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## Background

Congestion of utility lines within rights-of-way has become a challenge for Minnesota local transportation agencies. This guidebook addresses common issues and needs faced by agencies, and shares accepted best practices for planning and installing utility services that can help agencies better manage utility requests and needs.

This guide provides an overview of the legal requirements of utility organizations, as well as the power of local agencies to issue permits, require quality mapping and expect timely progress. Recommendations are also included for effective communication between city/county agencies and utility organizations.

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## Issues & Needs

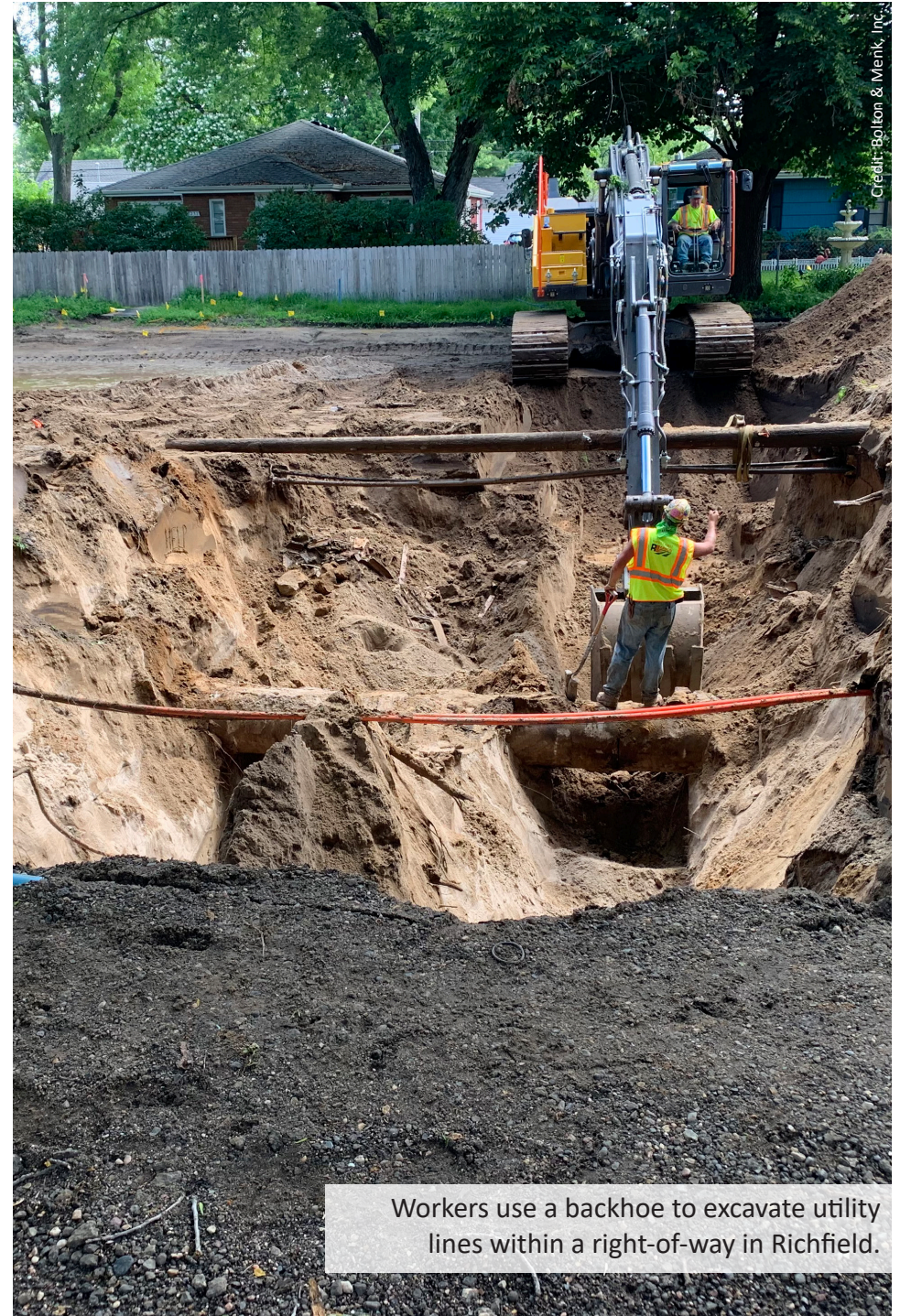
Public agencies hold and manage rights-of-way for citizens to deliver public and private infrastructure services. Rights-of-way are often congested, partially due to the large number of utility service providers and limited space. Maintenance of existing utilities and the installation of new utilities are difficult given the number of utilities and the general unknown of what exists within the rights-of-way 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 can be lacking, which could impact project cost and timeline and damage other utilities.

