting, pavement removal, or any other task prior to, or concurrent with, the utility relocation must be documented clearly. These provisions may require additional pay items or additional clarity on how the contractor is to be paid for these actions, if not within another pay item. Schedules for utility actions, especially when tied to contractor responsibilities, are critical and must be clearly communicated to the contractor.

FHWA will release funding for construction only after the utility coordination has been certified. The certification must be executed by an individual who has thoroughly reviewed all critical utility coordination efforts along with the required documents noted above, prior to certifying that the coordination is consistent with FHWA and TDOT requirements.

Appendices

APPENDIX A

Tennessee Laws and Policies Pertaining to Utilities on State ROW

OVERVIEW

The Tennessee Department of Transportation is given authority and responsibility by Tennessee state law and by the Tennessee Secretary of State's Rules and Regulations regarding utilities on state ROW.

Tennessee Code Annotated (TCA)	
Title 4 – State Government - Chapter 3, Part 23 - Department of Transportation	Creates the DOT, defines the powers and duties of the Commissioner, and addresses other areas related to transportation.
Title 54 – Highways, Bridges and Ferries – Chapter 5 – State Highways (Part 8 – Relocation of Utilities)	Commissioner can order the relocation of utilities within the public ROW. Establishes the protocol for notifying utilities of a proposed TDOT construction project and for utilities responding to this notification.
Public Chapter 86 – House Bill 900 of the 2003 Acts of the Tennessee General Assembly	Primarily amends Title 54, Chapter 5, Part 8, Sections 802 & 804. Gives the Commissioner the authority to reimburse a utility for the cost of relocation.

1680 - Secretary of State – Rules and Regulations of the Tennessee Department of Transportation	
Chapter 1680-06 – TDOT Right-of-Way Division	Establishes the Rules and Regulations for Accommodating Utilities within Highway Right-of-Way.

Tennessee Department of Transportation Policy	
TDOT Policy 340-07 - Utility Relocations from Public Highway Rights-of-Way	Commissioner sets the percentage eligibility for relocation costs, the maximum cap for reimbursement of relocation costs, and the due date for submittal of final utility relocation plans and estimates prior to the letting date.
TDOT Policy 340-06 – Minimum Wire Height for Overhead Crossings	Sets the minimum wire crossing height on any road of the state highway system.

APPENDIX A

IN-DEPTH SUMMARY

State Law in Tennessee Code Annotated (TCA)

Tennessee Code Unannotated

Title 4 State Government	**Chapter 3, Part 23 Department of Transportation**	Creates the DOT, defines the powers and duties of the Commissioner, and addresses other areas related to transportation.

Title 54 Highways, Bridges & Ferries	**Chapter 5 State Highways (Part 8 Relocation of Utilities)**	**Abridged summary of each part**
54-5-801	Declaration of the Policy	Public highways are intended principally for public travel and transportation, but they are also intended for proper utility uses in serving the public.
54-5-803	Relocation of utility facilities authorized — Obligations of utility — Agreements for relocation and cost.	Commissioner can order the relocation of utilities within the public ROW. Utilities shall relocate cooperatively and in a reasonable manner and time and shall bear the costs of relocation that the state is not authorized to pay. Authorizes the Commissioner to enter into an agreement with the Utility with respect to any relocation.
54-5-804	State to pay certain relocation costs — Exceptions — Reimbursement payments	Gives Commissioner the authority to reimburse a Utility for the cost of relocation if the Utility complies with submittals in accordance with 54-5-854(b) and enters into an agreement for In-State or Prior-To contract. To be reimbursed, the utility must have a valid permit to locate on public highway ROW.
54-5-80	Hearing — Notice — Rules and regulations promulgated by commissioner — Appeals	Provides requirements for notification and holding hearings, for which the Commissioner may promulgate rules to govern proceedings.

APPENDIX A

Title 54 Highways, Bridges & Ferries	Chapter 5 State Highways (Part 8 Relocation of Utilities)	Abridged summary of each part
54-5-806 & 54-5-807	Applicability and Non-applicability	The policy, principles and reimbursement provisions of this part shall apply equally to all other Utilities, whether public, private or cooperatively owned, but shall not apply to any taking or damaging of property for which the Utility is entitled to compensation or to utility facilities outside the roadway ROW.
54-5-851	Purpose of sections 54-5-851 thru 54-5-856	Regulations for the removal, relocation, or adjustment of utility facilities in highway ROW when made necessary because of conflict with a TDOT construction project
54-5-853	Notification of owners - Response - Failure to reply	Establishes the protocol for notifying Utilities of a proposed TDOT construction project and for Utilities responding to this notification. Failure of an owner to comply creates the presumption that the Utility is not an owner.
54-5-854	Project Plans, Approval & Changes, Liability, Civil Penalties	Establishes the procedures for the Utility to provide TDOT with the location of their existing utility facilities and proposed new location of the facilities with a plan and schedule of calendar days to accomplish the relocation.
54-5-855	Revised cost estimate and reimbursement of engineering costs	If TDOT does not notify the utility of the approved plan and schedule of calendar days within 6 months, the utility can submit a revised cost estimate.
54-5-856	Liaison between owner and contractor	TDOT's resident engineer shall act as the liaison between the utility owner and TDOT's contractor

Public Chapter 86	54-5-802 and 54-5-804 as amended by Public Chapter 86 House Bill 900 of the 2003 Acts of the Tennessee General Assembly	
Section 2(a)	Commissioner can reimburse a utility for the cost of relocation, excluding betterment, subject to: (1) the utility submits required documentation for the utility's relocation to TDOT within the time period specified, or within additional time that may be allowed under 54-5-854(b), and (2) the utility enters into an agreement with TDOT either to include the utility's relocation work in the state construction contract or to complete the relocation work prior to the letting of the TDOT's construction contract.	54-5-854(b) sets a 120-day time limit for response by the utility after receipt of the plans from TDOT. A 45-day extension can be allowed if plans revisions are made by TDOT.
Section 2(b)	Utility is solely responsible to inspect the utility's relocation to ensure that installation is in accordance with their plans and specifications.	
Section 2(c)	To be reimbursed, the utility must have a valid permit to locate on public highway ROW.	

Tennessee Secretary of State Rules and Regulations

Rules and Regulations for Accommodating Utilities within Highway Rights-of-Way

Chapter 1680	Rules of the Tennessee Department of Transportation	1680-06 Right-of-Way Division -1680-06-01 Rules and Regulations for Accommodating Utilities Within Highway Rights-of-Way
1680-6-1-.04(1)	New utility facilities being installed within highway ROW will require a Use and Occupancy Agreement (i.e., a permit) issued by TDOT.	Appendix 1 is the Application and Utility Use and Occupancy Agreement - the latest versions TDOT Standard Utility Permit Forms can be found on TDOT Utilities Division's Utilities Forms webpage
1680-6-1-.04(9)	The responsibility of designing, installing, maintaining, repairing and operating utility facilities to be located within highway ROW under an approved Use and Occupancy Agreement shall be the obligation of the company, individual or public agency owning the facility.	
1680-6-1-.05(3)(j)	Requirements for attachment of utilities to bridges	
1680-6-1-.05(3)(k)	Utility installations through drainage structures including concrete box culverts and pipe culverts are not allowed except in extreme hardship cases.	
1680-6-1-.05(3)(m)	Provides the Use and Occupancy Agreement requirements for plans or sketches including color coding.	

APPENDIX A

Tennessee Secretary of State Rules and Regulations

Chapter 1680	Rules of the Tennessee Department of Transportation	1680-06 Right-of-Way Division -1680-06-01 Rules and Regulations for Accommodating Utilities Within Highway Rights-of-Way
1681-6-1-.06	Provides requirements for: (1) Overhead Power and Communication Lines (2) Underground Power, Communication, Water and Sanitary Sewer Facilities (3) Pipelines or Transmission lines including encasement requirements (4) Gas Mains and Service Mains (5) Roadway Lighting	
1681-6-1-.07	Provides controls governing utility installations including, but not limited to, signing and flagging; open cutting limitations; replacement or repair of damage caused by utility installation; boring and jacking; and blasting.	
1681-6-1-.08	Describes the processing of Use and Occupancy Agreements	
1681-6-1-.09	Fiber Optic Cable facilities on freeways	
Appendix 8	Requirements for Open Cut Trenching, Backfilling, and Replacement Paving	See TDOT Standard Utility Repair Details on TDOT's Utilities Division's Permit Process & Standard Repairs webpage

