DEPARTMENT OF TRANSPORTATION

DIVISION OF PLANNING

Statutory Authority: 17 Delaware Code Section 507; Chapters 1 and 5
(17 **Del.C.** §507, Chps. 1 and 5)

PROPOSED

PUBLIC NOTICE

Utilities Manual Regulations

Background

The Delaware Department of Transportation through its Transportation Solutions - Utilities Section has developed revised regulations for the installation, adjustment, and maintenance of utility lines and appurtenances within the rights-of-way of Delaware's highways. These regulations define the requirements which apply to utility accommodation along or within the rights-of-way of State-controlled highways, and State-maintained streets and roads within suburban developments or within the incorporated limits of a municipality.

The Utilities Manual revises and updates the DelDOT Utilities Design Manual, effective in October 1995.

Public Comment Period and Notice of Public Hearing

The Departments will take written comments on the Regulations from January 1, 2007 through January 31, 2007. Any requests for copies of the Utilities Manual, or any questions or comments regarding this document should be directed to:

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***Please Note: A PDF version is available at the link listed below:**
www.state.de.us/research/register/january2007/dotutilities.pdf

(Adobe Acrobat Reader required)

Utilities Manual

1.0 Introduction

The Mission of the State of Delaware's Department of Transportation is to provide a safe, efficient, and environmentally sensitive transportation network that offers a variety of convenient, and cost-effective choices for the movement of people and goods.

Effective management and design of utility installations are imperative for the safe and expedient construction and maintenance of the transportation network. Close coordination with utility owners is essential to meet these objectives.

This manual outlines the general practices, policies, and procedures that affect the relationship between the Delaware Department of Transportation, hereafter referred to as the Department or DelDOT, and those entities desiring to place utility lines and appurtenances within the rights-of-way of this State. This manual explains the requirements and procedures necessary to facilitate utility installation, relocation, maintenance as well as any utility work in conjunction with highway project construction within Department right-of-way.

1.1 Purpose And Objectives

1.1.1 The overriding goal for this manual is to allow the user to locate and understand those regulations and procedures that are most pertinent to their activities in the highway-utilities process. The process embraces a large and exceedingly complex series of issues. This manual simplifies and condenses these issues for ease of location by the user.

1.1.2 The manual has been prepared to accomplish these objectives:

- to provide standard arrangements for permitting the installation of utilities on Department rights-of-way and for relocating utilities due to highway construction;
- to help utilities accomplish their work with the least delay and minimum interference with highway contractors or other utilities;
- to prevent service disruptions, damage to utility facilities, and hazardous conditions;
- to ensure that standards, specifications, and environmental considerations are met;
- to ensure the proper performance, high quality, and timely accomplishment of utility work, as well as the correct and timely reimbursement to utility companies when appropriate;
- to outline procedures and conditions that must be met for federal reimbursement, when utility work is part of a federal-aid project; and
- to outline procedures and conditions necessary for state reimbursement of utility work when circumstances, agreements and/or **Delaware Code** govern.

1.1.3 The information in this manual applies to all public and some private facilities, including (but not limited to) electric power, telephone, telegraph, communications, cable TV, lighting, water, gas, oil, petroleum, steam, chemicals, sewage, drainage, irrigation, and similar lines that are located within the rights-of-way of highways under the Department's jurisdiction. Underground, surface, and overhead facilities-whether singular or in combination-are covered by this manual.

1.2 Statutory Authority

1.2.1 The **Delaware Code** provides the Department with the authority and responsibility to regulate the use of all utilities on state highway rights-of-way. For the benefit of the reader, this manual reviews applicable portions of Delaware law.

1.2.2 The Department has the sole legal authority to control the use of state highway rights-of-way. Vesting this control in a single agency was necessary to ensure the safety of motorists and the proper operation of highway facilities. The Department has formulated the guidelines, policies, and procedures in this manual as tools for regulating utilities to achieve the aforementioned purposes.

1.2.3 The "Delaware State Highway Department" was established into law on April 2, 1917. Chapter 166 of the 1935 Code amended the original Act that created the Highway Department. Additional amendments, including Title 17 of **Delaware Code**, were enacted by the Legislature on February 11, 1953, and approved by the governor on February 12, 1953, including all prior amendments. This act provides authorization for the State to participate in the acquisition of rights-of-way, the placement of new utilities, and the adjustment of existing utilities.

1.2.4 Title 26 of the **Delaware Code** (1953) provides authorization for the State to control new installations of pipes, conduits, and wires above or beneath the public roads.

1.2.5 Section 143, Title 17, **Delaware Code**, established by law on January 16, 1962, made the State responsible for the entire cost of altering or relocating utilities that are within public highway rights-of-way-when the utility facilities are owned or operated by a municipality, governmental body, or subdivision of the State-as necessitated by highway construction, reconstruction, relocation, repair, or maintenance.

1.2.6 Section 132, Title 17, **Delaware Code** (1966) provides for the State to reimburse the owner for the expense of relocating public utility facilities necessitated by any project where the State is to be reimbursed at least 90% of the project cost from federal funds or by the federal government or any agency thereof. Such expense is to be the amount paid by the owner that is properly attributable to the relocation, after deducting therefrom any increase in the value of the new facilities and any salvage value derived from the old facilities.

1.2.7 Section 143, Title 17, **Delaware Code**, amended on June 29, 2004, allows the Department of Transportation flexibility to negotiate alteration or relocation agreements with public utilities in order to improve efficiency and fairness. While not required to do so, the Department may choose to enter into an agreement with a public utility for this purpose.

1.2.8 The opinion of the Court of Chancery, State of Delaware (1963) is the basis on which the State reimburses utility owners the expense of relocating public utility facilities on rights-of-way for which they hold title, or have permission or easement for occupancy, as necessitated by any project.

1.2.9 Adherence to the policies, practices and procedures of the Department of Transportation-and, more specifically, to the requirements described in the Utilities Manual-must be undertaken with full knowledge of, and compliance with, Chapter 8, Title 26, of the **Delaware Code** entitled "Underground Utility Damage Prevention and Safety." The Department's commitment to provide for the protection of public health and safety is of major importance and must be maintained at all times.

1.3 Construction And Location Requirements

The State reserves the right to review and approve the detailed location and design of all utility installations, adjustments, or relocations affecting the highway rights-of-way, and will issue permits for proposed utility work. Chapter 3 describes permitting requirements.

1.4 Exceptions To Requirements

The utility company shall submit any request, for deviation from the standards described in this manual, due to extreme hardship, to the Department. The request shall be in writing and must include full justification surrounding the hardship. The Department will assess the situation and provide recommendations. The documentation will be sent to the Utilities Engineer for coordination and comment, who shall then forward it to the Chief Engineer for final action.

1.5 Transmittal Of Information

Where the manual specifies the submittal of plans or other documents, utilities are encouraged to submit electronic files with the Department's approval.

If utilities choose to submit plans or other documents electronically, their systems and GIS databases must be compatible with DelDOT's current systems in order to transfer files electronically.

2.0 Design Requirements

The requirements presented in this chapter apply to the location and design of all utility installations within the highway rights-of-way.

2.1 Types Of Work

There are two distinct types of utility work in highway rights-of-way:

2.1.1 Permit and New Service Installation Work. This work usually encompasses the maintenance of existing utility facilities or the installation of new services or utility distribution facilities. The appropriate District Public Works staff issues the permits and inspects the work.

The purpose of the permit is to alert DelDOT that the work is taking place, so that DelDOT can review the traffic control, proposed locations and design and inspect the work to ensure the integrity of the roadway.