The following issues and needs are commonly faced by local agencies:

- Congested corridors
- Abandoned infrastructure
- Inaccurate mapping
- Not receiving requested information
- New infrastructure such as 5G
- Construction requirements

These challenges and the best practices shared later in this guidebook were identified through a survey of field inspectors and other practitioners; feedback from this book's Technical Advisory Panel; and guidance documents from organizations such as the League of Minnesota Cities.

The Minnesota rules and federal regulations addressed on the following pages, along with the best practice recommendations at the end of this guidebook, provide pertinent background and guidance for handling these common issues and needs.



Workers use a backhoe to excavate utility lines within a right-of-way in Richfield.



## Minnesota Statutes & Administrative Rules

Minnesota Statutes and Administrative Rules address responsibilities of utilities and the requirements of utilities in public rights-of-way.



### 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 MnDOT Utility Accommodation and Coordination Manual* (Page 17, Section B.2.b): Utility owners are required to collect and depict information in accordance with Minnesota Statutes, Ch. 216D, and in accordance with procedures set forth in ASCE Standard 38-02, *Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data*, where “utility quality level” means a 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. The table on the right provides definitions of quality levels as defined in the manual.

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

Definitions of Utility Quality Levels	
<b>Level A</b>	<p>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. Precise horizontal and vertical locations, as well as other utility attributes, are 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.</p> <p><i>Typical utility type: None</i></p>
<b>Level B</b>	<p>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.</p> <p><i>Typical utility type: Water</i></p>
<b>Level C</b>	<p>Information obtained by surveying and plotting visible above-ground utility features and by using professional judgment in correlating this information to quality Level D information.</p> <p><i>Typical utility type: Storm and sanitary sewer</i></p>
<b>Level D</b>	<p>Information derived from existing records or oral recollections.</p> <p><i>Typical utility type: Everything else</i></p>

 **Statute 237.162**

Minnesota Statute 237.162 provides definitions for various terms involved in the language of rights-of-way, utilities, and other elements of utility permitting or work. Of importance, Subdivision 8 states what is required of a local government unit 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 rights-of-way users to submit, for rights-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 rights-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 rights-of-way within the local government unit
8. Establish rights-of-way permitting requirements for street excavation and obstruction
9. Establish removal requirements for abandoned equipment or facilities, if required in conjunction with other rights-of-way repair, excavation, or construction
10. Impose reasonable penalties for unreasonable delays in construction



The dome structure at the center of the Minnesota State Capitol in St. Paul.



A utility crew removes a pipe and other abandoned infrastructure from an excavated street in Chaska.

## **Administrative Rule 7819.1300**

Minnesota Administrative Rule 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.

## **Administrative Rule 7819.3300**

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

## Administrative Rules 7819.4000 and 7819.4100

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

- A. Location and approximate depth of an 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
  - 3. Any other system agreed to 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
- E. Any facilities to be abandoned

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

A key takeaway is that utilities are only required to provide mapping information as accurate as they use in their records. More critical infrastructure has higher accuracy than less critical infrastructure. For example, a pressurized gas line is much more critical and location data will be highly accurate as to exactly where it is located, whereas the location for cable TV lines may be designated as along the roadway but not designate on which side of the roadway they occur.



A technician uses a GPS unit to record coordinates near a utility marker along a rural road.

## Federal Communications Commission Rules

Permitting and registration for wireless broadband deployment (including 5G) must be in accordance with the Federal Communications Commission Declaratory Ruling in the Matter of Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment (FCC 18-133; September 27, 2018). 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).
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).







# Best Practices

Agencies should understand the process utility companies follow when they receive plans. The types of utilities involved in a given 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 the higher degree of concern for safety; more accurate locational information is likely available. Other utilities are generally not as risky and may not have as accurate locational information. Communications and cable utilities typically have less accurate locational information. Utility companies are only required to provide the information they already have.

The following best practices are advised for processing current rights-of-way requests and preparing for future utility needs:



## Registration & Permitting

- Require utilities to register with agency annually, include up-to-date Certificate of Insurance (COI).
- Require permits to be pulled. Outline process requirements or information to include in permit in accordance with Minnesota Administrative Rules 7819.