Tennessee Policy Related to Utilities

340-07 Policy 2024

TDOT Policy 340-07 (02.14, 2024)	**Utility Relocations from Public Highway Rights-of-Way**	4-3-2303 & 54-5-804
Pages 2 & 3	Under Policy section, defines Qualified and Non-Qualified projects	Set by the Commissioner
Page 3 - Last bullet	A Non-Qualified project for Chapter 86 reimbursement is any project that does not allow at least 9 months to process the project for Chapter 86 between the scheduled construction letting date and the date project plans are sent to the utility.	54-5-854 Commissioner sets the 9-month minimum in the Policy.
Page 4 - Limitations - Item 1	100% eligibility for relocation costs for Municipality Owned, Utility Districts and Cooperatives / 75% for all other utilities (latest revision made reimbursement percentage the same for both Move-In State and Move-Prior contracts)	54-5-804(a)(2) Commissioner sets the percentage eligibility for relocation costs in the Policy.
Page 5 - Utility Eligibility - Item 1	After receipt of the TDOT plans, utility has 120 days to submit relocation plans, schedule and cost estimate to remain eligible. If the TDOT plans change, the utility can have up to 45 more days to submit their package.	54-5-804 (a)(1) 54-5-854(b)
Page 5 - Utility Eligibility - Item 2	Utility must enter in an agreement with TDOT to be either a Move-In contract or a Move-Prior contract.	54-5-804(a)(2)
Page 5 - Utility Eligibility - Item 4	Utility must respond within 15 working days after a design locate request has been submitted to the one call service (added to promote One-Call responses for survey)	65-31-118
Pages 6 & 7	Final utility relocation plans and estimate are due no later than 26 weeks prior to the letting date (increased from 16 weeks)	Set by the Commissioner

Appendix B: Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ADA	The Americans with Disabilities Act
ANSI	American National Standards Institute
API	American Petroleum Institute
ASCE	American Society of Civil Engineers
ASTM	American Society of Testing and Materials
ATIS	Advanced Traveler Information System
ATMS	Advanced Transportation Management System
BABA	Build America, Buy America
CADD	Computer Aided Drafting and Design
CE	Categorical Exclusion
CFR	Code of Federal Regulations
MCGC	Construction Manager/General Contractor
CSF	Critical Success Factors
DB	Design-Build
DBF	Design-Build-Finance
DBFM	Design-Build-Finance-Maintain
DBFOM	Design-Build-Finance-Operate-Maintain
EA	Environmental Assessment
EIS	Environmental Impact Statement
EOR	Engineer of Record
ESA	Environmental Sensitive Area
ETSA	Environmental Technical Study Area
FAP	Federal Aid Project
FHWA	Federal Highway Administration
FONSI	Finding of No Significance
GIS	Geographic Information System
GPS	Global Positioning System
IRIS	Integrated Right-of-Way Information System
ITS	Intelligent Transportation System
LPA	Local Public Agency
MSE	Mechanically Stabilized Earth Wall

Appendix B: Acronyms and Abbreviations

MUTCD	Manual on Uniform Traffic Control Devices
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NPDES	National Pollutant Discharge Elimination System
NTP	Notice to Proceed
ORD	Open Roads Designer
OSHA	Occupation, Safety, and Health Administration
PDB	Progressive Design-Build
PDN	Project Delivery Network
PM	Project Manager
P3	Public-Private Partnership
PS&E	Plans, Specifications and Estimates
QC/QA	Quality Control/Quality Assurance
QL	Quality Level
RFI	Request for Information
RFID	Radio Frequency Identification
ROW	Right-of-Way
RR	Railroad
RRR	Resurfacing, Restoration, and Rehabilitation
SUE	Subsurface Utility Engineering
SUM	Subsurface Utility Mapping
TCA	Tennessee Code Annotated
TCE	Temporary Construction Easement
TDEC	Tennessee Department of Environment and Conservation
TDOT	Tennessee Department of Transportation
UAP	Utility Accommodation Policy
UC	Utility Coordination
UCL	Utility Conflict List
UCM	Utility Conflict Management
UDM	Utility Data Management
USACE	United States Army Corps of Engineers

APPENDIX C

Definitions

"A" Date Package: Refers to the required submittal and date of the following information to be received from the Utility which includes relocation plans, Tennessee Department of Transportation (TDOT) Form 2013-16XLS schedule of calendar days, relocation cost estimate, and the utility declaration for reimbursement. A-Date is established as 120 days from the date the Utility Coordination Plans are received by the Utility.

Accommodation: The installation of utility facilities along or across State right-of-way (ROW) with the intent that they will occupy and jointly use the ROW either by permit or by execution of a General Use and Occupancy Agreement.

Adjustment: The required modification to an existing utility facility to eliminate a conflict with an active project where the utility facility will generally be retained in the same location.

Aerial Encroachment: Where the utility structure extends over the designated ROW line. All aerial encroachments will require an encroachment permit from the Department.

Agreement: A legal document that details the conditions of a Utility's rights and the procedures by which reimbursements, if any, will be made for relocations and adjustments.

As-Built Plans: Certified Record Drawings by the Utility Owner/Operator which depict the actual location of a utility facility after construction by physical measurements in the horizontal and vertical plane.

B-Date: For the Utility to be included in the State contract, the Utility plans, special provisions, Utility item spreadsheet, and permit sketches when applicable must be submitted 26 weeks prior to contract letting.

BABA: Any utility "eligible" for reimbursement must comply with Build America Buy America (BABA) requirements.

Backfill: Replacement of soil using granular material, and/or flowable fill around, and over a pipe, duct line, conduit, cable, or other underground structure or facility. Also used to fill retired in place facilities of the same type.

Backslope: The uphill slope from the flow line of the ditch on the opposite side of the ditch from the roadway.

Bedding: The subgrade soil or specified material and its surface as prepared to support a pipe, duct line, cable, conduit, or any other underground structure or facility.

Betterments: Any upgrading of the utility facility being relocated made solely for the benefit of, and at the election of, the Utility and not attributable to the highway construction. May be done due to a lower resulting cost to the project, unavailability of original materials, and/or updated Utility system wide policies.

Bond: A surety bond posted to ensure proper and complete construction and/or repair of a facility and the affected ROW pursuant to a permit.

Definitions

Bore: To excavate an underground cylindrical cavity for the insertion of a pipe or electrical conductor by a method other than plowing or trenching.

Broadband Infrastructure: Any buried, underground, or aerial facility, and any wireless or wireline connection, that enables users to send and receive voice, video, data, graphics, or any combination thereof.

Broadband Services: A wired or wireless terrestrial service that consists of the capability to transmit at a rate of not less than 25 megabits per second in the downstream direction and at least 3 megabits per second in the upstream direction to end users and in combination with such service provides: (A) Access to the Internet; or (B) Computer processing, information storage, or protocol conversion.

Buffer (State or US Waters): An area along the course of any State or US Waters to be maintained in an undisturbed and natural condition. May be required as conditions of permits issued by the Tennessee Department of Environment and Conservation (TDEC), and/or the United States Army Corps of Engineers (USACE).

Buffer (Vegetation): A defined area or corridor to be maintained in a natural, landscaped, or other condition as specified in water quality permits.

Buried Cable: Any and all cables, wires, conduit, pedestals, and/or other related facilities authorized in a permit for underground installation.

Calendar Days: See “Schedule of Calendar Days”

Cap: A rigid structural element surmounting a pipe or other facility to provide protection and distribute loads.

Carrier: A casing pipe directly enclosing a transmitted substance such as liquid, gas, etc.; also, an electric or communication cable, wire, or line.

Chapter 86: Chapter 86 refers to TCA § 54-5-804 as amended by Public Chapter 86 of the 2003 Acts of the Tennessee General Assembly. It grants the State the authority to reimburse eligible utilities for relocations on public ROW, provided the project is qualified. See TDOT Policy 340-07 for additional details.

Clear Zone: The unobstructed relatively flat area that is provided beyond the edge of the lane for errant vehicles. The American Association of State Highway Transportation Officials (AASHTO) describes this as the total roadside border area starting at the edge of the traveled-way, available for safe use by errant vehicles. This area may consist of a shoulder, a recoverable slope, a non-recoverable slope, or a clear run-out area. The desired width is dependent upon lane type, traffic volume and speed, and on the roadside geometry.

Conduit: An enclosure for protecting a utility facility (e.g., wires and cables).

Construction Engineering: Engineering activities required on an active project to coordinate utility relocation work in accordance with the approved work plan and project schedule.

APPENDIX C

Definitions

Construction Manager/General Contractor (CMGC): An Alternative Delivery process whereby the TDOT can contract with a Contractor both in the design and construction phases of the project. The intent is to form a partnership with TDOT, the Designer, and the Contractor.

Context/Scoping - PDN Stage 1: The team defines critical project goals and intended outcomes for scope, schedule, budget, quality, and risks. Line and Grade plans are developed.

Contract Documents: Legal documents for Design-Build (DB) Projects, the Design-Build Documents, and for Public-Private Partnership (P3) Projects, the Design-Build-Finance (DBF) Documents, Design-Build-Finance-Maintain (DBFM) Documents, or Design-Build-Finance-Operate-Maintain (DBFOM) Documents, or such other additional contractual documents identified in the P3 Project Agreement.

