

# Managing Utility Congestion Within Rights- of-Way

**Bryan Nemeth, Principal Investigator**  
Bolton & Menk, Inc.

**December 2019**

Research Report  
Final Report 2019RIC20



To request this document in an alternative format, such as braille or large print, call [651-366-4718](tel:651-366-4718) or [1-800-657-3774](tel:1-800-657-3774) (Greater Minnesota) or email your request to [ADArequest.dot@state.mn.us](mailto:ADArequest.dot@state.mn.us). Please request at least one week in advance.

## Technical Report Documentation Page

1. Report No. <b>MN/RC 2019RIC20</b>	2.	3. Recipients Accession No.	
4. Title and Subtitle <b>Managing Utility Congestion Within Rights-of-Way</b>		5. Report Date <b>December 2019</b>	
		6.	
7. Author(s) <b>Bryan Nemeth, Gina Aulwes, Jammi Ladwig</b>		8. Performing Organization Report No.	
9. Performing Organization Name and Address <b>Bolton &amp; Menk, Inc. 12224 Nicollet Ave Burnsville MN 55337</b>		10. Project/Task/Work Unit No.	
		11. Contract (C) or Grant (G) No.  <b>1033237</b>	
12. Sponsoring Organization Name and Address <b>Local Road Research Board Minnesota Department of Transportation Office of Research &amp; Innovation 395 John Ireland Boulevard, MS 330 St. Paul, Minnesota 55155-1899</b>		13. Type of Report and Period Covered	
		14. Sponsoring Agency Code	
15. Supplementary Notes  Final Report: <a href="http://mndot.gov/research/reports/2019/2019RIC20.pdf">http://mndot.gov/research/reports/2019/2019RIC20.pdf</a> Appendices: <a href="http://mndot.gov/research/reports/2019/2019RIC20A.pdf">http://mndot.gov/research/reports/2019/2019RIC20A.pdf</a> Guidebook: <a href="http://mndot.gov/research/reports/2019/2019RIC20G.pdf">http://mndot.gov/research/reports/2019/2019RIC20G.pdf</a>			
16. Abstract (Limit: 250 words)  Existing needs were identified when working with public utilities in rights-of-way (ROW). The needs include working in congested corridors, what to do with abandoned infrastructure, not receiving accurate mapping data from utility providers, not receiving requested information, how to address 5G and other new infrastructure, and not having construction requirements or expectations of utility service providers. Minnesota statutes and administrative rules are discussed in terms of agency and utility owner responsibilities in relation to utilities within public ROW. State statutes and rules provide guidance for cities and counties to implement local ordinances. This project synthesizes existing best management practices used by cities and counties to manage utilities within public ROW. Best management practices were identified through an online survey and discussions with members of the Technical Advisory Panel (TAP). Additional conversations or interviews were conducted with select survey respondents who identified best practices or provided informative documents from their agencies.			
17. Document Analysis/Descriptors <b>Public utilities, Infrastructure, Best practices, Right of way (land)</b>		18. Availability Statement <b>No restrictions. Document available from: National Technical Information Services, Alexandria, Virginia 22312</b>	
19. Security Class (this report) <b>Unclassified</b>	20. Security Class (this page) <b>Unclassified</b>	21. No. of Pages <b>38</b>	22. Price

# Managing Utility Congestion Within Rights-of-Way

## FINAL REPORT

*Prepared by:*

Bryan Nemeth  
Gina Aulwes  
Jammi Ladwig  
Bolton & Menk, Inc.

**December 2019**

*Published by:*

Minnesota Department of Transportation  
Office of Research & Innovation  
395 John Ireland Boulevard, MS 330  
St. Paul, Minnesota 55155-1899

This report represents the results of research conducted by the authors and does not necessarily represent the views or policies of the Minnesota Department of Transportation or Bolton & Menk, Inc. This report does not contain a standard or specified technique.

The authors, the Minnesota Department of Transportation and Bolton & Menk, Inc., do not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to this report.

## ACKNOWLEDGMENTS

We wish to thank the following sponsors and participants for their valuable input in the production of this document.

### Technical Advisory Panel

- Julie Long, City of Bloomington
- Paul Kauppi, City of White Bear Lake
- Mitch Bartelt, Washington County
- Mike Omstead, Hennepin County
- RJ Kakach, City of Golden Valley
- Jesse Farrell, City of Vadnais Heights
- Kent Exner, City of Hutchinson
- Ryan Halverson, City of Shakopee
- Michael Picha, Cardno
- Thomas Johnson-Kaiser, MnDOT

### Funding Sponsors

- Minnesota Local Road Research Board (LRRB)

### Other Contributors

- Gordon “Butch” McConnell, Dakota County

# TABLE OF CONTENTS

<b>CHAPTER 1: Introduction and Project Background.....</b>	<b>1</b>
1.1 Project Description .....	1
1.2 Project Planning and Meetings.....	1
1.2.1 Scoping Meeting (February 11, 2019) .....	1
1.2.2 Kickoff Meeting (April 22, 2019) .....	1
1.2.3 Coordination Meeting (June 10, 2019) .....	1
1.2.4 Coordination Meeting (July 22, 2019).....	2
<b>CHAPTER 2: Purpose and Need .....</b>	<b>3</b>
2.1 Purpose.....	3
2.2 Need.....	3
<b>CHAPTER 3: Existing Statutes, Administrative Rules and Rulings .....</b>	<b>5</b>
3.1 Existing Statutes and Administrative Rules .....	5
3.1.1 Minnesota Statute 216D .....	5
3.1.2 Minnesota Statute 237.162.....	6
3.1.3 Minnesota Administrative Rule 7819.1300.....	6
3.1.4 Minnesota Administrative Rule 7819.3300.....	7
3.1.5 Minnesota Administrative Rules 7819.4000 and 7819.4100 .....	7
3.2 Federal Communications Commission Declaratory Ruling and Third Report and Order.....	8
<b>CHAPTER 4: Survey Results: “Managing Utility Congestion in Rights-of-Way” .....</b>	<b>10</b>
4.1 Survey Results.....	10
4.1.1 Respondent-Provided Data .....	18
<b>CHAPTER 5: Best Practices.....</b>	<b>21</b>
5.1 MN Statutes and Administrative Rules .....	21
5.1.1 As Built Drawings:.....	21

5.1.2 Relocation of Existing Facilities: .....	21
5.1.3 Mapping Information: .....	21
5.1.4 Abandoned Facilities: .....	22
5.2 Registration & Permitting .....	23
5.3 Communications & Meetings .....	23
5.4 Utility & Construction Plans.....	25
5.5 Mapping Information.....	26
<b>CHAPTER 6: Summary and Conclusion .....</b>	<b>27</b>

*Appendices available at [mndot.gov/research/reports/2019/2019RIC20A.pdf](http://mndot.gov/research/reports/2019/2019RIC20A.pdf):*