2.1.2 Project Design and Facility Relocation Work. This work results from highway construction projects where it is necessary to relocate utility facilities. Project design work is coordinated through the Utilities Engineer and the Utilities Section. A permit is usually not required for this type of work because the highway construction project supervisor inspects the work. However, a permit is required for utility work in advance of construction where DelDOT Construction is not yet assigned to the project. The permit is processed via the District Public Works office. A permit is also required for preliminary test holes for the location of utilities unless the District waives the requirement.

Traffic control for project design work is coordinated with the highway contractor, the highway construction project supervisor and the Construction District to ensure proper safety standards are employed.

The District Public Works Section administers permit work in its district. The Construction Group Engineer administers highway construction projects. The Chief Engineer and the Assistant Director of Project Development are responsible for the project design. Any situations that cannot be resolved through the normal process may be forwarded to the appropriate authority.

2.2 Highway Safety And Traffic Control

The Department considers highway safety a high priority that is an essential and indispensable component of every project from planning through the design and construction phases. Therefore, companies that install, maintain, service, operate, or otherwise work upon utilities within highway rights-of-way are always

obligated to consider the safety of the general public. This includes providing appropriate traffic control within work areas.

2.2.1 Traffic Control

All reasonable measures shall be taken for the protection and safe operation of traffic during and after installation of facilities. For all utility maintenance or construction operations within public highway rights-of-way:

2.2.1.1 All traffic control shall conform to the requirements specified in the most current DelDOT manual Traffic Controls for Streets and Highways Construction, Maintenance, and Utility Operations ("Traffic Control Manual") and any other applicable State and federal regulations.

2.2.1.2. A traffic control plan, referencing the Traffic Control Manual, must be submitted and approved whenever a permit is required.

2.2.1.3 Failure by a utility to provide for traffic safety will be cause for immediate suspension of operations. The work will not be allowed to continue until the District is satisfied that proper traffic control is established.

2.2.1.4 If there are any discrepancies between the Manual on Uniform Traffic Control Devices (MUTCD) and the Traffic Control Manual, the DelDOT Safety Section shall be contacted for clarification. In all questions of interpretations of the MUTCD and the Traffic Control Manual, the judgment of the Chief Traffic Engineer shall be final. The protection prescribed for each situation shall be based on the speed and volume of traffic, duration of operation and exposure to hazards. The term "street" refers to all the streets in any municipality, including cities, towns, villages, or other local jurisdictions.

2.2.2 Traffic Control And Safety References

2.2.2.1 Title 17 of the **Delaware Code** provides for the establishment of traffic control and safety standards to be observed during utility construction and maintenance operations on or adjoining any public highway, road, or street. Public and private utilities, contractors under contract with utility companies, and all others engaged in utility construction and maintenance are required to comply with these standards.

2.2.2.2 The *Traffic Control Manual* explains in detail the principles and requirements of traffic control and safety standards. It covers traffic control procedures, responsibilities of involved parties, required training for personnel, and descriptions of approved control devices.

2.2.2.3 Responsible utility officials are strongly encouraged to obtain the *Traffic Control Manual*, study its contents, and make copies available to their field supervisors. The Traffic Control Manual can be found online at http://www.deldot.gov/static/publications_forms.shtml. The standards are to be implemented through the training and supervision of utility employees. Failure to meet standards will result in stoppage of work until deficiencies are brought into compliance.

2.2.2.4 All workers within state right of way shall have high visibility safety apparel that meets ANSI 107-2004 standard requirements. This apparel will meet the standard performance for Class 2 risk exposure. The apparel background material color shall be fluorescent yellow-green as defined in the standard. The reflective material shall be either orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1000'. For nighttime work, apparel meeting standard performance for Class 3 risk exposure is recommended.

2.2.3 Traffic Control Plan

2.2.3.1 The traffic control plan is an important aspect of the project. It shall be prepared by qualified individuals and understood by all affected parties before work begins. In preparing the traffic control plan; the sample cases in the Traffic Control Manual shall be followed. The plan must be submitted or traffic control case identified when applying to the District Office for a construction permit. If utility officials need to veer from standard case studies, an ATSSA Certified Traffic Control Supervisor must submit changes to DelDOT Safety for approval prior to applying for permit.

2.2.3.2 The utility work shall not begin until the District approvals have been obtained and the approved permit information including traffic control are on the job site. Once the job has begun, the utility inspectors must ensure that the plan is followed throughout the project.

In the case of emergency work where there is no prior approval of a traffic control plan; the utility is still required to follow the DelDOT Traffic Control Manual.

The requirement for a utility traffic control plan may be waived on construction projects when the utility adjustments are made simultaneously with the highway contractor's operations and the highway

contractor provides the traffic control. Under these circumstances, the utility and highway contractor must cooperate and coordinate their work so that neither is delayed by the other's operation. See Section 4.4.2.3.

2.2.4 Flaggers And Traffic Control

2.2.4.1 Flaggers are essential in controlling traffic when one lane is closed and motorists must alternately use the remaining lane. Other important assignments for flaggers are necessary in utility work, such as lane closures for equipment passage, the pulling of cable crossings, and the control of traffic speed.

2.2.4.2 The Department has specific requirements for flagger warning signs, safety clothing, training, and associated flagger concerns, as described in the Traffic Control Manual. Utility supervisors are expected to understand and abide by these requirements. Flaggers are required to be ATSSA certified, expected to be alert, and to know the correct way to stop traffic, slow it down, and keep it moving.

2.2.5 Inspection Of Traffic Control

Routine inspections of traffic control elements must be made to ensure acceptable levels of operation. Inspections will be performed by trained District personnel and shall be accomplished at a frequency corresponding to the magnitude of the:

2.2.5.1 utility activity,

2.2.5.2 traffic volumes, and

2.2.5.3 other contributing factors.

When a utility or utility contractor fails to follow the approved traffic control plan, inspectors will suspend the work until the required traffic control is in place. Failure to follow the traffic control plan violates 21 **Del.C.** §4105 and is subject to punishment by law.

2.3 Location Of Utility Facilities

In planning utility locations on highway rights-of-way, consideration must be given at all times to sound engineering principles, public safety, and economic benefits to the State. The planning must consider safety, the visual quality of the highway, and efficiency of maintenance.

2.3.1 Specifically, the following items must be considered:

2.3.1.1 Minimize future project interference. New utility facilities shall be located to minimize the need for later adjustments to accommodate future highway improvements or other utility installations. The location should allow for adequate access to the facilities and accommodate future maintenance. In addition to meeting with DelDOT to discuss future projects, the following are sources to check on projects:

- The Capital Transportation Program (CTP):
- Wilmington Area Planning Council (WILMAPCO):
  http://www.wilmapco.org/RTP/index.htm
- The Statewide Long Range Transportation Plan

2.3.1.2 Minimize future interference to traffic. Consider methods to maintain utility facilities with minimum interference to highway traffic.

2.3.1.3 Preserve safe traffic operation and future space. New longitudinal installations shall be located on a uniform alignment as near as practicable to the right of way line and outside the clear zone to provide a safe environment for traffic operation and preserve space for future highway improvements or other utility installations.

2.3.1.4 Comply with ADA. The location of utility facilities and appurtenances shall be in accordance with the Americans With Disabilities Act.

2.3.1.5 Allow only Perpendicular Crossings. Utility lines shall cross the highway on a line generally perpendicular to the highway alignment;

2.3.1.6 Consider utility facility's ownership, operation, and maintenance methods for all facilities that it installs within the boundaries of the right-of-way as well as private underground services or other facilities.