Contractor: The individual, firm, corporation, or combination thereof, or governmental organization contracting with the Department for performance of prescribed work. In the case of a P3 Project, the private sector partner's counterparty to TDOT, under a P3 Agreement administered by the Department. In a Design-Build project, the "Contractor" is the "Design-Builder".

Cover (Depth): Vertical distance, from the top of pipe or pipe's protective coating, casing, duct, cable, etc. to some specified surface such as pavement, ditches, or shoulders. 30-inch depth is required on TDOT ROW, with 36-inch preferred.

Critical Success Factors: Measurables, substantial completion dates, political or highly public and sensitive items to address such as high-profile events or development openings, that the Project Team must holistically understand and partner to meet these identified factors.

Deconfliction: Utility Deconfliction is a multi-phased and multi-disciplined process that involves the systematic identification and resolution of utility conflicts as part of the overall process to deliver transportation projects. These conflicts may be with proposed project design features, project construction phasing, environmental sensitive areas, and other utilities. Also referred to as Utility Conflict Management.

Delay Cost: Costs incurred by the Contractor and approved by the Department, which are caused by, or which grow out of, the failure of the Utility to carry out and complete its work in accordance with the approved relocation agreement in a timely and reasonable manner. This also applies if an original or revised relocation agreement was not submitted.

Department: The Tennessee Department of Transportation (TDOT).

Design Build (DB): A process whereby TDOT can contract with a firm to accomplish designing and building a transportation facility, under a single contract as an integrated process. The contract may include all ROW and utility functions normally performed by the Tennessee Department of Transportation.

Design-Build Agreement: The contract between the Department and a Design-Builder to design and Construct a DB Project.

APPENDIX C

Definitions

Design-Build Documents: The documents specified in the Design-Build Agreement that, together with the terms and conditions in the Design-Build Agreement document, comprise the full contract between the Department and a Design-Builder.

Design-Build Project: A project in which TDOT contracts with a Design-Builder for the design and construction of a public transportation project.

Design-Builder: The party awarded a contract to design and construct a DB Project, including Utility Adjustments.

Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System: A document that contains standard detail drawings used in the design, construction, and maintenance of state highways (also known as the Design Standards or Standard Index).

Direct Burial: Installing a utility underground without encasement, typically by plowing or trenching.

Distribution Line: That part of a utility facility connecting its transmission lines with its individual customers or with the service lines of the individual customers.

Drainage Structure: Any structure providing drainage for the roadway other than a bridge.

Dry Boring: A method of boring where casing or carrier pipe can be jacked through bores carved progressively ahead of the leading edge of the advancing pipe as soil is moved through the pipe, normally with an auger that has been placed inside the pipe. Limited directional change can be achieved with new advances in equipment.

Duct: An enclosed tubular casing for protecting wires, lines, or cables, often flexible or semi-rigid.

Easement: A right, other than the acquisition of title, acquired to use or control property for a designated purpose.

Encasement: A methodology which serves one or two purposes. It may be a technique used to provide added protection for either a utility facility or the surrounding environment, by surrounding the utility facility with a rigid conduit designed to resist potential impacts or loading.

Encroachment: Unauthorized use of highway ROW or easements as for signs, fences, building, utilities, parking, storage, vegetation, landscaping, etc.

Equal Material: Products that perform in an equivalent manner in similar circumstances for an intended application.

Erosion Control: Practices used to minimize soil loss and the discharge of turbid runoff. Erosion control practices shall be in accordance with Local, State and Federal regulations.

Exception: Utility installations, adjustments, and relocations that are not in accordance with this Manual or TDOT policies.

APPENDIX C

Definitions

Final Billing: A detailed summary of the actual costs incurred by the Utility, including documentation necessary to verify the amounts expended in connection with the relocation of utility facilities for a transportation project.

Flowable Fill: A low strength, slurry-like fill material primarily used in below grade applications, such as utility trenches, where low strength and ease of placement are required. It is typically placed using conventional ready-mix concrete trucks. See TDOT Standard Specifications for Road and Bridge Construction.

Footprint Established, PDN Stage 2: The team sets the horizontal and vertical alignment and initiates work related to environmental, ROW, utilities, and construction. Functional Plans are developed.

Functional Design Plans: ROW plans, approximately 60% design plans developed during PDN Stage 2 for the construction of a roadway or bridge project.

Go-to-work Authorization: An authorization provided by the State for utilities to work within the public ROW. Authorization is provided through the issuance of a Go to Work letter once the Department has received and approved the required relocation package or at no cost due to no response in the required time frame.

Handhole: A pull box, junction box, or an access opening in an underground system which is typically used for the purpose of splicing or pulling cables.

Horizontal Clearance: The lateral distance from edge of traveled way to a roadside object or feature.

Horizontal Directional Drilling: A method of drilling where a remotely controlled cutting head is pushed from an entry pit through the soil under the surface. Changes in line and grade can be made as the operation proceeds. The cutting head is tracked electronically from the surface. Conduits, cables, or casings are pulled back through the opening, sometimes following an enlarging reamer. Drilling fluids are usually used for lubrication and to support the opening until the conduit, casing, or cable is pulled into place. Hydraulic cutting heads that remove the soil by washing or jetting are not allowed.

Inspector: The Department's authorized representative assigned to make detailed inspection of agreement or permit performance.

Intelligent Transportation System (ITS): A system used to collect, store, process, distribute, and use data about the movement of vehicles, people, and goods to enhance safety and security, reduce traffic congestion, save energy, and in other ways improve the performance of the State's highways. Two subsystems of ITS are Advanced Traveler Information System (ATIS) and Advanced Transportation Management System (ATMS).

Jack-in-place: Pushing a pipe horizontally under a roadway by mechanical means with or without boring.

APPENDIX C

Definitions

Jack and Bore: A semi-trenchless construction method used to make a crossing beneath highways railroad tracks, and other challenging obstacles. The Jack and Bore method consist of a rotating cutting head and auger internal to a steel casing that is advanced hydraulically. The internal auger turns to remove soils while the hydraulics advance the casing. Typically, an entrance and exit pit must be excavated in order to accommodate the auger and bore equipment.

Jacket: Encasement by concrete poured around a pipe.

Joint Use: The use of pole-lines, trenches, or other facilities by the Department, two or more Utilities, or a combination thereof.

Letting Date: The date set for contractor bid documents to be opened and publicly read.

Line and Grade Plans: Concept Level Plans developed early in roadway and bridge projects during PDN Stage 1 establishing horizontal and vertical alignments, and overall project footprint. Coordination begins with all disciplines that may be involved in the project while beginning the avoidance and minimization stages of project development.

Locate request: A communication between an excavator and Tennessee 811 in which a request for locating utility facilities is processed.

Locates: An information gathering process, which may involve a formal survey, to identify and define a utility's position. This information is used to determine the proximity of a utility to other features so as to prevent conflict during construction.

Maintenance: The work required to keep an existing utility facility in good state of repair without adding to its physical makeup or changing its physical capacity.

Maintenance of Traffic: The method by which traffic control through a work zone will be handled.

Make-Ready Work: All work, as reasonably determined by the pole owner, to prepare an existing Pole to receive Licensee's Attachments and to meet the National Electric Safety Code (NESC), or other reasonable requirements of the pole owner. Make-Ready Work also includes, but is not limited to, inspections, engineering, permitting and construction, but does not include the owner's routine maintenance, correcting existing violations, or make right work.

Make-Right Work: All work, as reasonably determined by the pole owner, to bring an existing Pole up to the standards, etc. as defined by the NESC, or any other reasonable requirements of the pole owner. Make-Right Work also includes, but is limited to, inspections, engineering, permitting, and construction.

Manhole, Handhole, Vault: An opening in an underground system by which access may be achieved for the purpose of making installations, inspections, repairs, connections, and tests.

APPENDIX C

Definitions

Manual on Uniform Traffic Control Devices, Current Edition (MUTCD): A document produced by the National Committee on Uniform Traffic control Devices to unify standards applicable to different classes of roads and street systems. http://mutcd.fhwa.dot.gov/kno-millennium.htm.

Mechanically Stabilized Earth (MSE) Wall: (synonymous with Proprietary Earth Wall) An engineering process that allows vertical walls to be employed without constructing a foundation for supporting the load. This is accomplished by distributing the stress through lateral stabilizing materials such as straps or fabrics between layers of soil.

Micro Trenching: Usually involves using a diamond circular saw to cut a 0.75 - 1.5 inch wide and commonly 4 inches deep trench. Microduct is installed in the bottom of the trench, and it is then backfilled and sealed. This method is not allowed on TDOT ROW since utilities must be installed at a minimum of 30 in. depth.

Miscellaneous Facility: The facility authorized in the permit, other than pole-line, buried cable, pipeline, or miscellaneous operations.

Miscellaneous Operations: The performance of miscellaneous operations as described in the permit.

Move In-State Contract: The Utility has opted to have the State Highway Contractor perform all relocation work as part of the State Contract.