**APPENDIX A Tap Meeting Minutes**

**APPENDIX B Managing Utility Congestion In Rights-of-Way Survey Results**

**APPENDIX C Survey Respondent Uploaded Documents**

**APPENDIX D Template Letters to Utility Providers**

## LIST OF FIGURES

Figure 1.1 Typical utility marking following GSOC, Fairview Township, Minnesota [Photo Credit: Bolton & Menk, Inc.] .....	2
Figure 2.1 While not considered a “congested corridor” intersections with multiple utilities require extensive coordination during road improvement projects, Chaska, Minnesota [Photo Credit: Bolton & Menk, Inc.] .....	4
Figure 3.1 Construction crew installing a water line, Chaska, Minnesota [Photo Credit: Bolton & Menk, Inc.] .....	7
Figure 3.2 Small cellular pole, Bloomington, Minnesota [Photo Credit: City of Bloomington] .....	9
Figure 4.1 Winter utility installation using a ditch witch, Shakopee, Minnesota [Photo Credit: Bolton & Menk, Inc.] .....	12
Figure 4.2 Landscape scar within ROW following cable-plow utility installation (center, filled with leaves), Fairview Township, Minnesota [Photo Credit: Bolton & Menk, Inc.] .....	20
Figure 5.1 New conduit installation (center) and abandoned lines (top), Chaska, Minnesota [Photo Credit: Bolton & Menk, Inc.] .....	22
Figure 5.2 Communication in the field for utility improvements during road construction projects, Chaska, Minnesota [Photo Credit: Bolton & Menk, Inc.] .....	24
Figure 5.3 Overhead utilities, Burnsville, Minnesota [Photo Credit: Bolton & Menk, Inc.] .....	25
Figure 5.4 New light pole base installation, Chaska, Minnesota [Photo Credit: Bolton & Menk, Inc.] .....	26

## LIST OF ABBREVIATIONS

COI	Certificate of Insurance
FCC	Federal Communications Commission
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GSOC	Gopher State One Call
IRU	Indefeasible Rights of Use
LRRB	Local Road Research Board
MnDOT	Minnesota Department of Transportation
ROW	Rights-of-Way
TAP	Technical Advisory Panel
UCM	Utility Accommodation & Coordination Manual

## EXECUTIVE SUMMARY

Public rights-of-way (ROW) are used for many purposes, such as helping to organize how people and goods or services are transported from one location to another. The services are typically in the form of utilities, for both public and private uses. These services include fiber optic, water, sewer, stormwater, electric, gas, and communication lines, such as phone and cable. Each of these utilities can conflict with the others, especially in crowded ROW or areas restricted by activities or structures of surrounding parcels, natural topography, or sensitive resources.

Through discussions with the Technical Advisory Panel (TAP), existing needs were identified for working with public utilities in the ROW. The needs include working in congested corridors, what to do with abandoned infrastructure, not receiving accurate mapping data from utility providers, not receiving requested information, how to address 5G and other new infrastructure, and not having construction requirements or expectations of utility service providers.

Minnesota statutes and administrative rules are discussed in terms of agency and utility owner responsibilities in relation to utilities within public ROW. The statutes and rules provide guidance for cities and counties to implement their local ordinance. State statutes of importance to working with utilities in public ROW include 216D and 237.162. Administrative rules that apply are 7819.1300, 7819.3300, 7819.4000, and 7819.4100. A key point of interest is that a ROW user may provide mapping or other locational data in the format that is currently used and maintained by the user.

This project synthesized existing best management practices used by cities and counties to manage utilities within public ROW. Best management practices were identified through an online survey and discussions with TAP members. Additional conversations or interviews were conducted with select survey respondents who identified effective best practices or provided informative documents from their agency. Best practices identified included a knowledge of applicable state statutes and administrative rules, registration and permitting requirements for utility providers, holding annual utility meetings, and following up with providers, especially those who do not attend meetings or respond to communication efforts. Having early discussions and keeping utility companies aware of any changes or upcoming projects are key, as is planning where utilities will be located prior to installation (one cannot tell a utility company where it has to locate, but one can indicate where it cannot go), and include language to contractually obligate the contractor to work with the utility companies. Mapping requests should be in X, Y, Z information, along with GPS locational data to ensure accuracy.

# CHAPTER 1: INTRODUCTION AND PROJECT BACKGROUND

## 1.1 PROJECT DESCRIPTION

The Local Road Research Board (LRRB) is concerned with how utilities coordinate and use public rights-of-way (ROW). This project provides background information on the requirements for utilities in public ROW, synthesizes best practices in relation to managing utilities within public ROW, and makes recommendations.

## 1.2 PROJECT PLANNING AND MEETINGS

As a part of the project-planning process, a series of Technical Advisory Panel (TAP) meetings were held. A complete copy of TAP meeting minutes can be found in **Appendix A**.

### 1.2.1 Scoping Meeting (February 11, 2019)

---

Meeting attendees included representatives from the cities of Bloomington, Shakopee, and White Bear Lake, representatives from Hennepin and Washington counties, the Principal Investigator from Bolton & Menk, Inc., and the Project Coordinator from the Minnesota Department of Transportation (MnDOT) Office of Research and Innovation.

The TAP meeting was held to introduce the project, discuss roles and responsibilities, and review the draft work plan. Meeting note highlights included an agreement that the project would culminate in a 2 to 10 page, user-friendly document that includes best practices as determined by the TAP.

### 1.2.2 Kickoff Meeting (April 22, 2019)

---

Meeting attendees included representatives from the cities of Bloomington, Golden Valley, Shakopee, White Bear Lake, and Vadnais Heights, representatives from Hennepin and Washington counties, the Principal Investigator from Bolton & Menk, Inc., two representatives from Cardno, and the Project Coordinator from MnDOT Office of Research and Innovation.

The TAP meeting was held to officially kick off the project and discuss upcoming project tasks. Participants discussed their current process of managing utilities and how those processes varied by agency. Research was being conducted on best practices used by various agencies and it was determined that case studies would be included in the analysis. It was also decided that a draft survey would be submitted to TAP members by May 17.

### 1.2.3 Coordination Meeting (June 10, 2019)

---

Meeting attendees included representatives from the cities of Bloomington, Golden Valley, Hutchinson, Shakopee, White Bear Lake, and Vadnais Heights, representatives from Hennepin and Washington counties, the Principal Investigator and another investigator from Bolton & Menk, Inc., and the Project Coordinator from MnDOT Office of Research and Innovation.

The TAP meeting was held to review the survey, discuss upcoming tasks (2-4), utility coordination research, best practice research, and case studies. The survey was completed, and a web link was to be submitted to the agencies by the Project Coordinator.