## Examples of rights-of-way permit applications.

Form No. 2862 COUNTY OF \_\_\_\_\_ DEPARTMENT OF HIGHWAYS Page 1

**APPLICATION FOR UTILITY PERMIT on COUNTY HIGHWAY RIGHT OF WAY**

Board of County Commissioners \_\_\_\_\_ C.S.A.H. \_\_\_\_\_  
 Attn: County Highway Engineer \_\_\_\_\_, Minnesota C. R. \_\_\_\_\_

Application is hereby made for permission to place, construct and thereafter maintain a \_\_\_\_\_ along or across County Highway No. \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ feet from center line on the \_\_\_\_\_ (east, west, north or south) side of the county highway in accordance with the sketch shown on the inside hereof, or attached thereto.

**I. AERIAL CONSTRUCTION**

Single pole  Open wire  
 H-Frame  Cable  
 Single pole and H-Frame  Vertical  
 Steel tower  Cross-arm  
 Other \_\_\_\_\_  Vertical and cross-arm

VOLTAJE \_\_\_\_\_ NUMBER OF CONDUCTORS \_\_\_\_\_ SIZE OF CONDUCTORS \_\_\_\_\_  
 Minimum height of conductor \_\_\_\_\_ ft. along highway \_\_\_\_\_ ft. at crossing over highway \_\_\_\_\_

**II. UNDERGROUND CONSTRUCTION**

**CONDUIT**  
 Multiple tile  Sectional concrete  
 Transite  Steel pipe  
 Lay tile  Other \_\_\_\_\_

**CASING**  
 Steel pipe  Sectional concrete  Other \_\_\_\_\_

VOLTAJE \_\_\_\_\_ NUMBER OF CONDUCTORS \_\_\_\_\_ SIZE OF CONDUCTORS \_\_\_\_\_

**METHOD OF INSTALLING UNDER ROADBEDS (if open trench, explain why necessary)**  
 Open trench  
 Jacking  Boring  Pneuma Gopher

**EXTENT AND LOCATION OF TREE CLEARING**  
 NONE  Facility  Equipment Facility

III. Work to start on or after \_\_\_\_\_ and to be completed on or before \_\_\_\_\_

IV. The applicant in carrying on any and all of the work herein above mentioned or referred to in its application and in the Permit issued herefore, shall strictly conform to the terms of such Permit, and the regulations of the Board of County Commissioners, as set forth herein together with the Special Provisions, all of which are made a part hereof. The applicant specifically agrees to be bound hereby. The applicant shall also comply with the regulations of all other governmental agencies for the protection of the public. The work shall be accomplished in a manner that will not be detrimental to the highway and that will safeguard the public.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_  
 Signature \_\_\_\_\_ by \_\_\_\_\_ Name of Company making application \_\_\_\_\_  
 Address \_\_\_\_\_  
 Phone Number \_\_\_\_\_ Fax Number \_\_\_\_\_

**Right of Way Permit**

<b>Applicant</b> Person Performing Work _____ License # _____ Registration # _____ Fax _____ Contact Person _____ Contact Phone # _____ Cell # _____	<b>Permit Requested</b> <input type="checkbox"/> Street/Alley Obstruction <input type="checkbox"/> Boulevard Obstruction <input type="checkbox"/> Construction Noise Ord. <input type="checkbox"/> Sewer Connection <input type="checkbox"/> Water Connection <input type="checkbox"/> Storm Water Connection <input type="checkbox"/> Sidewalk Construction <input type="checkbox"/> Driveway Construction <input type="checkbox"/> General Utility Gas, Electric, Phone, Cable, etc. * 2 year warranty for all work	<b>OFFICE USE ONLY</b> Permit is Valid _____ to _____ Permit # _____ Payment Made _____
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**Property Owner**  
 Address - Location \_\_\_\_\_  
 Lot \_\_\_\_\_ Block \_\_\_\_\_  
 Subd. \_\_\_\_\_  
 Plat # \_\_\_\_\_

**Describe Work to be Performed**  
 \_\_\_\_\_  
 \_\_\_\_\_

**Work Schedule** Work to commence on/after \_\_\_\_\_ Work to be completed by \_\_\_\_\_

**Traffic (If applicable)** Street closure on \_\_\_\_\_ Reopen street by \_\_\_\_\_  
 Detouring route \_\_\_\_\_

**Installation Methods**  Open Trench  Boring  Jacking  Other \_\_\_\_\_

**Installation Materials**  
 Plastic Pipe \_\_\_\_\_ Sanitary Service  Plastic  Clay  Cast Iron  
 Subdrain \_\_\_\_\_ Storm Sewer \_\_\_\_\_ Copper Water Service \_\_\_\_\_ Ductile Iron  
 Fiber Optic \_\_\_\_\_ Coaxial Cable \_\_\_\_\_ Copper/Plastic Gas line \_\_\_\_\_ Copper Wire  
 Concrete  SW  DR \_\_\_\_\_ Bituminous Path \_\_\_\_\_ Other Material \_\_\_\_\_