Move Prior: The Utility has opted to perform their relocation work with the requirement that all conflicts will be resolved prior to the construction letting. If the Utility fails to remove all conflicts prior to the construction letting, the Utility automatically forfeits their reimbursement for any facilities within public ROW.

Natural Ground Surface: The ground surface in its original state before any grading, excavating or filling. Also referred to as “existing ground”.

One-Call: This is the term applied to the call center serving to prevent damage incidents and disruption of utility services and operating under the provisions of Tennessee’s Underground Utility Damage Prevention Act (TCA 65-31-101). Also referred to as Tennessee 811.

Open Cut: A method of underground utility installation that requires excavating the surface of the existing ground to the required depth for placing the utility.

Overhead/Subsurface Utility Engineering (SUE): According to the *ASCE Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data,* current edition, SUE is “a branch of engineering practice that involves managing certain risks associated with utility mapping at appropriate quality levels, utility coordination, utility relocation design and coordination, utility condition assessment, communication of utility data to concerned parties, utility relocation cost estimate, implementation of utility accommodation policies, and utility design.”

APPENDIX C

Definitions

Owner: The individual, company, government agency, etc. having ownership and responsibility for a utility facility.

P3 Project: A project in which TDOT contracts with a private sector partner for the design, construction, financing and potentially operation and maintenance of a public transportation project.

P3 Project Agreement: The contract between TDOT and a private sector partner administered by the Department, for a P3 Project.

Parties: The Department, the Utility; and the Contractor may be a party (or parties) where applicable.

Pavement Structure: The combination of subbase, base course, and surface course placed on a subgrade to support the traffic load and distribute it to the roadbed.

Permit: The legal document by which the Department regulates the use and/or occupancy of the ROW for a Utility. The term permit also may include all details, plans, special provisions, agreements, etc.

Pipe: A tubular product made as a production item for sale as such. Cylinders formed from plate in the course of the fabrication of auxiliary equipment are not pipe as defined here.

Pipeline: Any and all pipelines, hydrants, valve boxes, manholes, conduits, casings, and/or related fixtures authorized in the permit.

Plan-In-Hand, PDN Stage 3: The team completes all roadway design and produces plans for review. This plan set (Plan-In-Hand Plans) and a cost estimate represent a complete project design for all disciplines.

Pole Attachment Permit: A form which grants permission to the Department to install described facilities to and upon the Company's pole or poles.

Pole-line: Any and all poles, wires, guys, anchors, and/or related fixtures authorized in the permit.

Pothole: Similar to a Quality Level A Test Hole and may be excavated using similar techniques; however, it is not certified by a licensed engineer or surveyor, such that pothole data used for design purposes must be assumed to have sufficient accuracy related to the project survey datum.

Preliminary Engineering: Engineering activities required during the Plan Development Process of an active project that provides for all the necessary plans, documents, and any other supporting information necessary to determine utility impacts and the appropriate coordination.

APPENDIX C

Definitions

Prescriptive Easement: also known as an easement by prescription or adverse easement, is a legal right that allows someone to use another person's property for a specific purpose without the owner's permission. In Tennessee, a prescriptive easement can be established if someone uses another person's property in an open and obvious way for a period of time, and the owner is aware of the use but takes no action. The use must be adverse, meaning it's inconsistent with the owner's rights and without their express or implied permission.

Prior Rights: A prior vested right whereby a Utility is eligible for compensation for the relocation of utility facilities whose occupancy predates existing or proposed right-of-way. Prior Right should be understood as a property interest, not permission, not allowance or encroachment; a part of a bundle of rights sufficient to meet the intent of 23 CFR 645.111 and TDOT.

Private Lines: Facilities that are not owned by government entities, inclusive of any substantially owned or controlled subsidiary, and are generally considered facilities which are devoted exclusively to private use and not directly or indirectly serving the general public.

Progressive Design-Build (PDB): A project delivery method that involves a Design-Build Team early in the project's lifecycle. This method allows the design and construction phases to overlap, facilitating continuous collaboration among the owner, designers, and builders. It also promotes improved risk management, improvements to the construction schedule, a more streamlined design process and can lead to an overall faster project completion due to the overlapping phases.

Project Delivery Network (PDN): TDOT's current guide for the delivery and management of projects. The PDN includes an outline of stages activities, tasks, deliverables, and accompanying references. The following is a list of Stages:

Stage 0: Planning

Stage 1: Context/Scoping

Stage 2: Footprint Established

Stage 3: Plan-In-Hand

Stage 4: PS&E

Property Rights: Property interests owned by the utility, which is usually an easement, may be prescriptive rights.

PS&E, PDN Stage 4: The team finalizes the project's plans, specifications, and estimates (PS&E) and ensures all agreements, permits, and certifications are in place for contract letting.

Public Utilities: Generally considered those utility facilities which directly or indirectly serve the general public by conveying a product, power, or communication from the Utility to a customer and includes utility-type facilities that are owned by or dedicated to a governmental agency for its own use.

APPENDIX C

Definitions

Rainbow Plans: Utility Plans submitted by a Utility as part of the 'A' Date submittal. The plans are color coded as specified in the engineering authorization letter from TDOT to indicate status of existing facilities as well as any proposed changes to that status.

Red Flag: A component of utility risk assessment that raises to the level of potential project disruption or inability to deliver the State project, such as inability to meet BABA requirements.

Regulator Stations (sites): An appurtenance typically associated with gas pipelines for the control of pressure to a lesser pressure distribution main.

Relocation: The adjustment of utility facilities required for the construction, repair, improvement, maintenance, safe and effective operation, alteration or relocation of all or any portion of the highway. It includes removing and reinstalling the facility, including necessary temporary facilities, acquiring necessary ROW on the new location, moving, rearranging or changing the type of existing facilities, and taking any necessary safety and protective measures. It shall also mean constructing a replacement facility that is both functionally equivalent to the existing facility and necessary for continuous operation of the utility service, the project economy, or sequence of highway construction.

Relocation Contract: An Agreement providing for relocation or adjustment work to be performed by the Utility and/or its consultant or contractor and replacement easement, if applicable. The reimbursement by the Department is identified by the contract type. See Section 3.2.6 in the TDOT Utility Manual for additional information.

Request for Information (RFI): A formal process used by parties involved in the project to ask for additional details or clarification about certain aspects of the project documents or plans.

Resident/Project Engineer: The Tennessee Department of Transportation employee in charge of TDOT construction projects or consultant engineering inspection (CEI) services contracted for the project to serve this purpose.

Restricted Rights-of-Way Area: An area where insufficient border width exists to permit utilities to locate above ground fixed objects in compliance with minimum clear zone or environmental requirements.

Resurfacing, Restoration, and Rehabilitation (3R): Work undertaken to preserve and extend the service life of an existing highway and enhance highway safety.

Retired-In-Place Facilities: A utility facility taken out of service by the Utility but remaining physically in place. A Utility does not relinquish the ownership of a retired-in-place facility. This is allowed only by mutual agreement when immediate removal would cause greater disruption of the public's use of the facility than obstruction by allowing it to remain. Allowing a facility to be left in place is considered temporary and must be removed at any time in the future at the request of TDOT. All Placed Out of Service facilities are intended to remain out of service. Pipes placed out of service and of 2" or greater diameter shall be backfilled with flowable fill.

APPENDIX C

Definitions

Right-of-Way: A general term denoting land, property, interest therein, usually in a strip acquired or devoted to transportation purposes.

Rigid: A general term denoting pipes distressed by diametric deflection exceeding 1.0%. (Such as welded or bolted metallic pipe and reinforced, prestressed, or pretensioned concrete pressure pipe.)

Roadside: A general term denoting the area adjoining the outer edge of the roadway. Extensive areas between the roadways of a divided highway may also be considered roadside.

Roadway: The portion of a highway, including shoulders, for vehicular use.

Roll Plot: A CAD based tool consisting of a compilation of layout sheets from all utility facilities within the roadway project limits overlaid onto the roadway project layout sheets. Conflicts are identified and numbered as part of the Deconfliction process.

Schedule of Calendar Days: A required form for utilities relocating within the State's ROW. The form identifies the amount of time required to fully relocate their facilities as identified in their proposed relocation plans. The schedule of calendar days identifies the deadline for relocations to be complete within Go to Work Authorization.

Semi-rigid: A general term denoting tolerating diametric deflection up to 3.0%. (Such as large diameter concrete and metallic pipe).

Service Lines: Generally considered a special class of private lines. Whether the public utility facility is on or off highway ROW, the sole reason for a service line to be on the highway ROW is to facilitate its connection with a public utility.

Shoulder: The portion of the roadway continuous with the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

Sleeve: A short casing through a wall, pier, abutment, or similar highway structure.

Special Provisions: Additions or revisions to the *Utility Accommodation Policy and Standards Manual* or the Department's Standard or Supplemental Specifications, current edition, applicable to an individual permit, agreement or active project.