#### **1.2.4 Coordination Meeting (July 22, 2019)**

---

Meeting attendees included representatives from the cities of Bloomington, Golden Valley, Shakopee, White Bear Lake, and Vadnais Heights, representatives from Hennepin and Washington counties, the Principal Investigator and another investigator from Bolton & Menk, Inc., an individual from Cardno, and the Project Coordinator from MnDOT Office of Research and Innovation.

The TAP meeting was held to review the survey, discuss upcoming tasks (2-4), utility coordination research, best practice research, and case studies. The Issues and Need statement for the project was discussed, along with survey results. An additional TAP meeting was to be scheduled for late August or early September.



**Figure 1.1 Typical utility marking following GSOC, Fairview Township, Minnesota [Photo Credit: Bolton & Menk, Inc.]**

## CHAPTER 2: PURPOSE AND NEED

### 2.1 PURPOSE

The purpose of this project is to synthesize the existing best practices in relation to managing utilities within public rights-of-way (ROW). The purpose of this document is to report on the existing needs when working with utilities in public ROW.

### 2.2 NEED

Public agencies hold and manage ROW for their citizens to deliver public and private infrastructure services. The ROW are congested, partially due to the large number of utility service providers combined with the limited space within the ROW. Maintenance on existing utilities and the installation of new utilities is difficult with the large number of utilities and the general unknown of what exists within the ROW, and the location of the utilities. A public agency and utility provider may be aware of a utility service within a corridor, however precise locational information is lacking which could impact project cost and timeline and may damage other utilities.

This chapter summarizes the needs identified.

#### CONGESTED CORRIDORS

---

Public infrastructure utilities, such as water, sewer, and stormwater, are installed underground when communities are constructed. Private utilities are also more likely to be installed underground, adding more congestion. New installation using “trenchless excavation” by utility installers has resulted in greater unmarked utility service laterals.

Maintenance or improvements to existing underground utilities can be difficult, resulting in project delay, increased project costs, and potential damage to other utilities.

Private utilities experience buy-outs resulting in companies not knowing what utilities they own or where the utilities are located. Location data may not be provided to the new utility owners.

#### ABANDONED INFRASTRUCTURE

---

Facilities are occasionally abandoned when they are no longer needed or are disconnected by the utility company. The facilities may be left in-place rather than removed. Removal activities are often required in conjunction with other ROW repair, excavation, or construction. Facilities that are abandoned often do not have locate information.

#### INACCURATE MAPPING

---

Various forms of locational information are provided by private utility companies to public agencies. Some private utilities provide locational data of the utility in relation to centerline or edge of roadway, while some are provided as lines on a PDF map. When PDF maps are used they can often be older

outdated maps, such as older aerial photography. Utility locations may or may not be located after installation. Changes to the proposed mapping locations may not be provided to the agencies.

#### NOT RECEIVING REQUESTED INFORMATION

---

As part of the utility installation/maintenance permitting process, agencies often require as-builts or formal locational information. Private utility companies often do not submit as-builts after the construction process. If as-builts are submitted, it is after multiple requests or follow-up. Delayed or missing as-builts can affect project timelines, tying up agency staff while attempting to track down information, and determine the accuracy.

#### NEW INFRASTRUCTURE: 5G

---

Fifth-generation cellular wireless (5G) is a recent addition in private utilities services. While currently being tested in select locations, it is a service that is being developed in other areas. Many communities do not have policies or ordinances in-place to address 5G networks.

#### CONSTRUCTION REQUIREMENTS

---

Construction requirements and expectations of utility service providers vary based on type of utility, and where the facility is located (i.e. which city or county). The construction methods employed are not consistent and therefore are difficult to enforce.



**Figure 2.1** While not considered a “congested corridor” intersections with multiple utilities require extensive coordination during road improvement projects, Chaska, Minnesota [Photo Credit: Bolton & Menk, Inc.]

## CHAPTER 3: EXISTING STATUTES, ADMINISTRATIVE RULES AND RULINGS

### 3.1 EXISTING STATUTES AND ADMINISTRATIVE RULES

There exist various statutes and administrative rules in Minnesota law regarding utilities and local government units, and requirements of each. Below is a summarization of statutes and rules pertinent to the current study.

#### 3.1.1 Minnesota Statute 216D

---

In accordance with Minnesota statutes, Chapter 216D, “the information obtained from affected (utility) operators must be submitted on the final drawing used for the bid or contract and must depict the utility quality level of that information.” Per the 2016 Utility Accommodation & Coordination Manual (UCM; MnDOT) page 17 Sec. B, Sub b: utility owners are required to collect and depict information in accordance with statute 216D, and in accordance with procedures set forth in American Society of Civil Engineers (ASCE) Standard 38-02, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data. The utility quality levels are described in MnDOT’s UCM (August 2016; page 17-18) as:

1. Utility quality level – professional opinion on the quality and reliability of utility information. There are four levels of information, ranging from the most reliable, level A, to the least reliable, level D.
  - a. Utility Quality Level D – Information derived from existing records or oral recollections.
  - b. Utility Quality Level C – Information obtained by surveying and plotting visible above-ground utility features and by using professional judgement in correlating this information to quality level D information.
  - c. Utility Quality Level B – Information obtained through application of appropriate subsurface geophysical methods to determine the existence and approximate horizontal position of subsurface utility facilities. Quality level B data should be reproducible by surface geophysics at any point of their depiction. This information is surveyed to applicable tolerances defined by the project and reduced onto plan documents.
  - d. Utility Quality Level A – Precise horizontal and vertical location of utility facilities obtained by the actual exposure (or verification of previously exposed and surveyed utility facilities) and subsequent measurement of subsurface utility facilities, usually at a specific point. Minimally intrusive excavation equipment is typically used to minimize the potential for utility damage. A precise horizontal and vertical location, as well as other utility attributes, is shown on plan documents. Accuracy is typically set to 15-mm (0.05 feet) vertical and to

applicable horizontal survey and mapping accuracy as defined or expected by the project owner.

Based on responses received from a survey distributed to Minnesota counties and cities, the following were identified in regard to typical accuracy for locational information provided by utilities:

High:	Petroleum/oil/pressurized gas lines
Medium:	Fiber optic communications, public utilities, electric
Low:	Cable TV, copper communications

### **3.1.2 Minnesota Statute 237.162**

---

Minnesota statute 237.162 provides definitions for various terms involved in the language of rights-of-way (ROW), utilities, and other elements of utility permitting or work. Of importance, Subdivision 8 states what local government units are authorized to do to “manage the public right-of-way”:

- 1) Require registration;
- 2) Require construction performance bonds and insurance coverage;
- 3) Establish installation and construction standards;
- 4) Establish and define location and relocation requirements for equipment and facilities;
- 5) Establish coordination and timing requirements;
- 6) Require telecommunications right-of-way users to submit, for right-of-way projects commenced after May 10, 1997 ... project data reasonably necessary to allow the local government unit to develop a right-of-way mapping system, such as a geographical information mapping system;
- 7) Require telecommunication right-of-way users to submit, upon request of a local government unit, existing data on the location of the user’s facilities occupying the public right-of-way within the local government unit...
- 8) Establish right-of-way permitting requirements for street excavation and obstruction;
- 9) Establish removal requirements for abandoned equipment or facilities, if required in conjunction with other right-of-way repair, excavation, or construction; and
- 10) Impose reasonable penalties for unreasonable delays in construction.