2.3.1.7 Comply with Clearances and Clear Zone policies. Conform to horizontal and vertical clearances of aboveground utility lines with the "clear zone" roadside policies applicable to the system and the particular highway section involved. The locations of aboveground utility facilities shall be consistent with the clearances applicable to all roadside obstacles for the type of highway involved. See Appendix A for the definitions of "clear roadside policy", "clear zone" and "horizontal clearances."

Clear zones are established for new construction and major reconstruction projects. Clear zones on other existing roadways may be less than desirable. Utilities shall check with the District Public Works Engineer to determine the clear zone widths for specific locations for utility work performed under

permits. The calculation of clear zone widths is explained in DelDOT's Road Design Manual and the AASHTO Roadside Design Guide.

If there is no feasible alternative to locating appurtenances within the clear zone, the appurtenances (including fire hydrants) must meet breakaway criteria.

2.3.1.8 Consider future drainage. Future drainage requirements shall be considered when determining location of utility installations. Existing swales or ditches may need to be deepened. New drainage ditches may need to be constructed. New storm water drainage pipelines may need to be installed in the future.

2.3.2 Highways With Fully Controlled Access

Freeways and some expressways have full control of access. Full control of access to highways means that preference is given to through traffic by providing access connections only with selected public roads and by prohibiting at-grade crossings and direct private driveway connections. Delaware highways with full access control include:

- all interstate highways,
- toll roads, and
- other roadways as determined by the Department.

2.3.2.1 Crossing Of Freeway Right-of-way

New utility installations, and adjustments or relocations of existing utilities, are permitted to cross a freeway only in exceptional cases. The installation's effect on safety must be considered. All installations shall cross the freeway on a line perpendicular to its longitudinal alignment. Underground crossings are preferred. Overhead crossings are not desirable and shall be avoided. If a utility believes there is no feasible alternative to an overhead crossing, it must submit a written request to the district. The utility request must include the proposed cost of the overhead installation, describe other alternatives, and detail the associated costs of those alternatives. District Public Works will use the information in making a final decision.

Freeway Crossings

Freeway Crossings	Not Permitted	Comments
Aerial, Aerial service connections, Underground	X	Written hardship request with detailed estimates and justification will be considered

The following applies to developed areas or areas that are planned for development:

- Spacing - The utility distribution or feeder line crossings of freeways will be spaced as needed to serve consumers in a general area.
- Approval - Crossings of the freeway by utility service connections may be permitted with approval of the District Public Works Engineer. Consideration will be given only when utility services are not available within reasonable distances along the side of the freeway.
- Maintenance - Access points to service utilities must be located outside the denial-of-access lines of throughways or ramps. The placement of underground utilities across freeways must preclude the need to disturb the roadway for maintenance Or Expansion Operations.

2.3.1.2 Utilities Along Freeways - Lateral Positioning

2.3.1.2.1 Longitudinal installations of utilities will not be permitted within the denial-of-access lines of a freeway and other roads as determined by District Public Works. Frontage roads, where provided, may be used for placement of utilities with the approval of the District Public Works Engineer. Utilities located outside the access lines cannot be serviced by entrance from through-traffic roadways or ramps.

Lateral Positioning on Freeways

Lateral Positioning on Freeways	Allowed	Not Permitted	Comments
Within denial of access lines, Frontage Roads, Other Roads		X	Written hardship request with detailed estimates and justification will be considered
Outside denial of access lines	X		

2.3.2.2.2 Utilities located on existing highway rights-of-way where the highway facility is being upgraded to a freeway must normally be moved. Permission for such utilities to remain in place may be granted if all service can be made from outside the access control line.

2.3.2.3 Utilities Along Roads Or Streets Crossing Freeways

Where a utility follows a road or street that crosses a freeway, the utility shall cross the freeway on the location of the crossroad or street, and generally within its right-of-way. The utility must be serviced without access from the freeway. All work is subject to State and FHWA regulations in effect at the time. Overhead crossings are not desirable and shall be avoided as noted in Section 2.3.2.1.

2.3.3 Partial-access-control Highways

On partial-access-control highways, preference is given to through traffic to a degree that, in addition to access connections with selected public roads, there may also be some other roads crossing at grade as well as some private driveway connections. Except for the types of highways listed under full access control in Section 2.3.1, most highways in Delaware have partial access control.

2.3.3.1 Utilities Along Partial-access-control Highways - Lateral Positioning

2.3.3.1.1 In considering an aboveground facility along a partial-access-control highway, the following constraints apply with respect to the location of the facilities. Any exceptions to these requirements can be submitted by the utility and will be considered by the Department.

- Clear zone - Overhead utilities and appurtenances, placed longitudinally on the State's right-of-way, will be positioned outside of clear zones and as close to the right-of-way line as possible.
- Curves - It is not desirable that aboveground installations be placed on the outside of curves on roadways where the speed limit is above 30 miles per hour. Permission may be granted on a hardship basis. Rebuilding or upgrading existing facilities currently on the outside of a curve must conform to this section unless outside of the adjusted clear zone.
- Daylight corners and traffic islands - Aboveground features-such as poles, guys, enclosures, etc.-shall not be placed in corner cuts ("daylight corners") or on traffic islands.
- Incorporated areas - In incorporated areas, aboveground utilities will be placed as close as possible to the right-of-way line. If utilities cannot be placed as close as possible to the right-of-way line, the designs shall be reviewed and approved by the District Public Works Engineer on a case-by-case basis, to minimize the impact on the traveled way. In curbed sections, the utilities will be located as far as possible behind the curbs-and in compliance with the ADA. They shall never be closer than the horizontal clearance established in DelDOT's Road Design Manual and A Policy on Geometric Design of Highways and Streets (AASHTO's Green Book) and the AASHTO Road Design Guide.

- Occupy only one side of a roadway - Every effort shall be made to place a utility line on one side of the roadway. New aerial service connections shall be avoided if possible. A Utility Construction Permit shall not be issued to place one utility's facilities along both sides of a traveled way unless justified and approved by the Chief Engineer.
- Pole foundations - When pole foundations will be utilized, the Department must approve the types and locations prior to the permit request.
- Rural areas - In rural, unincorporated areas, aboveground utilities will be installed 30 feet or more from the traveled way if State right-of-way is available. The District Public Works Engineer must expressly approve closer placement when sufficient right-of-way is not available. Aboveground utilities will not be placed within the clear zone.
- Slopes and Ditches - Poles, guys, stub poles, or other equipment will not be placed on front slopes, back slopes or at ditch bottoms.
- In considering an aboveground facility along a partial-access-control highway, the requirements below apply with respect to the design of the facilities. Any exceptions to these requirements can be submitted by the utility and will be considered by the Department.
- Joint-use - Joint-use single-pole construction must be used at locations where more than one utility or type of facility is involved. This is most important at locations where the right-of-way widths approach the minimum required for safe operations or maintenance, or where separate installations may require extensive removal or alteration of trees. Exceptions will be made only in cases of hardship as determined by District Public Works on a case-by-case basis. The pole owner should ensure that the pole is sized adequately to allow space for the joint use facilities.
- **Note**: The holder of a franchise must not grant permission to another utility facility to jointly occupy its pole line without notifying the other facility of the Department's requirements.]
- Single-pole construction - Any longitudinal installations of overhead lines on the highway right-of-way must be limited to single-pole construction.
- Special Protection - Only approved protective measures will be permitted where special protection is required under AASHTO guidelines for aboveground installations.
- The owner of any abandoned pole within state right-of-way is responsible for ensuring its removal in a timely manner.