Standard Specifications: The TDOT's *Standard Specifications for Road and Bridge Construction,* current edition, including approved amendments thereto.

Surety: The corporate body or bodies bound with and for the Utility for the full and complete performance of the provisions in the permit.

Temporary Construction Easement: An area outside of the existing and/or proposed ROW line that is temporarily acquired for use by the State, its contractors or assigns for a prescribed period of time after the commencement of construction.

APPENDIX C

Definitions

Tennessee 811: Tennessee 811 serves as the statewide official one-call center. Tennessee 811 does not mark lines but functions as a communications link between our member utilities and anyone excavating. Tennessee's Underground Utility Damage Prevention Act (TCA 65-31-101) requires everyone who digs to contact Tennessee 811 at least three (3) working days' notice before starting a project.

Test Hole: A Quality Level A "Test Hole" is performed as part of a SUE investigation certified by a licensed engineer in order to physically expose and record precise vertical and horizontal locations of an underground utility.

Toe of Slope: The bottom of a slope of a fill or cut area, usually the lowest point of the slope.

Traffic Control Plan: Documentation of how traffic will be managed during a construction project in order to reduce risks for pedestrians, vehicles and workers, as well as provide an efficient flow around constructions sites

Transmission Lines: The part of a utility facility connecting its main energy or material source(s) with its distribution system, to which individual customers usually are not connected.

Traveled Way: The portion of the roadway used for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

Trenched: Installed in a narrow open excavation.

Trenchless Technology: The use of directional boring, horizontal drilling, tunneling, and other techniques used in the construction or installation of underground portions of facilities to minimize disruption and damage to ROW.

Use and Occupancy Agreement: The document (permit or agreement) by which the Department approves the use and occupancy of highway ROW by utility facilities or private lines when facilities are installed outside of the limits of an active project.

Utility: Any privately, publicly or cooperatively owned line, facility, or system for producing, transmitting or distributing communications, cable television, power, electricity, light, heat, gas, oil, crude products, water, steam, sewage, chemicals, clay, waste, irrigation structures and ditches, storm water not connected with highway drainage, and other similar services and commodities, including river gages, fire and police signals, and street lighting systems, which directly or indirectly serve the public. The term "Utility", when capitalized, may also be used to refer to the owner of any above-described utility or utility facility.

Utility Accommodation Policy: A statement of the policies and procedures used by the Department to regulate and accommodate Utilities on public ROW; Title 23 of the Code of Federal Regulations (CFR), Part 645.215 (b), the Federal Highway Administration (FHWA) requires the Department to develop its own Utility Accommodation Policy in order to receive federal funding. The policies, procedures and standards are contained in this Manual or as an addendum as needed.

APPENDIX C

Definitions

Utility Conflict List (UCL): A tool comprised of a list of utility conflicts in a Microsoft® Excel® format. Conflicts are numbered, utility names listed, located by station and offset from the Roll Plot, described by material or type, along with the description of the conflict. Conflicts are given a priority number (1+), a recommended resolution and finally a column is provided for the date of the resolution of the conflict.

Utility Conflict Management: A comprehensive multi-stage and multi-disciplined process that involves the systematic identification and resolution of utility conflicts as part of the overall project delivery process. Also referred to as "Deconfliction".

Utility Coordination Plans: Plans based on the Functional Plans (60%) and developed during PDN Stage 2. In additional to Title sheet, plan and profile sheets, typical sections and cross section sheets, the set shall include SUE level C representation of known utilities. Completed Utility Coordination Plans are sent to all known utility owners impacted by the project and initiating the 120 day A-Date Process.

Utility Driveways: Driveways for access to utility sites such as water tanks, water meters, sewer lift stations, telephone service cabinets, power substations, or gas regulator sites.

Utility Facility: The term "utility facility" shall include, but is not limited to, any and all poles, wires, guys, anchors, buried cable, conduit, pedestals, pipelines, hydrants, valve boxes, manholes, casings, river gages, and related fixtures authorized in the permit or agreement.

Utility Plans (U1s, U2s, etc.): Completed utility construction drawings based on B-Date submittals from the Utilities and incorporated into the final Construction Documents. U1 drawings include plans for relocations not included in the state contract. Utility relocation plans for each utility then follow beginning with U2 sheets for the first utility, U3 sheets for the second, and so on. These Utility Plans are incorporated into the Plan-in-Hand Plans as well as final Construction Documents.

Wireless Facility: Equipment at a fixed location that enables wireless communications between user equipment and a communications network.

Appendix D: Utility Owner Questions

Communications:

Do you have as-built drawings of your communication system? Yes ☐ No ☐

Do you provide cable service? Yes ☐ No ☐

Do you provide telephone service? Yes ☐ No ☐

Do you provide internet service? Yes ☐ No ☐

Do you have any future plans to replace your system? Yes ☐ No ☐

What is the size of your fiber optic line?

What size conduits are used?

Do you have a spare conduit the runs with the fiber? Yes ☐ No ☐

What is the size of your copper line?

What size conduits are used?

Is this a part of a duct run? Yes ☐ No ☐

Is the duct run encased? Yes ☐ No ☐

Is your communication system all underground? Yes ☐ No ☐

Is any of your system part of an overhead system? Yes ☐ No ☐

Do you have an easement for your overhead line? Yes ☐ No ☐

Who is the overhead utility provider?

Do you know the approximated depth of the system? Yes ☐ No ☐

Who will be the contact be for this project?

Do you have any road crossings? Yes ☐ No ☐

Who will be the contact during construction?

Do you have any easements inside or outside our ROW? Yes ☐ No ☐

What type of material is your conduit?

Is any of your system direct bury? Yes ☐ No ☐

Where are your specifications and details located?

APPENDIX D

Please list appurtenances that are part of your system:

Cable TV Pedestal Yes ☐ No ☐	Telephone Pedestal Yes ☐ No ☐	Telephone Manhole Yes ☐ No ☐
Telephone Vault Yes ☐ No ☐	Fiber Optic Hand Hole Yes ☐ No ☐	Telephone Hand Hole Yes ☐ No ☐
Cable TV Hand Hole Yes ☐ No ☐	Above Ground Main Panel Yes ☐ No ☐	Cell Tower Yes ☐ No ☐
Splice Vault Services Yes ☐ No ☐	Fiber Optic Markers Yes ☐ No ☐	TV Markers Yes ☐ No ☐
Telephone Markers Yes ☐ No ☐	Cable TV Markers Yes ☐ No ☐	

Electrical:

Do you have as-built drawings of your electrical system? Yes ☐ No ☐

Do you have any future plans to replace your system? Yes ☐ No ☐

Is the overhead line a transmission line? Yes ☐ No ☐

What is the size of your transmission line?

Is the overhead line a distribution line? Yes ☐ No ☐

What is the size of your distribution line?

Do have an underground line? Yes ☐ No ☐

What is the size of your underground line?

What is the size of the conduit?

Is there more than one line in the same trench? Yes ☐ No ☐

Is the conduit protected? Yes ☐ No ☐

Do you have drop down transformers? Yes ☐ No ☐

Do you have an easement for your overhead line? Yes ☐ No ☐

Do you know the approximated depth of the underground system? Yes ☐ No ☐

Who will be the contact be for this project?

Do you have any road crossings? Yes ☐ No ☐

Who will be the contact during construction?

Do you have any easements inside or outside our ROW? Yes ☐ No ☐

Where are your specifications and details located?

Do you have a franchise agreement? Yes ☐ No ☐

Please list appurtenances that are part of your system:

Transformer Vault Yes ☐ No ☐	Electric Manhole Yes ☐ No ☐	Electric Gear switch Vault Meter Set Yes ☐ No ☐
Electric Marker Yes ☐ No ☐	Guy Wire Yes ☐ No ☐	Services Yes ☐ No ☐
Overhead Drop Transformer Yes ☐ No ☐	Power Source	Overhead Line Single Pole Structure Yes ☐ No ☐
Overhead Line Double Pole Structure Yes ☐ No ☐	Overhead Line Triple Pole Structure Yes ☐ No ☐	TV Markers Yes ☐ No ☐

Natural Gas High pressure & Low Pressure:

Do you have as-built drawings of your gas system? Yes ☐ No ☐

Do you have any future plans to replace your system? Yes ☐ No ☐

What is the size of high-pressure gas line? Click or tap here to enter text.

What type of material is being used? Click or tap here to enter text.

What is the size of low-pressure gas line? Click or tap here to enter text.

What type of material is being used? Click or tap here to enter text.

Do you know the approximated depth of the system? Yes ☐ No ☐

Who will be the contact be for this project?Click or tap here to enter text.

Do you have any road crossings? Yes ☐ No ☐

Who will be the contact during construction? Click or tap here to enter text.

Do you have any easements inside or outside our ROW? Yes ☐ No ☐

Where are your specifications and details located? Click or tap here to enter text.