### **3.1.3 Minnesota Administrative Rule 7819.1300**

---

Minnesota statute 7819.1300 pertains to completion certificates, which has implications for “as built” drawings. Subpart 2 states that “the permittee shall submit ‘as built’ drawings or maps within six months of completing work, showing any deviations from the plan that are greater than plus or minus two feet.” This is required when necessitated by the local government unit as part of its permit process and when changes from projected/permitted work are required.

### 3.1.4 Minnesota Administrative Rule 7819.3300

---

Minnesota statute 7819.3300 pertains to abandoned facilities and ROW user responsibility to local government units. If an abandoned facility is present in a ROW, the user shall “remove them from that right-of-way if required by in conjunction with other right-of-way repair, excavation, or construction, unless this requirement is waived by the local government unit.”

### 3.1.5 Minnesota Administrative Rules 7819.4000 and 7819.4100

---

Minnesota statutes 7819.4000 and 7819.4100 pertain to the local government unit’s right to establish, develop, and implement ROW mapping systems and what information is required from users. 7819.4100 Subpart 2 specifies what a local government unit may require as part of its permit application:

- A. Location and approximate depth of applicant’s mains, cables, conduits, switches, and related equipment and facilities with the location based on:
  - 1. Offsets from property lines, distances from the centerline of the public right-of-way, and curb lines as determined by the local government unit;
  - 2. Coordinates derived from the coordinate system being used by the local government unit; or
  - 3. Any other system agreed upon by the right-of-way user and local government unit;
- B. The type and size of the utility facility;
- C. A description showing aboveground appurtenances;
- D. A legend explaining symbols, characters, abbreviations, scale, and other data shown on the map; and
- E. Any facilities to be abandoned ...

A ROW user may provide mapping or other locational data in the format that is currently used and maintained by the user.



**Figure 3.1 Construction crew installing a water line, Chaska, Minnesota [Photo Credit: Bolton & Menk, Inc.]**

### 3.2 FEDERAL COMMUNICATIONS COMMISSION DECLARATORY RULING AND THIRD

The Federal Communications Commission (FCC) adopted a Declaratory Ruling and Third Report and Order on September 27, 2018 in the Matter of Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment (FCC 18-133).

Permitting and registration for wireless broadband deployment (including 5G) must be in accordance with the Final Rules adopted. From the rules, the following are the presumptively reasonable periods of time for action on applications seeking authorization for deployments in the categories set forth below:

- (1) Review of an application to collocate a Small Wireless Facility using an existing structure: 60 days.
- (2) Review of an application to collocate a facility other than a Small Wireless Facility using an existing structure: 90 days.
- (3) Review of an application to deploy a Small Wireless Facility using a new structure: 90 days.
- (4) Review of an application to deploy a facility other than a Small Wireless Facility using a new structure: 150 days.

Small wireless facilities, consistent with section 1.1312(e)(2), are facilities that meet each of the following conditions:

- (1) The facilities—
  - (i) are mounted on structures 50 feet or less in height including their antennas as defined in section 1.1320(d), or
  - (ii) are mounted on structures no more than 10 percent taller than other adjacent structures, or
  - (iii) do not extend existing structures on which they are located to a height of more than 50 feet or by more than 10 percent, whichever is greater;
- (2) Each antenna associated with the deployment, excluding associated antenna equipment (as defined in the definition of antenna in section 1.1320(d)), is no more than three cubic feet in volume;
- (3) All other wireless equipment associated with the structure, including the wireless equipment associated with the antenna and any pre-existing associated equipment on the structure, is no more than 28 cubic feet in volume;
- (4) The facilities do not require antenna structure registration under part 17 of this chapter;
- (5) The facilities are not located on Tribal lands, as defined under 36 CFR 800.16(x); and
- (6) The facilities do not result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in section 1.1307(b).

Additionally, U.S. Code Sections 253 and 332 identify the fees for applications and maintenance of the ROW or a structure within ROW. ROW access fees, and fees for the use of government property in the ROW, such as light poles, traffic lights, utility poles, and other similar property suitable for hosting Small Wireless Facilities, as well as application or review fees and similar fees imposed by a state or local government as part of their regulation of the deployment of Small Wireless Facilities inside and outside

the ROW, violate Sections 253 or 332(c)(7) unless these conditions are met: (1) the fees are a reasonable approximation of the state or local government's costs,<sup>131</sup> (2) only objectively reasonable costs are factored into those fees, and (3) the fees are no higher than the fees charged to similarly-situated competitors in similar situations.

While the Final Rules did not include specific fee rates, the FCC Declaratory Ruling FCC 18-133 did provide proposed fee levels that would not be prohibited by Section 253 or Section 332(c)(7): (a) \$500 for non-recurring fees, including a single up-front application that includes up to five Small Wireless Facilities, with an additional \$100 for each Small Wireless Facility beyond five, or \$1,000 for non-recurring fees for a new pole (i.e., not a collocation) intended to support one or more Small Wireless Facilities; and (b) \$270 per Small Wireless Facility per year for all recurring fees, including any possible ROW access fee or fee for attachment to municipally-owned structures in the ROW.



**Figure 3.2 Small cellular pole, Bloomington, Minnesota [Photo Credit: City of Bloomington]**

## CHAPTER 4: SURVEY RESULTS: “MANAGING UTILITY CONGESTION IN RIGHTS-OF-WAY”

### 4.1 SURVEY RESULTS

A 26-question survey titled “Managing Utility Congestion in Rights-of-Way” (ROW) was emailed to counties and cities of Minnesota on June 3, 2019. The survey utilized an online survey platform (Survey Monkey). Responses were received from 33 different individuals representing 14 cities, 17 counties, and 2 privately employed individuals (from Bolton & Menk, Inc.). The respondents were a mix between the 7-county metro area and Greater Minnesota: 4 metro counties and 13 counties in Greater Minnesota. Likewise, cities were a mix between metro cities (8) and Greater Minnesota cities (6). Most respondents had job titles classified as an Engineer (City, County, Traffic, Principal, etc.), Project Manager, Public Works Director, or Senior Technician. The first two questions (**Questions 1 and 2**) asked respondents to provide their name, agency, address, contact information, and job title. Survey results for each question are outlined below. Note that response summaries below are regarding responses received per question, not in relation to percentages given the total number of overall respondents (33 individuals), as some did not supply data for different questions/utilities. The full survey results can be found in **Appendix B**.