2.3.2.2 Utilities Along Highways - Vertical Positioning

2.3.3.2.1 Overhead electric power and communications structures, lines and cables shall be installed in compliance with the latest edition of the National Electrical Safety Code. Existing lines and cables shall be maintained at minimum clearance of 23.5 feet above track rails of railroads and a minimum clearance of 18 feet above roads, streets, entrances and other areas subject to truck traffic. The above two clearances shall be maintained under all conditions, i.e. maximum conductor sag conditions (subject to terms of railroad permit requirements) and a minimum of 18 feet above all roadways-or in accordance with the codes described in Section 2.4, whichever is greater.

2.3.3.2.2 The owner of utility facilities is responsible for moving them to eliminate any visual obstruction or interference to any traffic control device. This includes moving structures, overhead lines and cables, splice boxes, enclosures, and other appurtenances in order to provide adequate visibility of a traffic control device.

2.3.3.3 Historic Sites, Scenic Areas, Parks, Etc.

Aboveground utility installations-including those needed for highway purposes such as highway lighting or to serve a weigh station, rest area, or recreation area-are not permitted on highway rights-of-way or other lands which are acquired or improved with federal aid or direct federal highway funds and are located within or adjacent to areas of scenic enhancement and natural beauty. Such areas include public park and recreational lands, wildlife and waterfowl refuges, historic sites as described in 23 U.S.C. 138, scenic strips, overlooks, rest areas, and landscaped areas. However, the Department may permit exceptions provided that the conditions described in the current Program Guide for Utility Adjustments on Federal-Aid Highways are met. Relocation of pre-existing utility facilities from overhead to underground is subject to reimbursement within the guidelines described in Section 4.0.

2.3.4 Subdivisions

2.3.4.1 Subdivision Streets Not Yet Accepted For State Maintenance

The Subdivision Developer shall be responsible for submitting utility installation site plans to District Public Works for review and approval prior to commencement of street construction within the subdivision and prior to utility installation.

It is not necessary for a utility to obtain a construction permit in new subdivisions. Upon completion and acceptance of the subdivision streets, the utilities that are located within the State right-of-way shall be franchised in accordance with the existing Annual Master Franchise for each utility.

The utilities in a subdivision will be located as follows:

2.3.4.1.1 Utilities will be allowed within the right-of-way.

2.3.4.1.1.2 Aboveground utilities must be avoided if pole lines are to be used, they must be placed behind the clear zone.

2.3.4.1.1.3 Where feasible, underground utilities shall be placed behind the proposed curb line or in an established utility easement.

2.3.4.1.1.4 The main lines of underground utilities must be longitudinally located between the right-of-way line and the curb or edge of pavement-except for sanitary sewers that will be placed to avoid the wheel path when they cannot be located outside the roadway. If possible, sanitary sewers should avoid the crown of the roadway. Service lines may cross under the paved area to connect residences with main lines.

2.3.4.2 Subdivision Streets Accepted For State Maintenance

Utility construction permits are required for existing subdivisions. Existing underground utilities will be permitted to remain in place in subdivisions with streets currently maintained by the Department. However, any utilities that are upgraded shall be located according to Section 2.3.3.1, provided there is enough right-of-way to place them behind curbs.

2.4 Design

2.4.1 A Master Franchise must be in force for any utility facilities present in the highway right-of-way. The utility's proposed design in all cases must:

- protect the integrity of the roadway or highway structure,
- protect the appearance of the highway,
- minimize interference with traffic during maintenance of the facility, and
- minimize highway maintenance problems for the State.

2.4.2 Permit And New Service Installation

2.4.2.1 The District Public Works Engineer will review a permit application for new or existing utilities, maintenance work and re-construction, and some utility work in advance of highway construction. If acceptable, the District Public Works Section will approve the:

2.4.2.1.1 proposed location for the utility facility, and

2.4.2.1.2 methods of installing and/or attaching the facility and repairing the highway or structure.

2.4.2.2 The District will review and approve the traffic control plan to ensure highway safety, including the safe and free flow of traffic.

2.4.2 Project Design And Facility Relocation

On DelDOT highway construction projects the Utilities Engineer will coordinate, review, and approve the utility's proposed plans for the:

- location of the facility, either in its existing position or in a relocated position,
- methods of installing and/or attaching the facility,
- timing of any proposed adjustments and/or relocations, and

- reimbursement of work in accordance with the requirements in this manual.

2.4.4 Requirements

2.4.4.1 Utility installations on, over, or under the rights-of-way of State highways, and utility attachments to highway structures, are to meet or exceed the requirements listed below as well as any other applicable codes or regulations.

- Electric power and communications: National Electric Safety Code (NESC).
- Water transmission and distribution: American Water Works Association (AWWA).
- Pressure pipelines: Standard Code of Pressure Piping of the American Society of Mechanical Engineers ASME B31.4 and B31.8 and applicable sections of Federal, State, local and industry codes.
- Liquid petroleum pipelines: American Petroleum Institute Recommended Practice for Steel Pipelines Crossing Railroads and Highways. U.S. DOT Rules and Regulations governing transportation of such materials, including CFR 49, Part 195.
- Pipelines carrying natural gas and hazardous materials: U.S. DOT Rules and Regulations governing transportation of such materials, including CFR 49, Parts 192 and 195.
- Fiber optic facilities: Standard for the Physical Location and Protection of Below-Ground Physical Plant (EIA/TIA-590); also NESC provisions for communications cable.

2.4.4.2 Provisions for future expansion of utility facilities are to be made when planning for adjustments to existing facilities or preparing for new installations.

2.4.4.3 Underground utilities must consider safe trenching practices when preparing their designs and constructing their facilities. Both the utilities and their contractors must comply with all Occupational Safety and Health Administration (OSHA) requirements while working on highway rights-of-way. If unsafe work environments exist, work must stop until safe conditions are established or restored.

2.4.5 Other Permits

Utilities are responsible for obtaining all required permits from municipal, State, and federal governmental agencies and railroads. Examples of these permits include, but are not limited to:

- Water quality permits, DNREC Water Quality Certification,
- DNREC subaqueous Lands/Wetlands permits,
- DNREC Coastal Zone Consistency Certification,
- County Floodplain permit (New Castle County only),
- U.S. Coast Guard permit,
- US Army Corps 404 permits,
- Sedimentation and erosion permits,
- Railroad crossing permits (See Section 3.1).

2.5 Utility Clearances And Depth Of Cover

2.5.1 Positioning And Clearances

2.5.1.1 Vertical and horizontal clearances between utilities and utility clearances above roadways must conform to the utility codes cited in Section 2.4 and any other applicable industry codes and standards.

2.5.1.2 The following chart summarizes positioning and clearances that are mentioned in other sections of the Utilities Manual. Please see the appropriate section of the Utilities Manual for further details.

Utility Positioning and Clearances

NOTE: Utilities must also conform to Utility Codes cited in Section 2.4

Section	Title	Type	Clearance or Positioning
2.3.3.2	Vertical Positioning	Aerial Utility Lines/Cables	23.5 feet above railroad crossings
2.3.3.2	Vertical Positioning	Aerial Utility Lines/Cables	18 Feet above roadways

2.6.3.4	Pipeline Installation	Between steam, heat, and power crossing pipes carrying gas and water	3 feet horizontal clearance
2.6.3.4	Pipeline Installation	Between steam, heat, and power crossing pipes carrying gas and water	1 foot vertical clearance
2.6.3.4	Pipeline Installation	Edge of Trench	*5 feet from edge of traveled way or curb line
2.6.3.4	Pipeline Installation	Sanitary sewer crossing under water line	18 inches
2.6.3.4	Pipeline Installation	Between sanitary sewer and water line	10 Feet horizontal clearnace
2.6.4.5	Placement of Casings	Casings beyond curb*	*Extend 5 feet beyond curb
2.6.5	Electric, Comm, and CATV	Cable along edge of pavement*	*5 feet from edge of pavement
2.6.2.1	Jacking, Push-Augering, Directional Bore	Crossings - improved shoulder*	*5 feet from edge of improved shoulder
2.6.2.1	Jacking, Push-Augering, Directional Bore	Crossings - dirt or grass shoulder*	*5 feet from edge of pavement
2.6.2.1	Jacking, Push-Augering, Directional Bore	Crossings- pavement reference figure 2.1*	*5 feet from edge of pavement
2.6.2.1	Jacking, Push-Augering, Directional Bore	Crossings-curb*	*5 Feet from back curb

2.5.2 Depth Of Cover

Depth of cover must also conform to the utility codes cited in Section 2.4 and any other applicable codes and regulations. The Department may request greater cover in some instances due to the type of road being constructed.