Please list appurtenances that are part of your system: Click or tap here to enter text.

Gas Line High Pressure Yes ☐ No ☐	Gas Line Low Pressure Yes ☐ No ☐	Gas Pressure Regulator Station Yes ☐ No ☐
Gas Manhole Yes ☐ No ☐	Propane Tank Yes ☐ No ☐	Gas Meter Yes ☐ No ☐
Gas Vent Yes ☐ No ☐	Gas Valve Yes ☐ No ☐	Services Yes ☐ No ☐
Gas Line Markers Yes ☐ No ☐		

Sewer Line:

Do you have as-built drawings of your sewer line? Yes ☐ No ☐

Do you have any future plans to replace your system? Yes ☐ No ☐

Is your sewer line a gravity system? Yes ☐ No ☐

Does any of your system operate under pressure? Yes ☐ No ☐

Do you know the approximated depth of the system? Yes ☐ No ☐

Are you a special district? Yes ☐ No ☐

Who will be the contact for this project? Click or tap here to enter text.

Do you have any crossings? Yes ☐ No ☐

Who will be the contact during construction? Click or tap here to enter text.

Do you have any easements inside or outside our ROW? Yes ☐ No ☐

What is the size of your sewer line? Yes ☐ No ☐

What type of material is your sewer line? Yes ☐ No ☐

Where are your specifications and details located? Yes ☐ No ☐

Please list appurtenances that are part of your system: Click or tap here to enter text.

Sewer Manholes Yes ☐ No ☐	Sewer Line Yes ☐ No ☐	Force Main Yes ☐ No ☐
Sewer Drop Manholes Yes ☐ No ☐	Vents Yes ☐ No ☐	Lift Station Yes ☐ No ☐
Sewer Cleanout Yes ☐ No ☐	Sewer Air Release Valve Yes ☐ No ☐	Sewer Valve Yes ☐ No ☐
Services Yes ☐ No ☐	Septic Tanks Yes ☐ No ☐	Leach Field Yes ☐ No ☐

Storm Sewer:

Do you have as-built drawings of your storm line? Yes ☐ No ☐

Do you have any future plans to replace your system? Yes ☐ No ☐

Is your storm line a tied to the sewer treatment plant? Yes ☐ No ☐

Does your storm line drain at independent locations? Yes ☐ No ☐

Do you know the approximated depth of the system? Yes ☐ No ☐

Are you a special district? Yes ☐ No ☐

Who will be the contact be for this project? Click or tap here to enter text.

Do you have any road crossings? Yes ☐ No ☐

Who will be the contact during construction? Click or tap here to enter text.

Do you have any easements inside or outside our ROW? Yes ☐ No ☐

What is the size of your storm line? Click or tap here to enter text.

What type of material is your storm line? Click or tap here to enter text.

Where are your specifications and details located? Click or tap here to enter text.

Please list appurtenances that are part of your system: Click or tap here to enter text.

Inlets Yes ☐ No ☐	Storm Manholes Yes ☐ No ☐	Storm Treatment Facilities Yes ☐ No ☐
CDOT Maintained Storm Yes ☐ No ☐		

Water Line Potable/Non-potable:

Do you have as-built drawings of you water line? Yes ☐ No ☐

Does your water line operate from any wells? Yes ☐ No ☐

Do you have any future plans to replace your system? Yes ☐ No ☐

Is your water line a looped system? Yes ☐ No ☐

Do you know the approximated depth of the system? Yes ☐ No ☐

Are you a special district? Yes ☐ No ☐

Who will be the contact be for this project? Click or tap here to enter text.

Do you have any road crossings? Yes ☐ No ☐

Who will be the contact during construction? Click or tap here to enter text.

Do you have any easements inside or outside our ROW? Yes ☐ No ☐

What is the size of your water line? Click or tap here to enter text.

What type of material is your water line? Click or tap here to enter text.

Where are your specifications and details located? Click or tap here to enter text.

Please list appurtenances that are part of your system: Click or tap here to enter text.

Water Line Yes ☐ No ☐	Prv Yes ☐ No ☐	Power Supply Vents Yes ☐ No ☐
Communication Line Yes ☐ No ☐	Air-Vac Manhole Yes ☐ No ☐	Valvers Yes ☐ No ☐
Guard Valve Yes ☐ No ☐	Vents Yes ☐ No ☐	Water Tanks Yes ☐ No ☐
Fire Hydrants Yes ☐ No ☐	Blow Off Valve Yes ☐ No ☐	Wellhouse Yes ☐ No ☐

Wells Yes ☐ No ☐	Monitoring Wells Yes ☐ No ☐	Services Yes ☐ No ☐
Water Meter Yes ☐ No ☐	Water Manhole Yes ☐ No ☐	Back Flow Preventer Yes ☐ No ☐

Non-Potable list:

Who will be the contact be for this project? Click or tap here to enter text.

Control Box Yes ☐ No ☐

Irrigation Heads/Sprinkler Yes ☐ No ☐

Blow Off Valve Yes ☐ No ☐

Power Source Yes ☐ No ☐

Control Valve Yes ☐ No ☐

Scheduling Relocations

It is important to understand that utilities follow a similar sequence of five steps to deliver a project.

When a utility must relocate their facilities due to a highway project, there are often steps in the process that are dependent on other activities to take place which are outside of their direct control. The dependencies create an intertwined relationship between TDOT and other utility owners' schedules. This most commonly takes place in the field during construction resulting in change orders, negatively impacting the Department's schedule and budget.

Identifying the critical-path schedule for utility relocations may ultimately eliminate costly delays in the overall project schedule if planned for accordingly. If possible, modifications to the construction phasing can be made to avoid delays that would otherwise be caused by critical-path utility relocations.

At a minimum, the Utility Coordinator should seek to identify the utility's estimated duration for each of the five sequences required for the utility to deliver a project along with the known dependencies to begin each process. The Utility Coordinator should review the provided schedule to identify if there are any conflicts or concerns with the Department's highway project.

Performing a phasing analysis for the utility relocations presents an **opportunity to discover unforeseen challenges that can be coordinated and resolved prior to construction** to mitigate the risks of costly delays.

Examples of relocation dependencies to consider:

ROW Acquisition

As covered in previous sections, utilities typically install their facilities within the state ROW as a form of convenience to serve the public. On highway projects the relocation of a utility could be dependent on the final closing of certain parcels. In addition, utility relocations on an urban project could be dependent on temporary construction easements acquired for the highway construction. It is important to note that the temporary construction easements do not go in effect until the highway construction has begun. Either scenario could negate the feasibility of a move-prior contract unless the utility has a plan to obtain easements separately.

Aerial Relocations

In many cases, utility poles are shared through an agreement with the primary power or communications provider in the area. A single pole can sometimes carry up to five or more communication lines owned by separate entities. When a single utility pole is relocated, the providers must coordinate and follow a specific sequence to transfer their facilities to the new pole starting with the highest wire and working down the pole to prevent entanglement of the wires.

In a situation where a communications provider has a combination of underground and aerial facilities, it may be necessary for underground relocations to be completed in conjunction with or prior to the aerial transfer to a new pole line.

Coordination may become more complex when the power company is included in the state contract and the communication providers are not. In such cases, the new poles are often set by the contractor after project letting, which means communication providers cannot relocate their lines before construction begins. This requires careful planning around calendar days, construction phasing, and utility relocation scheduling to ensure the work proceeds without delays.

Underground Relocations

When an existing underground utility is in conflict with a component(s) of a highway project, it is important to understand that the entire relocation required to mitigate the conflict(s) has to be completed so that the utility can provide uninterrupted service to their customers. On linear projects, this can pose challenges associated with terrain, ROW, structures, environmental features, etc. Reviewing the phasing requirements for the relocation of each underground relocation is important to understand the relationship between the highway construction, existing utility locations and other proposed utility relocations.

An example would be the proposed relocation of a waterline along a corridor with rolling terrain that consists of deep cuts and fills. Relocation of the waterline prior to the highway construction could require deep installations to prevent future conflicts with the required cuts or could place the waterline at an undesirable depth in the future once deep embankments are constructed. This type of scenario could negate the feasibility of a move-prior contract, require an alternate relocation plan, or place a schedule dependency of highway grading on the relocation of the waterline. In situations where there are small and/or localized conflicts with the highway construction or other proposed utility relocations, temporary relocations can be utilized to break the schedule dependencies allowing for streamlined construction.