**Questions 3 through 8** were written so respondents could provide answers for electric, communications, gas/oil, and public utilities. The survey form highlighted what was meant by each of these utility terms:

#### Electric

Electric Transmission Line; Electric Cooperative

#### Communications

Copper; Fiber Optic; Wireless (including small cellular – boost cellular); Cable TV

#### Gas/Oil (high and low pressure)

Natural Gas; Petroleum

#### Public/Municipal Utilities

Drinking Water; Sanitary Sewer; Storm Sewer; Drainage

**Question 3.** What type of locational information is supplied by utility providers?

Respondents could answer for multiple locational information categories for this question. The most common response was map locational information (84 – 94% across all utilities), followed by text-only written descriptions (79 – 89% across all utilities). GIS data/GPS coordinated were reported at 50% and 60% for electric and public utilities, respectively, and less for communications and gas/oil. CAD data was again most common for electric and public utilities (64%), and less for the other utilities.

**Question 4.** What is the locational information based on?

The most common locational measurement across the utilities, save for public utilities, was distance from the centerline of public ROW (81 – 94%). For public utilities, the most common measurement (91%) was the distance from the curb line. Offset distance from property lines was the least common measurement, except for gas/oil (85%). Some respondents provided information regarding other locational information. These responses are summarized below:

- Distance from edge of bituminous
- Distance from manholes and hydrants
- General route only unless field located
- GPS coordinates
- Maps showing other defining geographic features like buildings, etc.
- Most private utility maps are just general representations of what is in the area and in some cases are not to scale or graphically in the correct location
- They currently do not give offset they draw a line on a document... started requiring them to supply their map with aerial imagery

**Question 5.** What installation information is supplied by each utility provider?

Respondents indicated that typically 70% to 80% of utility providers administer this installation information (depth of conductor/conduit; total linear feet; overhead or underground; if attached to a bridge; collocate on existing; method of installation). Across all installation information, communications most consistently supplied this data (85%). The least common installation information shared across all utilities was if attached to a bridge (69%), followed by collocate on existing (71%). Overhead or underground information was typically supplied by electric and communications (90 – 93%), and less so by gas/oil and public utilities (73 – 77%).

**Question 6.** What method of installation is typically used for each utility type?

Generally, directional boring was the most common method of installation (82%) and was the most utilized method for electric and communications utility providers. The most common method of installation for gas/oil and public utilities was open trench (78 and 88%, respectively) followed by jacking (50 and 88%, respectively). After directional boring (82%), direct bury (71%) was the most common reported method across all utilities; the least common method was core drill (38%). For communications hand dig was another common method of installation (92%).



**Figure 4.1 Winter utility installation using a ditch witch, Shakopee, Minnesota [Photo Credit: Bolton & Menk, Inc.]**

**Question 7.** What additional information is supplied by each utility provider for underground utilities?

Lifespan of conductor only had one responder (Bolton & Menk, Inc.) that indicated this information was supplied by public utilities. The remaining results exclude the lifespan of conductor category.

Electric utilities provide the most additional information (80%) followed by communications and gas/oil (62 – 61%), and lastly public utilities (56%). More than 88% of respondents said electric utilities provide additional information for all categories except conduit (duct) type/casing information (77%) and pressure (13%). The most common additional information supplied by utility providers across all utilities was proposed work start/end date (84%), followed by size of conductor/conduit (80%); least common were pressure (39%) and voltage (38%).

Communications utilities supplied additional information at least 79% of the time in all categories except height of conductor (36%), voltage (23%), and pressure (13%). There was a notable amount of variation with what public utilities provided. Proposed work start/end date was supplied most often (75%), followed by size of conductor/conduit (71%); least often reported was voltage (38%). Gas/oil utilities

provided pressure information 100% of the time, but otherwise generally provided less information than other utility providers in the remaining categories.

**Question 8.** What additional information is supplied by each utility provider for overhead utilities?

Lifespan of conductor had no responses; thus, this information is not supplied by any utilities, according to respondents. This response has been factored out for the percentages discussed below. Electric utilities provided the most information of any utility (94%), followed by communications (66%), public utilities (22%), and the least supplied by gas/oil (9%). It is worthy of note that overhead utilities tend to be electric or communications related, thus some questions are not pertinent to gas/oil nor public utilities.

Only a few categories of information (except conductor lifespan, as noted above) were *not* reported 100% of the time by electric utilities. Type of installation/mount for collocation (80%) and conduit/duct & type-casing information (78%), were the only additional information *not* supplied 100% of the time for electric. Communication utilities most often supplied proposed start & end dates (93%), followed by type of installation/mount for collocation (80%); least reported is line voltage (19%).

Public utilities and gas/oil were most likely (44 – 33%, respectively) to provide proposed start & end date of all additional information as pertains to overhead utilities.

**Questions 9 through 12** ask if electric, communications, gas/oil, and public utilities providers supply accuracy information. Questions are discussed individually below, with a synopsis of utility accuracy information at the end of the series. Respondents were asked to comment on the following, if they answered YES to providing accuracy information:

- Please describe accuracy range (example: plus/minus 2 feet)
- Please indicate how confident you are in the provided accuracy range (Not/Somewhat/Very Confident)

**Question 9.** ELECTRIC accuracy information

Respondents reported that electric utilities mostly do not (65%) supply accuracy information. Of the utility providers that do supply this information, most respondents note this information to be accurate within 1 to 2 feet. One respondent commented that horizontal accuracy is usually greater than vertical accuracy.

Accuracy information was reported to have been provided to cities (Bloomington, Hutchinson, Minneapolis, St. Michael, White Bear Lake), counties (Chisago, Mille Lacs, Hennepin, and Olmstead), and companies (Bolton & Menk, Inc.).

**Question 10.** COMMUNICATIONS accuracy information

Respondents reported that communications utilities mostly do not (74%) supply accuracy information. Most respondents note this information to be accurate within approximately 2 feet.

**Question 11.** GAS/OIL accuracy information

Respondents reported that gas/oil utilities generally do not (58%) supply accuracy information. Respondent comments were more varied than for other utilities regarding confidence of accuracy ranges, from 6 inches to 2 feet. One answer provided notes that while gas maps are usually fairly accurate, they don't usually account for abandoned facilities, leading to unexpected finds in the field.

**Question 12.** PUBLIC UTILITY accuracy information

Respondents reported that electric utilities mostly do not (60%) supply accuracy information. Most respondents note this information to be accurate within 1 to 2 feet.

**Question 13.** Does your agency require utility providers to register prior to any work permit application? If "YES", please upload a copy of your agency's utility provider registration form.

No: 58%  
Yes: 42%

A total of 11 registration forms were uploaded.

**Question 14.** Does your agency require a permit or agreement for utility installation? If "YES", please upload a copy of your agency's utility installation permit or agreement.