2.5.3 For Highway Appurtenances

2.5.3.1 Utilities must provide the minimum overhead clearances above the roadway defined in the references listed in Section 2.4. Appropriate clearances from signal poles shall also be maintained, as applicable codes require.

2.5.3.2 Utility accesses and valve covers shall not be located in the roadway of rural highways. If there is no feasible alternative in urban and suburban areas, they shall not be located in a wheel path or in the centerline of the roadway.

2.5.3.3 Horizontal clearances will be in accordance with the clear zone requirements described in the DelDOT Road Design Manual and A Policy on Geometric Design of Highways and Streets (AASHTO's Green Book). Exceptions must have the approval of the District Public Works Section.

2.6 Underground Installations

2.6.1 Underground Utilities Crossing Highways

Avoid utility crossings in deep cuts, near bridge and retaining wall footings, and at highway cross drains where flow of water, drift, or streambed load may be obstructed and in wet or rocky terrain. The crossings shall also be avoided where it is difficult to attain minimum cover, and through paved or unpaved berm slopes under structures. See Section 2.3 for more information regarding crossings of freeways and partial-access-control highways. refer to section 2.6.3 for more information regarding pipelines.

2.6.2 Installation Methods

2.6.2.1 Directional Boring, Jacking And Push-augering

2.6.2.1.1 Directional boring is the industry standard and the method accepted by the Department. Boring is defined as the operation by which large carriers or casings are jacked through oversize bores. The bores are carved progressively ahead of the leading edge of the advancing pipe as soil is mucked back through the pipe. Jacking is defined as the pushing of a sleeve or casing pipe under a highway to make an underground utility crossing without disturbing the roadbed by open trenching.

2.6.2.1.2 Utilities must provide plans for proposed jacking, push-augering, or directional bore operations for approval by the District Public Works Section when applying for a construction permit. Directional bores are the preferred method and shall be considered wherever possible. Pits for jacking, push-augering or directional bore are not permitted in a proposed paving area.

2.6.2.1.3 The pits for jacking, push-augering, or directional bore must be excavated no closer to the roadway than 5 feet from the edge of an improved shoulder. Where the shoulder is dirt or grass, the pit excavation may encroach on the shoulder but must remain at least 10 feet from the edge of pavement. Adequate measures must be taken to ensure traffic safety and the integrity of the roadway, especially where the pit is so close to the traveled way. Two approved pit layouts are shown in Figure 2-1. For curb-and-gutter sections, pits must be a minimum of 5 feet from the back of the curb. If sufficient right-of-way is unavailable in the above situations, lesser distances, 2 feet or greater, may be approved.

2.6.2.2 Open Cutting

2.6.2.2.1 The open cutting of a roadway for the purpose of working on or installing new underground facilities shall be avoided. DelDOT's policy is to avoid the open cutting of any roadway for at least five years after resurfacing or reconstruction, unless there is no alternative. Exceptions will be made only in cases of hardship as determined by the Department on a case-by-case basis.

2.6.2.2.2 The District Public Works Section shall review requests for open cutting on a case-by-case basis, and shall have final approval of how the work is to be accomplished. For work related to a DelDOT highway project, permission for open cutting shall be requested as part of the Utility Statement during the planning of the project.

2.6.2.2.3 In the event open cutting is allowed, the utility must adhere strictly to the backfill and restoration requirements. The District Public Works Section will specify fill material. Borrow type C can be utilized however; Flowable Fill is recommended for cross-road cuts. Flowable Fill may be required by the District Public Works Section. Information regarding Flowable Fill from the Special Provisions can be found in Appendix F of this manual.

2.6.2.2.4 Utilities may not cover open trenches with steel plates between October 31 and April 15. The District Public Works Section may grant exceptions.

2.6.2.3 Other Installation Methods

2.6.2.3.1 Methods of installing utilities beneath roadways, other than push-augering, jacking, and directional bore will be considered for approval only on a case-by-case basis for specific sites. The utility must prepare and submit complete plans and specifications for the excavation, design, and installation involved in other methods.

2.6.2.3.2 Other methods include tunneling and installing tunnel liners or open-cut construction involving the installation of:

- reinforced concrete box culverts;
- corrugated metal, structural plate, or reinforced concrete arch culverts; or
- corrugated metal, structural plate, or reinforced concrete pipe culverts.

2.6.3 Pipelines

All pipeline installations must conform to the applicable regulations pertaining to the type of installation being constructed. The Department considers vents, drains, markers, manholes, and shutoffs as parts of pipeline installations.

2.6.3.1 Permits

Utilities are required to give advance notice and obtain approval from the District Office for any new pipeline or anticipated change to the current design or operation of a pipeline. The permit application shall specify the applicable codes to be used. Construction permits for pipelines shall specify the class of materials being carried, transmittant, the maximum working, test, or design pressures, and the design standards for the carrier.

2.6.3.2 Placement Of Pipeline

Pipelines installed longitudinally - The pipeline must be placed as close as possible to the outer extremities of the highway, unless approved otherwise in municipality or suburban development. The placement shall not interfere with highway drainage or with the structural integrity of the travelway shoulders or embankment.

2.6.3.2.1 Pipeline Crossings:

2.6.3.2.1.1 Pipeline crossings shall not be located in deep cuts, across cuts and fills, on steep slopes, near footings of bridges or retaining wall footings, across intersections at grade or ramp terminals, in wet or rocky terrain, across drains where flows of water, drifts, or stream beds may be obstructed, or within basins of an underpass drained by a pump.

2.6.3.2.1.2 Pipe, conduit, sewer, or other similar facility must not be placed inside any drainage pipe. Neither shall objects be placed across the ends of any drainage pipe or culvert so as to obstruct the full flow of water.

2.6.3.2.1.3 Pipelines crossing streams must be securely suspended above flood lines or lay beneath streambeds.

2.6.3.2.2 Pipeline Appurtenances:

2.6.3.2.2.1 Manholes - Manholes are not to be located in the traveled way of any expressway or public way for vehicular travel. The District Public Works Section may authorize exceptions only at locations where manholes are essential parts of existing lines that have been previously authorized to remain in place. Such installations shall avoid intersections. Manholes shall be designed and located so that they will not interfere with other utilities and planned highway expansion. Manholes are not to be located in the flow line of ditches, the centerline of the roadway, or the wheel path of traffic. All manholes must be flush with the finished grade. Refer to Section 2.3.4.1 for information regarding Subdivisions.

2.6.3.2.2.2 Valves - Shut-off valves, preferably automatic, must be installed in lines at or near the ends of structures. Isolation valves will also be required near crossings of unusual hazards. Exceptions may be allowed when other safety devices placed within a reasonable distance of the structure or hazard can isolate the pipeline.

2.6.3.2.2.3 Vents - Any vents shall be located at both ends of casings longer than 150 ft and at the high end of short casings. Vent standpipes shall not interfere with maintenance, use of the highway, nor affect pedestrian traffic. The standpipes shall be highly visible and preferably located on a right-of-way line.