APPENDIX F

Utility Impact / Conflict Matrix

Project Name:	**Date:**
Project ID:	**Prepared by:**
Project Description:	

Date	Conflict ID	Utility Owner	Facility Type	Size & Material	Plan Sheet No.	Location-Line & STA	Test Hole Number	Conflict Description	Utility Invesigations needed?	Cost Analysis	Resolution of Conflict	Date of Resolution/ Last Action

Table of Contents

APPENDIX G

ROW ACQUISITION STATUS REPORT

Property Owner	Buyer	Parcel Number	Group	Acreage	Appraisal Type	Commitment	Title & Encumbrance Report		R/W Engineering		APA		DOT Review		Appraisal		Review Appraisal		DOT Review		Right of Entry	Right of Way Secured		R/W Clear	
							Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Obtained	Projected	Actual	Projected	Clear (X)
Property Owner 1	D.T.	1	E	3.282 ac (P) 0.293 ac (T)	Various		N/A	12/15/2009	4/13/2011	4/13/2011	4/29/2011	5/1/2011	5/6/2011	5/10/2011	8/8/2011	8/31/2011	9/9/2011	9/13/2011	9/19/2011	11/1/2011		3/3/2012		6/1/2012	
Property Owner 2	D.T.	1SA		Sign Clearance																			12/9/2011	3/8/2012	
Property Owner 3	D.T.	1SB		Sign Clearance																		3/12/2012	2/29/2012	6/10/2012	
Property Owner 4	D.T.	1SC		Sign Clearance																			12/9/2011	3/8/2012	
Property Owner 5	D.T.	1SD		Sign Clearance																		2/15/2012	2/6/2012	5/15/2012	
Property Owner 6	D.T.	1SE		Sign Clearance																			12/9/2011	3/8/2012	
Property Owner 7	D.T.	2	D	0.239 ac (P) 0.062 ac (T)	Short Form		N/A	12/15/2009	3/1/2011	2/25/2011	3/15/2011	3/14/2011	3/25/2011	3/15/2011	5/27/2011	6/1/2011	6/10/2011	6/16/2011	6/27/2011	6/29/2011	Yes	8/8/2011	8/22/2011	1/5/2012	X
Property Owner 8	D.T.	3	D	0.435 ac (P)	Value Finding		N/A	12/15/2009	3/1/2011	2/25/2011	3/15/2011	3/14/2011	3/25/2011	3/17/2011	5/6/2011	5/19/2011	5/13/2011	5/23/2011	5/27/2011	5/26/2011		3/1/2012		5/30/2012	
Property Owner 9	D.T.	4	D	0.051 ac (P)	Waiver		N/A	12/15/2009	3/1/2011	2/25/2011	3/15/2011	3/14/2011	3/25/2011	3/17/2011	5/6/2011	5/19/2011	5/13/2011	5/23/2011	5/27/2011	5/26/2011	Yes	9/11/2011	9/8/2011	2/8/2012	X
Property Owner 10	D.T.	5	D	0.299 ac (P) 0.207 ac (T)	Short Form		N/A	12/15/2009	3/1/2011	2/25/2011	3/15/2011	3/14/2011	3/25/2011	3/17/2011	5/27/2011	5/19/2011	6/10/2011	5/23/2011	6/24/2011	5/26/2011	Yes	7/15/2011	6/29/2011	11/26/2011	X
Property Owner 11	D.T.	6	D	0.080 ac (P) 0.030 ac (T)	Long Form		N/A	12/15/2009	3/1/2011	2/25/2011	3/15/2011	3/14/2011	3/25/2011	3/15/2011	5/20/2011	6/8/2011	5/27/2011	6/16/2011	6/27/2011	7/5/2011	Yes	9/30/2011	10/28/2011 RESUBMIT 3/9/2012	6/7/2012	
Property Owner 12	D.T.	7	D	0.082 ac (P) 0.028 ac (T)	Long Form		N/A	12/15/2009	3/1/2011	2/25/2011	3/15/2011	3/14/2011	3/25/2011	3/15/2011	5/20/2011	6/16/2011	5/27/2011	6/20/2011	6/27/2011	7/5/2011	Yes	9/2/2011	9/7/2011	1/30/2012	X
Property Owner 13	D.T.	8	E	0.070 ac (P) 0.003 ac (T)	Value Finding		N/A	12/15/2009	3/10/2011	3/10/2011	3/24/2011	4/12/2011	4/20/2011	4/15/2011	5/6/2011	6/1/2011	5/13/2011	6/16/2011	6/27/2011	6/29/2011	Yes	9/30/2011	10/11/2011	4/5/2012	
Property Owner 14	D.T.	9	E	0.241 ac (P) 0.269 ac (T)	Value Finding	#2	N/A	12/15/2009	3/10/2011	3/29/2011	3/24/2011	4/12/2011	4/20/2011	4/15/2011	7/24/2011	6/23/2011	7/31/2011	7/13/2011	8/14/2011	7/26/2011	No	2/17/2012	Condmned 10/7/2011	5/17/2012	
Property Owner 15	B.J.	10	D	0.404 ac (P) 0.038 ac (T)	Short Form		N/A	12/15/2009	3/1/2011	2/25/2011	3/15/2011	3/14/2011	3/25/2011	3/15/2011	5/27/2011	5/19/2011	6/10/2011	5/23/2011 REV 8/18/11	6/24/2011	5/26/2011 REV 8/25/11		2/15/2012		5/15/2012	
Property Owner 16	D.T.	11	C	6,120 sf (P) 3,667 sf (T)	Short Form		N/A	12/15/2009	1/7/2011	1/7/2011	2/21/2011	2/20/2011	3/3/2011	2/22/2011	4/12/2011	4/14/2011	4/26/2011	4/22/2011	5/6/2011	5/6/2011	No	6/24/2011	6/21/2011	11/18/2011	X
Property Owner 17	D.T.	12	C	0.563 ac (P)	Short Form		N/A	12/15/2009	1/7/2011	1/7/2011	2/21/2011	2/20/2011	3/3/2011	2/22/2011	4/12/2011	4/14/2011	4/26/2011	4/22/2011	5/6/2011	5/6/2011	No	6/24/2011	6/21/2011	11/18/2011	X
Property Owner 18	B.J.	13	C	0.133 ac (P) 0.109 ac (T)	Value Finding		N/A	12/15/2009	1/7/2011	1/7/2011	2/21/2011	2/20/2011	3/3/2011	2/22/2011	4/12/2011	3/24/2011	4/26/2011	4/8/2011	4/29/2011	4/21/2011	Yes	7/1/2011	7/14/2011	11/28/2011	X
Property Owner 19	B.J.	14	C	0.096 ac (P) 0.012 ac (T)	Value Finding		N/A	12/15/2009	1/7/2011	1/7/2011	2/21/2011	2/20/2011	3/3/2011	2/22/2011	4/12/2011	3/24/2011	4/26/2011	4/8/2011	4/29/2011	4/28/2011	Yes	7/8/2011	7/14/2011	12/5/2011	X
Property Owner 20	B.J.	15	C	0.091 ac (P) 0.084 ac (T)	Long Form		N/A	12/15/2009	1/7/2011	1/7/2011	2/21/2011	2/20/2011	3/3/2011	2/22/2011	4/12/2011	3/21/2011	4/26/2011	4/8/2011	5/6/2011	4/21/2011	Yes	9/30/2011	10/7/2011	2/27/2012	X
Property Owner 21	B.J.	16	C	0.087 ac (P) 0.052 ac (T)	Value Finding		N/A	12/15/2009	1/7/2011	1/7/2011	2/21/2011	2/20/2011	3/3/2011	2/22/2011	4/12/2011	3/24/2011	4/26/2011	4/8/2011	4/29/2011	4/25/2011	Yes	6/27/2011	6/27/2011	11/24/2011	X
Property Owner 22	B.J.	17	C	0.105 ac (P) 0.041 ac (T)	Value Finding		N/A	12/15/2009	1/7/2011	1/7/2011	2/21/2011	2/20/2011	3/3/2011	2/22/2011	4/12/2011	3/24/2011	4/26/2011	4/8/2011	4/29/2011	4/27/2011	Yes	7/8/2011	7/11/2011	12/5/2011	X
Property Owner 23	B.J.	18	C	0.316 ac (P) 0.090 ac (T)	Long Form		N/A	12/15/2009	1/7/2011	1/7/2011	2/21/2011	2/20/2011	3/3/2011	2/22/2011	4/12/2011	3/21/2011	4/26/2011	4/8/2011	5/6/2011	4/21/2011	Yes	7/8/2011	8/30/2011	12/5/2011	X
Property Owner 24	B.J.	19	B	0.090 ac (P) 0.014 ac (T)	Long Form		N/A	12/15/2009	10/20/2010	10/20/2010	11/3/2010	11/5/2010	11/13/2010	11/17/2010	2/23/2011	2/22/2011	3/9/2011	2/23/2011	3/19/2011	3/9/2011	Yes	5/26/2011	5/26/2011	10/23/2011	X
Property Owner 25	T.L.	20	B	0.074 ac (P) 0.014 ac (T)	Long Form		N/A	12/15/2009	10/20/2010	10/20/2010	11/3/2010	11/5/2010	11/13/2010	11/17/2010	3/4/2011	2/28/2011	3/18/2011	3/4/2011	3/28/2011	3/22/2011	Yes	12/16/2011	12/1/2011	2/29/2012	
Property Owner 26	T.L.	21	B	0.065 ac (P)	Long Form		N/A	12/15/2009	10/20/2010	10/20/2010	11/3/2010	11/5/2010	11/13/2010	11/17/2010	3/4/2011	2/28/2001	3/18/2011	3/4/2011	3/28/2011	3/22/2011	Yes	7/22/2011	8/12/2011	12/19/2011	X
Property Owner 27	B.J.	22	B	0.092 ac (P)	Waiver		N/A	12/15/2009	10/20/2010	10/20/2010	11/3/2010	11/5/2010	11/13/2010	11/17/2010	2/18/2011	2/18/2011	3/4/2011	2/23/2011	3/14/2011	3/9/2011	Yes	5/29/2011	5/9/2011	10/6/2011	X
Property Owner 28	T.L.	23	B	0.057 ac (P) 0.028 ac (T)	Long Form		N/A	12/15/2009	10/20/2010	10/20/2010	11/3/2010	11/5/2010	11/13/2010	11/17/2010	3/4/2011	3/3/2011	3/18/2011	3/4/2011	3/28/2011	3/22/2011	No	7/1/2011	7/15/2011	11/28/2011	X
Property Owner 29	T.L.	24	B	0.062 ac (P) 0.036 ac (T)	Long Form		N/A	12/15/2009	10/20/2010	10/20/2010	11/3/2010	11/5/2010	11/13/2010	11/17/2010	2/23/2011	3/1/2011	3/9/2011	3/4/2011	3/19/2011	3/22/2011	Yes	6/29/2011	5/27/2011	10/24/2011	X
Property Owner 30	B.J.	25	A	0.062 ac (P) 0.012 ac (T)	Long Form		N/A	12/15/2009	7/30/2010	7/30/2010	9/9/2010	9/9/2010	10/7/2010	10/7/2010	3/4/2011	2/22/2011	3/18/2011	2/23/2011	3/28/2011	3/9/2011	Yes	6/27/2011	6/27/2011	11/24/2011	X
Property Owner 31	B.J.	26	A	0.055 ac (P) 0.005 ac (T)	Value Finding		N/A	12/15/2009	7/30/2010	7/30/2010	9/9/2010	9/9/2010	10/7/2010	10/7/2010	2/18/2011	2/18/2011	3/4/2011	2/23/2011	3/14/2011	3/9/2011	Yes	4/29/2011	4/25/2011	9/22/2011	X
Property Owner 32		27					N/A	12/15/2009		Eliminated															
Property Owner 33	T.L.	28	A	0.070 ac (P)	Short Form		N/A	12/15/2009	7/30/2010	7/30/2010	9/9/2010	9/9/2010	10/7/2010	10/7/2010	12/4/2010	1/7/2011	1/21/2011	1/20/2011	2/18/2011	2/17/2011	Yes	5/19/2011	3/22/2011	8/19/2011	X
Property Owner 34	D.T.	29	D	0.005 ac (T) 0.016 ac (T)	Value Finding	#3	N/A	12/15/2009	3/1/2011	2/25/2011	3/15/2011	3/14/2011	3/25/2011	3/15/2011	5/6/2011	6/1/2011	5/13/2011	6/16/2011	6/27/2011	6/29/2011	No	12/2/2011	12/9/2011	3/8/2012	
Property Owner 35		30	E				N/A	12/15/2009	3/10/2011	Eliminated															
Property Owner 36		31	E				N/A	12/15/2009	3/10/2011	Eliminated															
Property Owner 37		32	E				N/A	12/15/2009	3/10/2011	Eliminated															
Property Owner 38	D.T.	33	E	0.008 ac (T)	Waiver		N/A	12/15/2009	3/10/2011	3/10/2011	3/24/2011	4/12/2011	4/20/2011	4/15/2011	5/6/2011	5/19/2011	5/13/2011	5/23/2011	5/27/2011	5/26/2011	ELIMINATED	7/29/2011		12/26/2011	
Property Owner 39	D.T.	34	E	0.011 ac (P) 0.008 ac (T)	Waiver		N/A	12/15/2009	3/10/2011	3/10/2011	3/24/2011	4/12/2011	4/20/2011	4/15/2011	5/6/2011	5/19/2011	5/13/2011	5/23/2011	5/27/2011	5/26/2011	Yes	7/29/2011	7/15/2011	12/26/2011	X
Property Owner 40	D.T.	35	E	0.050 ac (T)	Waiver		N/A	12/15/2009	3/10/2011	3/10/2011	3/24/2011	4/12/2011	4/20/2011	4/15/2011	5/6/2011	5/19/2011	5/13/2011	5/23/2011	5/27/2011	5/26/2011	Yes	7/29/2011	7/15/2011	12/26/2011	X
Property Owner 41	T.L.	36	A	0.037 ac (T)	Value Finding	#1	N/A	12/15/2009	7/30/2010	7/30/2010	9/9/2010	9/9/2010	10/7/2010	10/7/2010	12/4/2010	1/7/2011	1/21/2011	1/20/2011	2/18/2011	2/17/2011	No	5/19/2011	4/11/2011	9/8/2011	X
Property Owner 42	T.L.	37	A	0.012 ac (T)	Waiver		N/A	12/15/2009	7/30/2010	7/30/2010	9/9/2010	9/9/2010	10/7/2010	10/7/2010	12/4/2010	1/7/2011	1/21/2011	1/20/2011	2/18/2011	2/17/2011	Yes	7/1/2011	7/22/2011	11/28/2011	X
Property Owner 43	T.L.	38	A	0.014 ac (T)	Waiver		N/A	12/15/2009	7/30/2010	7/30/2010	9/9/2010	9/9/2010	10/7/2010	10/7/2010	12/4/2010	1/7/2011	1/21/2011	1/20/2011	2/18/2011	2/17/2011	No	4/29/2011	5/19/2011	10/16/2011	X
Property Owner 44	T.L.	39	A	0.018 ac (T)	Value Finding		N/A	12/15/2009	7/30/2010	7/30/2010	9/9/2010	9/9/2010	10/7/2010	10/7/2010	12/4/2010	1/7/2011	1/21/2011	1/20/2011	2/18/2011	2/17/2011	No	7/1/2011	6/29/2011	11/26/2011	X