No: 3%  
Yes: 97%

A response of "no" was given by one City of Minneapolis respondent, and "yes" by another. It is believed that the "no" response was given in error; therefore, it can be said that agencies do require permits or agreements for utility installation. 23 utility installation permit forms were uploaded.

**Question 15.** Does your agency require a permit or agreement for utility improvements/maintenance? If "YES", please upload a copy of your agency's utility improvements/maintenance permit form or agreement.

No: 23%  
Yes: 77%

A total of 18 utility improvements/maintenance permit forms or agreements were uploaded.

**Question 16.** What permits are required for utility installation/maintenance? (*Check all that apply.*)

- ☐ Access permit
- ☐ Excavation/grading permit
- ☐ Landscaping permit
- ☐ Obstruction permit
- ☐ Right of way permit
- ☐ Other (*describe*): \_\_\_\_\_

ROW permits (83%) were the most often required followed by obstruction (33%), excavation/grading (23%), access (10%), and landscaping (7%) permits. 9 respondents wrote in other permits, 7 of which wrote “utility permit”. One respondent indicated that watershed and MPCA permits are required. Another respondent said that small cell signal box wrapping required a permit.

**Question 17.** Are utility providers required to locate their utilities after installation?

- ☐ NO
- ☐ YES

No: 67%  
Yes: 33%

Of the respondents who require utility providers to locate their utilities after installation, 4 are from counties (Mille Lacs, Pipestone, Ramsey, and Scott) and 6 are from cities (Bloomington, Hutchinson, Minneapolis, Rochester, and St. Louis Park).

**Question 18.** Does your agency require as-builts after utility installation?

- ☐ NO
- ☐ YES

No: 70%  
Yes: 30%

**Question 19.** Does your agency receive as-builts after installation?

- ☐ NO
- ☐ YES

**If YES:**

- a. How long on average does it take to receive as-builts after utilities have been installed? *Please provide your response in months.*
- b. Of the as-builts received, what percentage were received only after more than one request to the provider?

No: 87%  
Yes: 13%

Respondents who do receive as-builts include the City of Minneapolis, Lincoln County, and a company (Bolton & Menk, Inc.). Of those who do receive as-builts, there was no consensus on how long it usually takes to receive them. Time varied from 6 months to even years and was noted to “drastically differ.” Also, more than one request was usually needed before as-builts were received.

**Questions 20.** Does your agency have a process for working in a congested corridor?

- ☐ NO
- ☐ YES

**If YES:**

- a. Please describe your process for working in congested corridors.

- b. Are collocates required as part of working in congested corridors?

☐ NO  
☐ YES

No: 74%

Yes: 26%

Of the 7 people who said they have a process for working in congested corridors, 3 mentioned joint trenching as the process. Respondents who answered affirmatively include cities (Bloomington, Crystal, and Minneapolis), counties (Chisago, Hennepin, and Scott), and companies (Bolton & Menk, Inc.). Other respondents commented that one lane is utilized at a time (no dual systems), on-site locate meets are held, and one respondent noted that UI2 (collaborative planning GIS platform) is used to alert municipalities and utility companies of future projects in an effort to coordinate activities. Collocates were required by 57% of the agencies.

**Question 21.** Does your agency install its own conduits (ducts) and lease out to utility providers?

☐ NO  
☐ YES

**If YES,** do you charge fees to utility providers to lease your conduits (ducts)?

☐ NO → **If NO,** are you considering doing so in the future? ☐ NO ☐ YES

☐ YES, provide cost and length of lease: \_\_\_\_\_

Only 1 person said their agency (City of St. Louis Park) installs its own conduits and leases them. The City of St. Louis Park charges a fee to utility providers to lease these conduits (\$8/foot X .66 or a trade of assets of approximately equal value). Leases can be 5 (short term) to 20 (Indefeasible Rights of Use-IRU) years long. Of those who said their agency does not install and lease its own conduits, 13% said they are considering leasing in the future. The option to install and lease conduits is being considered by three counties (Dakota, St. Louis, and Washington), and one city (Bloomington). The remaining 87% reported that they not considering it.

**Question 22.** Do you have a process or permit for removing abandoned facilities?

☐ NO  
☐ YES

**If YES,** please describe your process your removing abandoned facilities.

67% of respondents did not have a process or permit for removing abandoned facilities. Of the 33% that did have a process or permit, most mentioned removing old/abandoned facilities per MN Rules or City Statutes/Ordinances, thought there was some variation. Several respondents noted that filled utilities can stay in the ground if removal is not practical or if there is an agreement that they will be removed during future construction activities (i.e. street reconstruction). One respondent noted that old/abandoned utilities are not removal unless there is a city project.

**Question 23.** Does your agency have best practices when working with utilities?

☐ NO  
☐ YES

**If YES,** please describe your best practices.

No: 52%

Yes: 48%

Of the 15 respondents who indicated they did have best practices, 13 provided descriptions. There is not a common thread in the descriptions of best practices. Some agencies have a checklist or a 10-step process, while others require meetings or have general recommendations. A listing of responses is provided below.

- GSOC.
- For large utility projects, City staff prescribe pavement restoration requirements and management of traffic.
- We have some best practices for permit conditions and requirements, such as erosion control BMP's to be used.
- Follow MnDOT process.
- Must be able to dig one without disturbing the others.
- Give as much information as you can for your current design... give the utility provider the options for where they can relocate based on design... Get in contact with the providers early, be persistent, and continue to follow up.
- ROW ordinance utility coordination checklist.
- Traffic and erosion control, along with underground, overhead, and restoration, specifications are listed in provisions and details of permits.
- Hold on site meetings; talk with people responsible for installing and maintaining the facility.
- 10 step process for working with utility companies during design phase of projects.

**Question 24.** We would like copies of your ordinances or other policies regarding utility placement. Please provide a website link to ordinances or upload documents.

A total of 13 website links were provided, and 10 documents were uploaded. Most website links were for City or County ordinances, with some permit application examples, or public works specifications and standards. Uploaded documents were generally ordinances, permit applications, related to ROW, or utility procedures.

**Question 25.** Please provide any information you feel was not addressed in the survey or add information relating to one of your earlier responses.

Respondents did not indicate that any information was not addressed by the survey, other than one comment that the locating of utilities is required by state law.

Additional information offered by respondents included:

- Utility permit is required any time something is left in ROW (including farmer's tile crossing or storm sewer and utilities).
- Electric and natural gas are municipal owned utilities.
- ROW/utility permit fee of \$200 is required; however, the fee is waived if relocation/reinstallation is required due to a county construction project.
- County made up of 46 municipalities allows individual agencies to require certain best practices, which are placed on permit.