2.6.3.3 Hazardous Transmittants

Crossings by pipelines carrying a hazardous liquid or liquefied gas (including propane) or other hazardous or volatile material shall not be allowed. Exceptions will be made only in cases of hardship as determined by the Department on a case-by-case basis with reference to federal guidelines. Natural gas pipelines, however, will be allowed via the permit review and approval process through the District Office.

2.6.3.4 Pipeline Installation

- Pipeline crossings are to be identified by permanent markers.
- Any new water line or sanitary sewer line shall be pressure-tested to assure that it is watertight.
- Pipelines abandoned in place shall be properly purged and sealed.
- Depth of Pipeline - The utilities must also conform to the any utility codes cited in Section 2.4.
- Crossing - The critical control for the depth of cover on a non-cased pipeline crossing is the low point in the highway cross-section. Normally, this is the bot-

tom of the longitudinal ditch. Additional protection shall be provided for any pipeline with less then minimal cover. Such measures would employ higher factor of safety in the design, construction, and testing of the uncased carrier pipe, including such features as thicker wall pipe, radiograph testing of welds, hydrostatic testing, coating and wrapping, and cathodic protection as well as well as suitable bridging or concrete slabs.

- Longitudinal - Pipelines in the highway right-of-way must be placed at least 42 inches below the finished surface. Lines crossing ditches must be placed at least 24 inches below the ditch flow line. The nearest edge of the trench is to be at least 5 feet from the edge of the traveled way or curb line, however, this distance can be reduced to 2 feet or greater should sufficient right-of-way be unavailable. Shoring must be placed where narrow right-of-way limits this minimum offset. The shoring will protect the curb line or traveled way during utility installation.
- Clearances between Utilities - All utilities shall be separated from one another as required by appropriate codes and ordinances.
- Section 1102, Title 26, Delaware Code stipulates that a distance of at least 3 feet shall be maintained between pipes carrying steam, heat, or power and pipes carrying gas or water, unless one is crossing the other. Where pipes are crossing one another, the minimum clearance must be at least 1 foot.
- Where a sanitary sewer line is to cross under a water line, the sanitary sewer line shall be laid with a minimum of 18 inches clearance between its top and the bottom of the water line. Where the minimum vertical clearance cannot be obtained, the District Public Works Section may approve the construction of the water line with slip-on or mechanical-joint ductile iron, cast iron, pressure, or pre-stressed concrete cylinder pipe for a distance of 10 feet on each side of the sanitary sewer. One full length of water-line pipe is to be centered over the sanitary sewer line so that both joints are as far from the sanitary sewer line as possible.
- The horizontal separation between sanitary sewer lines and water mains must be at least 10 feet, or in compliance with American Water Works Association (AWWA) regulations. Where it is impossible to separate underground utilities horizontally the desired minimum, the water line and sanitary sewer line must be constructed of slip-on or mechanical-joint ductile iron, cast iron, pressure, or pre-stressed concrete cylinder pipe with the approval of the appropriate regulatory authority.

2.6.4 Casings

2.6.4.1 A casing is a larger pipe, conduit, or duct enclosing a carrier. Underground utility crossings of roadways shall be made in sleeves or casings for the following conditions:

2.6.4.1.1 Utility crossings of freeways, expressways, and other controlled access highways and at other locations where it is necessary to avoid trenched construction and prevent inconvenience to highway users;

2.6.4.1.2 To protect carrier pipe from external loads or shock, either during or after construction of the highway; and

2.6.4.1.3 To prevent leaked material from saturating or damaging the highway embankment by conveying leaking fluids or gases away from the area directly beneath the roadway to a point of venting at or near the right-of-way line or to a point of drainage in the highway ditch or a natural drainage way.

2.6.4.1 When To Utilize Casings

Except for circumstances as described in Section 2.6.4.3, the Department requires that:

2.6.4.1.1 All crossings of full-access-control roadways (interstate highways, toll roads, freeways) shall be enclosed or cased.

2.6.4.1.2 All crossings of existing or proposed arterial and collector roadways (partial-access-control roadways) shall be enclosed or cased. Arterial and collector roadways are identified on the DelDOT Functional Classification Maps.

2.6.4.1.3 Casings are required for crossings of existing or proposed major entrances to commercial facilities or residential subdivisions. However, if an exception is granted, at such locations the minimum design shall be the same as the design requirements outlined in Section 2.6.4.3, or as approved by the District Public Works Section.

2.6.4.2.4 Typically, jacked or bored installations of coated carrier pipes shall be cased unless assurance can be provided against damage to the protective coating.

2.6.4.2.5 Consideration shall be given to encasement or other suitable protection for any pipeline

2.6.4.2.5.1 with less than minimum cover,

2.6.4.2.5.2 near footings of bridges or other highway structures

2.6.4.2.5.3 across unstable or subsiding ground, or

2.6.4.2.5.4 near other locations where hazardous conditions may exist.

2.6.4.3 Exceptions To Casings

2.6.4.3.1 Suitable bridging, concrete slabs, or other appropriate measures should be used to protect existing uncased pipelines which by reason of shallow cover or location make them vulnerable to damage from highway construction or maintenance operations. Such existing lines may remain in place without further protection measures if they are of adequate depth and do not conflict with the highway construction or maintenance operations, provided both highway and utility officials are satisfied that the lines are, and will remain, structurally sound and operationally safe.

2.6.4.3.2 Uncased construction can be employed if approved by District Public Works for permit work or the Utilities Engineer during highway construction projects. The approval is acceptable when open cutting is approved, if necessary, and in the following circumstances:

2.6.4.3.2.1The carrier is approved by the Department and conforms to the material and design requirements of the utility industry, governmental codes and standards, can support the load of the highway plus loads superimposed thereon when the pipe is operated under all ranges of pressure from maximum internal to zero pressure, with a higher factor of safety than normally required for cased construction. Carriers meeting these requirements can be used for the following installations provided a profile is submitted along with the plans for the following types of installations:

2.6.4.3.2.1.1 Natural Gas - utilities can employ welded steel pipe or high density polyethylene pipe (HDPE) as an uncased carrier pipe with at least 42 inches of cover. All such pipes shall meet design requirements as outlined above. The design of the HDPE pipe will also meet the minimum requirements referenced in the table in Appendix L.

2.6.4.3.2.1.2 Sewer - utilities can employ high density polyethylene pipe as an uncased carrier pipe. All such HDPE pipes shall meet design requirements as outlined above. The design of the HDPE pipe will also meet the minimum requirements referenced in the table in Appendix L.

2.6.4.3.2.1.3 Water - The minimum requirements for waterline crossings shall be ductile iron pipe with an industry standard push joint and at least 42 inches of cover. All such ductile iron pipes shall meet design requirements as outlined above.

2.6.4.3.2.2 Other Transmittants: A Department approved uncased crossing of welded steel pipelines carrying a transmittant which is flammable, corrosive, expansive, or unstable materials, particularly if carried at high pressure, may be permitted, provided additional protective measures are taken in lieu of casing. Such measures would employ higher factor of safety in the design, construction, and testing of the uncased carrier pipe, including such features as thicker wall pipe, radiograph testing of welds, hydrostatic testing, coating and wrapping, and cathodic protection

2.6.4.3.3 Suitable bridging, concrete slabs, or other appropriate measures shall be used to protect existing uncased pipelines which by reason of shallow cover or location make them vulnerable to damage from highway construction or maintenance operations.