Table of Contents

APPENDIX G

ROW Exhibit

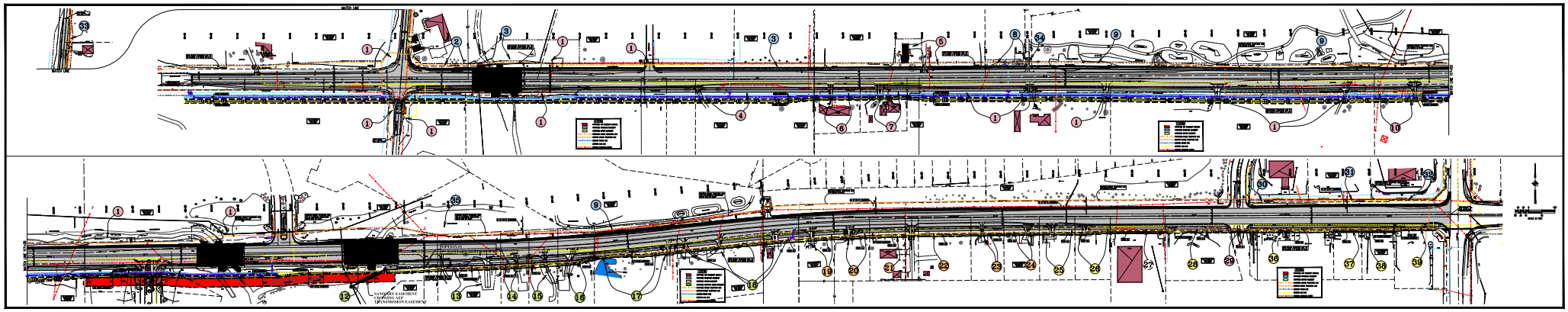


Table of Contents

ACKNOWLEDGEMENTS

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Dr. Shani Montes	Parsons	Contributing Author, Editor, Formatting
Daniel McMurtry	Parsons	Editor
Dr. Roy Sturgill	Parsons / ISU	Contributing Author
James Anspach	Parsons / ISU	Lead Author
Eric McElroy	Parsons	Advisor
Carl Chaifetz	Parsons	Reviewer
Cody Crews	Gresham Smith	Contributing Author
Kirschten Roberts	Gresham Smith	Contributing Author
Mark Holloran	Gresham Smith	Reviewer
Jody Vance	Gresham Smith	Advisor

TDOT Staff	Role
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Jennifer Lloyd	Reviewer/Advisor
Michael Horlacher	Reviewer/Advisor
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Andrew Miller	Reviewer/Advisor
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Douglas Ford	Reviewer/Advisor
Jim Waters	Reviewer/Advisor