**Question 26.** Please upload any additional document that you would like to share.

A total of 3 additional documents were uploaded, including:

- Utility Detail Plates (City of St. Michael)
- ROW Permit General Conditions (City of Rochester)
- Utility E process for plans (Dakota County)

The survey did indicate that utilities generally fall into the following categories for the Utility Quality Levels:

Level A: Petroleum/oil/pressurized gas lines  
Level B: Public Utilities (water, sewer)/Fiber Optic Communication  
Level C: Electric/natural gas lines  
Level D: Cable TV/copper communication

#### **4.1.1 Respondent-Provided Data**

---

Survey respondents uploaded data for several of the survey questions. Below is a summarization of information as it is pertinent to the study. A full record of survey answers and uploaded documents can be found in **Appendix C**.

##### **4.1.1.1 City, County, and State Utility Permit Rights-of-Way Application Examples**

Permit application examples for utility ROW provided by survey respondents shared many similarities in terms of the type of information requested, including:

- work address/location;
- names of property owner, company, and contractors along with contact information;
- type of work to be performed and project description;
- method of installation, materials used, and dimensions;
- typed of surface to be disturbed;
- estimated start and end/completion dates;
- method of payment.

Within the examples uploaded, there were several utility permits that stood out that required additional information and/or contained unique fields to be filled-in by the permit applicant. These unique examples are discussed individually below:

- City of Crystal: in addition to a Public Works ROW Permit application, the City also submitted a Certificate of Final Completion for Public Works ROW Permit that contained a “Permittee’s Certification” signature space, certifying that all work authorized under the permit was performed in conformance with applicable codes, regulations, and standard required by the City. This completed form is to be emailed to the City Engineering Project Manager.

- While location information is required for all permit applications, it appears only some online versions require mapping through their system and/or screenshots of online mapping. Examples of this included Scott and Olmsted counties.
- Most permits included Permit Regulations descriptions/provisions regarding definitions, general construction requirements, traffic control, restoration, etc., but only one example noted specifically what post-construction restoration would entail. The City of St. Michael's permit contained a section titled "Restoration Planned" where the applicant had to check a box of what planned restoration would be (i.e. bituminous pavement, seeding with 6" topsoil, etc.).

Beyond the City and County survey respondent provided permit examples, research was conducted on out-of-state permitting examples as a point of comparison and to glean information regarding the variability of permitting requirements/data fields. The Florida Department of Transportation Utility Permit was unique in that it contained signature lines within the permit for both "Certification" and "Final Inspection of Work". The "Certification" section was to be signed by both the utility agency/owner and the utility builder while the "Final Inspection of Work" section was to be signed by the Florida DOT Inspector. While inspections and certifications are undoubtedly a part of the process of utility installations, this information is not typically documented on the permit application itself.

#### 4.1.1.2 Dakota County Utility Coordination Process for Design Plans

The ROW Permits Manager from Dakota County provided many insightful comments regarding managing utility congestion. Included in the comments and documents he provided was a 10-step coordination process for projects involving utilities that Dakota County follows. He opines that many coordination manuals are too long and lead to too much handholding. The steps for successful utility coordination from Dakota County are provided below, with a brief description of each step:

1. Utility Identification – call GSOC for a list of utilities/companies in project area; send out a notification letter for the project; request mapping data.
2. Utility Location – survey crew to collect field-located utilities; this information to be given to Project Designer.
3. Utilities Added to the Plan – ensure all utility/easement data has been added to design plans and reviewed for design conflicts.
4. Plans to Utility Companies – send out design plans to utilities to screen for concerns.
5. Design Meeting – coordinate meeting with utilities.
6. Utility Conflict Review – review elevation data for potential utility conflicts.
7. Send Plans – send final plans with proposed project letting and start date; official letter sent notifying utilities that they will need to relocate.
8. Utility Check – check on relocation plan status; check with permit office regarding new utilities in the area.
9. Permit/Agreement Process – permits for relocated facilities are received; reimbursement agreements for relocations are in place.
10. Preconstruction Meeting – meet with utility companies to discuss relocation plans.

Beyond this he offered insight into common utility issues or suggestions for successful planning. General themes included communication (meeting early and often), providing time estimates/dates for project components, and checking in with all parties at various stages in the process of utility relocations. Promoting joint utility installations can be beneficial but requiring this can lead to increased utility costs and project delays. Additionally, annual meetings with utilities to review current projects and discuss upcoming/next year's work can assist them with budgeting for the future.



**Figure 4.2 Landscape scar within ROW following cable-plow utility installation (center, filled with leaves), Fairview Township, Minnesota [Photo Credit: Bolton & Menk, Inc.]**

## CHAPTER 5: BEST PRACTICES

Agencies should understand the process utility companies follow when they receive project plans. The types of utilities involved in an undertaking will determine the quality of information and the rules that must be followed. Petroleum/oil utilities require a higher degree of accuracy due to higher degree of concern for safety; more accurate locational information will be available. Other utilities are generally not as risky and will not have as accurate locational information. Communications and cable typically have less accurate locational information. Utility companies are only required to provide the information they already have.

### 5.1 MN STATUTES AND ADMINISTRATIVE RULES

Make sure that everyone knows what is required by law (summary of the statutes (237.162-163) and rules (7819) provide important points).

#### 5.1.1 As Built Drawings:

---

If required by the local government unit as part of its permit process and if necessary due to changes from the work as projected when the permit was applied for, the permittee shall submit as built drawings or maps within six months of completing the work, showing any deviations from the plan that are greater than plus or minus two feet. This requirement is connected to the requirement that a rights-of-way (ROW) user may provide mapping or other locational data in the format that is currently used and maintained by the user. Consequently, while the as-built may show a deviation may be larger than two feet, the actual location may not actually be accurate within the deviation of two feet.

#### 5.1.2 Relocation of Existing Facilities:

---

A ROW user shall promptly and at its own expense, permanently remove and relocate its facilities in the ROW when it is necessary to prevent interference in connection with: (1) a present or future local government use of the ROW for a public project; (2) the public health or safety; or (3) the safety and convenience of travel over the ROW.

#### 5.1.3 Mapping Information:

---

The local government unit may require as part of its permit application the filing of all the following information:

- Location and approximate depth of applicant's mains, cables, conduits, switches, and related equipment and facilities.
- The type and size of the utility facility.
- The application must provide that the applicant agrees to submit as built drawings, reflecting any changes and variations from the information provided.
- At the request of a local government unit, a right-of-way user shall provide existing data on its existing facilities within the public ROW in the form maintained by the user at the time the request was made, if available.

#### 5.1.4 Abandoned Facilities:

---

If an abandoned facility is present in a ROW, the user shall “remove them from that right-of-way if required by in conjunction with other ROW repair, excavation, or construction, unless this requirement is waived by the local government unit.”