2.6.4.3.4 Any exceptions (aside from 1a,1b, and 1c) to the casing requirements shall be determined by the District Public Works Section, based upon a written request for the exception stating the hardship and proposed method of crossing. In requesting exceptions, the utility shall consider the Department's policy of no open cutting of a roadway within 5 years after it has been resurfaced, except for an emergency. In addition, there shall be no open cutting for service lateral crossings. Utilities shall also consider those areas where repairs would be restricted by lack of rights-of-way or easements.

2.6.4.4 Permits For Casings

In all situations where a casing is to be installed, the utility shall submit a plan describing the location, method, and type of casing for approval by the District Public Works Section.

2.6.4.5 Placement Of Casing

2.6.4.5 Where casings are required, the location of the crossings must be determined carefully so that, if necessary, the utility can acquire sufficient right-of-way or private easements to remove or replace the utilities.

Casings shall extend at least 5 feet beyond the curb, pavement, projected fill slopes, or ditch lines to assure proper support of roadways during any repairs to pipelines. For all access-controlled highways, the encasement shall extend from right-of-way line to right-of way line or outside outer curbs. The design shall encompass allowance for future widening of the highway without the need of utility adjustment.

2.6.4.6 Types Of Casing

Casings shall be designed to support the load of the highway and superimposed loads thereon and at least equal the structural requirements for highway drainage facilities. Corrugated materials shall not be allowed.

2.6.4.6.1 Volatile Transmittant - The casings for facilities transmitting volatile materials must be of steel pipe or high density polyethylene of standard manufacture. The design of the HDPE pipe will also meet the minimum requirements referenced in the table in Appendix L. The joints must be welded or fused sealed around the entire circumference of the pipe as industry standards and regulations allow.

2.6.4.6.2 Non-Volatile Transmittant - The casings for facilities transmitting non-volatile materials may be of standard material such as steel pipe or high density polyethylene. The design of the HDPE pipe will also meet the minimum requirements referenced in the table in Appendix L. Other usable materials must be of a design to sustain the live and dead loads currently used in Delaware highway design. Such materials include reinforced concrete pipe, cast iron pipe, aluminum pipe, high density polyethylene pipe and ductile iron pipe.

2.6.4.7 Casing Installation

2.6.4.7.1 All pipeline installations must conform to the applicable regulations pertaining to the type of installation being constructed. When a pipeline casing is placed under a roadway, all installations are to be made by jacking, push-augering, or other approved methods. If coated pipe is used for jacking or boring, the same pipe should not be used as a carrier pipe.

2.6.4.7.2 A typical layout for jacking through a roadway is shown in Figure 2-1. Appropriate traffic control measures shall be used in accordance with DelDOT's Traffic Control Manual due to the reduction in shoulder use by the traveling public caused by jacking operations.

2.6.4.7.3 Other requirements for installation are as follows:

2.6.4.7.3.1 Non-Metallic Pipe - Installations of non-metallic pipe must include a tracer material that is detectable by locating devices that are acceptable within the industry.

2.6.4.7.3.2 Depth of Casing - The minimum cover required over casings is 42 inches, as measured from the top of the casing. The critical control for the depth of cover on a non-cased pipeline crossing is the low point in the highway cross-section. Normally, this is the bottom of the longitudinal ditch. Additional protection shall be provided for any pipeline with less then minimal cover.

2.6.4.7.3.3 Clearances - All utilities shall be separated from one another as required by appropriate codes and ordinances.

2.6.4.7.3.4 Sealing of Casing - Casing pipe over 4 inches in diameter must be sealed. Where carrier pipes that carry combustibles are cased, the casing pipes must be provided with a screened vent on each end that is as near as feasible to the right-of-way boundaries.

2.6.4.7.3.5 Drains - Drains shall be provided for casings and tunnels enclosing carriers of liquid, liquefied gas, or heavy gas. Drains may not outfall into roadside ditches. Such outfall shall not be used as a wasteway for purging the carrier unless specifically authorized by a National Pollutant Discharge Elimination System (NPDES) permit.

2.6.4.7.3.6 Vents - Where carrier pipes that carry combustibles are cased, the casing pipes must be provided with a screened vent on each end that is as near as feasible to the right-of-way boundaries. Other requirements are as follows:

2.6.4.7.3.7 Vents required for cased pipes are to be located at the high end of short casings-less than 150 feet long-and at both ends of casings longer than 150 feet.

2.6.4.7.3.8 Vent standpipes and warning markers are to be located and constructed so as not to interfere with the maintenance of the highway nor be concealed by vegetation.

2.6.5 Electric, Communication, And CATV

2.6.5.1 The requirements discussed earlier in this chapter describing installations and maintenance of pipelines crossing highway rights-of-way-as related to casings, markers, and installations- must also be applied to underground electric, CATV, and communications lines two inches or larger. The minimum depth of cover for these cased crossings is 42". Greater cover may be required depending on the construction of the roadway.

2.6.5.2 For underground electric, CATV, and communications lines less than two inches in diameter:

2.6.5.2.1 Where a conduit or casing is placed under an existing roadway, all installations must be made by jacking, push-augering, directional bore or other approved methods. The casing must have a minimum nominal diameter of 2 inches and is to be placed a minimum of 24 inches below the surface. The utilities must also conform to the National Electric Safety Code and any other utility codes cited in Section 2.4. Utilities may be required to install facilities deeper on a case by case basis depending upon the construction of the roadway.

2.6.5.2.2 Where the burying of cable is permitted along the edge of pavement, it may be done by plowing or trenching methods. The nearest edge of the trench must be at least 5 feet from the edge of the pavement, however, this distance can be reduced to 2 feet or greater should sufficient right-of-way be unavailable. The minimum depth of bury for CATV, communications, and electric is 24 inches, however, these utilities must also conform to the National Electric Safety Code and any other applicable regulations.

2.7 Attachments To Structures

2.7.1 General

2.7.1.1 Attaching utility lines to a highway structure can materially affect the structure, the safe operation of traffic, and the efficiency of maintenance, safety inspections, and structural repairs.

2.7.1.2 New attachments of utility facilities such as water, gas, sanitary sewer mains and electrical facilities will not be allowed to be attached to new structures. Communications and other telecommunications will not be permitted unless an extreme hardship can be proven. If a utility believes there is no feasible alternative, it must submit a written request to the district. In the request, the utility must include the proposed cost of the installation, describe other alternatives, and detail the associated costs of those alternatives. The District Public Works Engineer, Bridge Design Engineer, and Utilities Engineer and District Public Works will use the information in making a decision. The request is also subject to the approval of the Assistant Director, Design and Chief Engineer. Wheren utility attachments are indicatedrequested, they will be considered only if the structure in question is of a design that is adequate to support the additional load and to accommodate the utility facility without compromise of highway features, including reasonable ease of bridge maintenance. In all cases, gas lines or pipelines carrying explosive, corrosive, or flammable fluids must follow all applicable Federal and State codes.

2.7.1.3 The Department may enter into an agreement to reimburse the utility to design and inspect facility support and protection during Department projects as described in Chapter 4. Refer to the OSHA Technical Manual for requirements.

2.7.2 Request For Attachment

2.7.2.1 In extreme hardship cases, the utility shall submit to the Utilities Section Engineer a written request to attach its facility to a structure owned and maintained by DelDOTDistrict Public Works. The request shall include the following items:

2.7.2.1.1 Identification of the structure including details regarding the utility facility and its contents, such as pressure, voltage, current, flammability, freeze point, weight per foot, and any other pertinent information.

2.7.2.1.2 Calculations performed by a Delaware registered professional engineer to demonstrate the structural impact on the existing structure. All hazardous impacts must be addressed-magnetic fields, protection against electrocution, etc.

2.7.2.1.3 A study identifying alternate methods of getting the facility over, under, or around the obstacle, as well as the costs and problems associated with each alternative.