**Installation Location/Size** Width Diameter \_\_\_\_\_ Length of installation \_\_\_\_\_ Depth \_\_\_\_\_  
 Blvd to Building  Main to Blvd  Main to Building  Other \_\_\_\_\_

**Installation Purpose**  New installation  Replacement  Repair  Disconnect/Abandon

**Restoration Areas**  Curb & Gutter  Sidewalk  Roadway  Boulevard/Vegetation

**Services Are Stubbled Beyond Curb Box**

**Permit Issuance**  
 Owners/Applicant's Signature (Utility Permits Only) \_\_\_\_\_ Dated \_\_\_\_\_  
 Contractor's Signature (Utility Permits Only) \_\_\_\_\_ Dated \_\_\_\_\_  
 City Traffic Engineer (Detours/Closure Only) \_\_\_\_\_ Dated \_\_\_\_\_  
 City Signature \_\_\_\_\_ Dated \_\_\_\_\_  
 Notes \_\_\_\_\_

**Sidewalk Stakes Request**

Owner, Applicant, Contractor hereby agree to comply with the ordinances of the City and the engineering standards of the Public Works Department, regulations of the State of Minnesota and the Federal Government and also agree to the additional requirements/regulations, listed on page 2 of this permit, and is responsible for zoning per MN/M/D/C/D ADA Compliant.

**RECEIPT**

<input type="checkbox"/> Street/Alley Obstruction <input type="checkbox"/> Boulevard Obstruction <input type="checkbox"/> Construction/Noise Ordinance <input type="checkbox"/> Sewer Connection <input type="checkbox"/> Water Connection <input type="checkbox"/> Storm Water Connection <input type="checkbox"/> Sidewalk Construction <input type="checkbox"/> Driveway Construction <input type="checkbox"/> General Utility (Gas, Electric, Phone, Cable, etc.)	Permit # _____ Valid from _____ to _____ Applicant _____ #Error _____ Entered By: _____
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## Communications & Meetings

- Hold annual utility meetings to review current and next year's projects. This helps utility companies to plan and budget for possible relocation work.
- Check in often on relocation plan progress before the project starts. Keeping your project in the queue helps to keep its place on the schedule.
- 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 to reduce delays or other costly changes. Waiting for a 30-percent plan could be too late.
- Work with utilities early to identify where their current facilities are, obstacles, and where they could be located or relocated within the corridor. Provide flexibility early in the concept stage of a project to understand utility routing needs, rather than approach this during the design process. This is especially important in congested corridors.
- Hold more utility coordination meetings — get names and contact information. Keep records of dates and contacts.
- Follow up with utilities if they do not show up to meetings — keep records of dates and contacts. Continue to pursue contact with the utility companies. Stay persistent on your request; identify any inaction. If no action, include higher levels of management in your correspondence. Emails and communications can also include higher levels of management or community representatives right from the start.
- Keep utilities informed of proposed project status — planning letting (bid) dates and proposed start dates. This helps utilities better plan for upcoming projects.
- Set up a meeting with utility company when there is a layout plan but need-to-know placement of critical infrastructure so that it is conveyed to the utilities. Understand obstacles.

- Have the contractor schedule construction update meetings weekly, bi-weekly or monthly.



In Richfield, workers walk on a right-of-way stripped of sod and marked for utilities.

Credit: Bolton & Menk, Inc.



Wooden stakes and spray paint identify utility locations near a sidewalk in Richfield.



## Utility & Construction Plans

- Need to review construction plans with the utility plans to identify conflicts, then finalize the utility and construction plans. One cannot be finalized without the other.
- Plan where utilities will likely be located prior to installation. Cannot dictate where to put a utility, but make sure companies know where they cannot put their equipment. Explain the benefit to the utility of placement in a certain location. Identify the reasons why it could be best to locate the equipment 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 and on the plan set and given to the winning contractor for needed contacts in order to develop the 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 a utility coordination meeting once Contractor is on board — make sure the same utility contact who has 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 the utilities are ready. Don't wait.

## Mapping Information

Obtain as-built information as early as possible. 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 the following, and we recommend checking with local dealers to research options available to achieve sub-meter or mapping accuracy data:

- Use a Trimble or equivalent unit that 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).

At right is a screenshot of the Gopher State One Call (GSOC) internet ticketing system (ITIC). The ITIC allows industry professionals to map work sites where utility locates are needed.