**Figure 5.1 New conduit installation (center) and abandoned lines (top), Chaska, Minnesota [Photo Credit: Bolton & Menk, Inc.]**

## 5.2 REGISTRATION & PERMITTING

- Require utility company to register with agency annually, include up to date Certificate of Insurance (COI).
- Require permits to be pulled. Outline some process requirements or information to include in permit.
  - Process requirements provide consistency for utility companies across the state. They can ensure any work within public ROW is known and recorded by the agency. Permits can increase coordination between independent utility work and construction projects by agency.
- Have an internal utility coordination process checklist.
  - A process checklist provides guidance to the agency on steps to follow to work proactively with utility companies, assists in keeping projects moving, and provides a framework for approaching utility companies.
- Ensure that reimbursement agreements for utility relocations are in place.

## 5.3 COMMUNICATIONS & MEETINGS

- Hold annual utility meetings to review current and next year projects.
  - Utility meetings help utility companies to plan and budget for possible relocation work. They can encourage consistent and open communication patterns between utility companies and agencies.
- Check in on relocation plan progress often before the project starts.
  - Keeping your project in the queue helps to keep its place on the schedule. Utility companies may have multiple projects with different agencies; they may have one or two contractors with limited staff.
- Force early discussions (design meetings 216D law) at the start of the design phase of projects.
  - Early discussions help to discover possible conflicts that might be worked around in the design phase in order to reduce delays or other costly changes. Waiting for a 30% plan could be too late.
- Work with the utility companies early on to identify where their current facilities are, any obstacles, and where they could be located or relocated within the corridor. Provide flexibility early on in the concept stage of a project to understand utility routing needs, rather than approaching this during the design process. This is especially important in congested corridors.
- More utility coordination meetings – get names and contact information. Hold utility companies responsible, keep records of dates and contacts.

- Keep written records of meetings and who attended and when. Include a written action plan with dates of any deadlines. Follow up with those in attendance.
- Follow up with utility company if they did not show up to meetings, maintain records of dates and contacts.
- Keep utility company informed of proposed project status. Send utility companies planned letting dates and proposed start dates.
  - This helps utility companies plan for upcoming projects.
- Set up a meeting with utility company when there is a layout plan but agencies need to know placement of critical infrastructure so that it is conveyed to the utility companies. Agencies need to understand obstacles.
- Letter and email communication templates are provided in **Appendix D**.



**Figure 5.2 Communication in the field for utility improvements during road construction projects, Chaska, Minnesota [Photo Credit: Bolton & Menk, Inc.]**

## 5.4 UTILITY & CONSTRUCTION PLANS

- Review construction and utility plans together to identify conflicts, then finalize the construction and utility plans. One cannot be finalized without the other.
- Plan where utilities will likely be located prior to installation.
  - Agencies cannot dictate where to put a utility, but make sure utility companies know where they cannot put it. Explain the benefit to the utility company of placement in a certain location. Identify the reasons why it may be best to locate it somewhere but understand that utilities do not have to put it there. Summarize the discussion and list of players so the information can be listed in the bid, on the plan set and given to the winning contractor for needed contacts in order to develop their plan.
- Include contract language to help encourage coordination between the utility companies and the contractor. The language should contractually obligate the contractor to work with the utility companies.
- Hold utility coordination meeting once contractor is on board – make sure same utility contact have been coordinating throughout the design process is there.
- Promote joint utility installations without requiring them.
  - This can lead to timelier installations but forced joint installations have shown increased utility costs which will lead to push back and delays. Let work start if they are ready, don't wait.



Figure 5.3 Overhead utilities, Burnsville, Minnesota [Photo Credit: Bolton & Menk, Inc.]

## 5.5 MAPPING INFORMATION

Request as-built data as early on in the concept planning and feasibility study process to understand the major utilities that are within an area that may be of significant concern.

While not required under Minnesota Statutes 7819.4000 nor 7819.4100, requesting locational X, Y, Z information, along with GPS locational data, can ensure accurate field location and better utility planning in the design process. Specific hardware and software recommendations include:

- Use a Trimble unit which connects via Bluetooth to an iPad Pro.
- The GNSS Status application can be used to connect to satellites and get differential correction data from MnDOT.
- The Classic Collector application by ESRI can be used to record GPS points with a high degree of accuracy (2.8-inch accuracy).
- Alternatively, the internal iPad location services provide diminished accuracy (16.4-foot accuracy).



Figure 5.4 New light pole base installation, Chaska, Minnesota [Photo Credit: Bolton & Menk, Inc.]

## CHAPTER 6: SUMMARY AND CONCLUSION

The Local Road Research Board (LRRB) funded the research of existing practices for managing utilities in public rights-of-way (ROW). Public ROW are used for many purposes, such as helping to organize how people and goods or services are transported from one location to another. The services are typically in the form of utilities, for both public and private uses. These services include fiber optic, water, sewer, stormwater, electric, gas, and communication lines, such as phone and cable. Each of these utilities can conflict with the others, especially in crowded ROW or areas restricted by activities or structures of surrounding parcels, natural topography, or sensitive resources.

This project synthesized existing best management practices used by cities and counties to manage utilities within public ROW. A TAP was formed and provided guidance throughout the project. Through discussions with the TAP committee, existing needs were identified when working with public utilities in ROW. The needs included working in congested corridors, what to do with abandoned infrastructure, not receiving accurate mapping data from utility providers, not receiving requested information, how to address 5G and other new infrastructure, and not having construction requirements or expectations of utility service providers.

Best management practices were identified through an online survey and discussions with TAP members. The survey was emailed to cities and counties throughout Minnesota. Survey responses were received from 33 different individuals representing 14 cities, 17 counties, and 2 individuals employed in the private sector (at Bolton & Menk, Inc.). Survey responses were compiled to identify potential best practices from the participating agencies. Additional conversations or interviews were conducted with select survey respondents who identified effective best practices or provided informative documents from their agency.

The best practices identified include:

- A knowledge in applicable Minnesota statutes (216D and 237.162) and administrative rules (7819.1300, 7819.3300, 7819.4000, and 7819.4100). A key point taken from the statutes and rules is that a ROW user may provide mapping or other locational data in the format that is currently used and maintained by the user.
- Registration and permitting requirements for utility providers.
- Hold annual utility meetings, have early discussions, and follow up with providers. Having early discussions and keeping utility companies aware of any changes or upcoming projects are important to keep a project on schedule and minimize additional costs. Follow up with utility companies that are nonresponsive.
- Review and finalize construction and utility plans concurrently, plan where utilities will likely be located prior to installation (one cannot tell a utility company where it has to locate, but one can indicate where it cannot go), include language to contractually obligate the contractor to work with the utility companies, and promote joint installations (not a requirement).
- Mapping requests should be in X, Y, Z information, along with GPS locational data to ensure accuracy.

The Federal Communications Commission (FCC) adopted a Declaratory Ruling and Third Report and Order in the Matter of Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment (FCC 18-133). Permitting and registration for wireless broadband deployment (including 5G) must be in accordance with the final rules as adopted.