2.7.2.1.4 Descriptions of the proposed method of attachment and the appropriate devices for protecting the bridge and the facility.

2.7.2.1.5 The costs of the design and/or increased construction expenses, including the utility's commitment to pay for the construction expenses.

2.7.2.2 The request for attachment shall then be reviewed and approved by the District Public Works Engineer, Utilities Engineer and the Bridge Design Engineer. The request is also subject to the approval of the Assistant Director, Design and Chief Engineer.

2.7.2.3 Utilities are expected to make a good-faith effort to accommodate DelDOT maintenance or construction requirements. The Utility shall submit all material and construction specifications for inclusion in contract documents for any work to be performed by DelDOT's contractor.

2.7.3 New Construction

If the Department approves the attachment, the utility must commit agree to havingallow the facility installed by the Department's contractor at the price assigned to this bid item within the Department's construction project bid, at the utility's expense. The utility shall reimburse the Department in accordance with the terms of an agreement outlining the conditions of bridge occupancy.

2.7.4 Existing Structures

The following policies apply to utilities on existing structures:

2.7.4.1 Existing utilities attached to a structure can remain if they are not impacted by a Department project.

2.7.4.2 Existing utilities must be relocated off the structure if the Department's project requires either temporary or permanent relocation.

2.7.4.3 Any utility that plans to replace a facility attached to a structure shall relocate the facility off the structure.

2.7.4.4 The utility must consult the Department District Public Works on its choice of contractor, and have the Department's District Public Work's consent. The utility, by agreement, shall pay for Department inspection, and the Department shall have an inspector on site during the construction.

2.7.5 Attachment Procedures

The following should be considered when the design of utility attachments is reviewed:

2.7.5.1 The attachment is designed to minimize adverse impact on structure maintenance.

2.7.5.2 No facilities are attached to the outsides of structures.

2.7.5.3 All utility facilities attached to structures shall be housed in casing pipes to allow for insertion and extraction of the carrier facility.

2.7.5.4 No manholes are constructed in bridge decks.

2.7.5.5 Utilities are placed so that the vertical clearance of the bridge above the stream, pavement, or railroad tracks is not reduced.

2.7.5.6 Utilities are located beneath decks, between the outer girders or beams, and within a cell -above the low superstructure steel or masonry.

2.7.5.7 Support rollers, saddles, or padded or coated hangers are used to muffle vibration noise.

2.7.5.8 The casings of pipes or conduits that are carried through bridges, or attached to them, are effectively opened or vented at each end to prevent pressure buildups and detect gas or fluid leaks. Casing pipes shall be sealed at the ends with a flexible material to prevent flowing water or debris from entering the annular space between the casing and carrier. Casing drains shall be provided for a carrier of liquid, liquefied gas, or heavy gas.

2.7.5.9 Additional protective measures are taken where pipes or conduits carried through or attached to structures are not cased. Such measures shall employ a higher safety factor in the design, construction, and testing of the pipeline than would normally be required for cased construction.

2.7.5.10 Upon leaving bridges, the utilities are aligned outside the roadway in as short a distance as operationally practicable.

2.7.5.11 Hangers or rollers are suspended from inserts below deck or from hanger rods clamped to beam flanges. No bolting through bridge floors or beams should be allowed.

2.7.5.12 Where appropriate, the linear expansion and contraction of utilities due to temperature changes are provided for. Line bends or expansion couplings should be used.

2.7.5.13 Suitable corrosion protection is provided.

2.7.5.14 Communication and electric lines that are attached to structures, or pass through them, are suitably insulated and grounded, and are carried in protective conduit or pipe from the point of exit from the ground to re-entry. Carrier pipe and casing pipe shall be suitably insulated from electric power line attachments.

2.7.5.15 Pipes and conduits that are carried through abutments are sleeved and tightly sealed with mastic, or carried through by other approved methods.

2.8 Preservation And Restoration

2.8.1 Preservation

2.8.1.1 Utilities are prohibited from spraying, cutting, and trimming trees on public highways or street rights-of-way unless written permission has been granted by the Department. When permission is granted for a utility to cut or trim trees, the work must be performed in compliance with Department standards.

2.8.1.2 Where tree removal is permitted, stumps must be removed, and the resulting holes shall be properly backfilled to allow for settlement in accordance with the DelDOT Standard Specifications.

2.8.1.3 The Department has adopted the ANSI Standard A300 (Part 1)-2001 entitled Tree Care Operations - Tree, Shrub and Other Woody Plant Maintenance - Standard Practices. The Landscaping and Reforestation Act Implementation (located in Appendix A of the DelDOT Road Design Manual) also provides guidelines for tree protection and maintenance during road construction projects.

2.8.1.4 For all future transportation projects and maintenance activities on existing highway alignments, trees must be replaced in accordance with the Department's Landscaping and Reforestation Act Implementation located in Appendix A of the DelDOT Road Design Manual. Each employee or agent of the Department who participates in the planning, design, and construction of projects and normal maintenance of the roadways should be aware of the aesthetic and environmental effect that natural vegetation provides. Every effort must be made to preserve the beauty of Delaware's roads. However, each employee or agent must also be aware of the danger posed by hazards left along the roadside. The AASHTO Roadside Design Guide should be used as reference. The traveling public has the right to expect a reasonably safe road and roadside area when faced with potential dangers such as blowouts, evasions of other vehicles or animals, adverse weather conditions, and other uncontrollable situations.

2.8.1.5 Utilities shall ensure that appropriate erosion control devices are in place before work starts and properly maintained during construction. The surface area disturbed by utility installations or relocations shall be kept to a minimum.

Care shall also be taken in utility installations to avoid disturbing existing highway or private drainage facilities or sprinkler systems. Any damage to the facilities by the utility company or its subcontractors shall be repaired at the utility company's expense.

2.8.2 Restoration

2.8.2.1 Damage to highway traveled ways, shoulders, and drainage features caused by utility installations or repairs must be immediately restored to their original condition as stated in the **Delaware Code**. If utilities have not completed restoration within 30 days, noncompliance regulations will take effect. Temporary patches from winter months shall be permanently restored by May 15 before noncompliance action will be taken. Damage to roadside areas in the right-of-way shall be repaired as soon as possible, or as specified by the District Public Works Section. Restoration is also necessary when utilities are working on active construction sites. The District Public Works Section will determine any necessary repairs.

2.8.2.2 The utilities shall restore the damaged areas to a condition at least equivalent to that which existed prior to the utility work. In all cases, the District Public Works Section will determine the extent of restoration required. All such work will be done at the utility's expense and in accordance with the appropriate Standard Specifications. The Seeding specification is located in Section 734 of the Standard Specifications.

2.8.2.3 The utility shall maintain the non-pavement restoration for a period of 12 months after the satisfactory completion. Utilities are responsible for maintaining pavement patches that result from utility work for three (3) years.

2.8.3 Traveled Way-general

To maintain traffic, not more than one lane of traffic shall be closed at a time whenever a traveled way is cut. All cross-road cuts for utilities will be made perpendicular to the longitudinal centerline of the traveled way, and perpendicular to the plane of the finished subgrade. All patches must have a minimum length of 6 feet (as measured along the roadway centerline) and the width of the lane or lanes disturbed. Any lane encroachment of one foot or more requires restoration of the full lane width. Before reopening the section, the area shall be made usable for traffic. DelDOT Standard Construction Detail P-2 illustrates cross-road cuts.

2.8.3 Flowable Fill

Flowable fill is recommended for restoration of cross-road cuts although Borrow Type C can be utilized. Flowable fill shall meet the requirements of Special Provision 208500 as shown in Appendix F. The District Public Works Section may require flowable fill.

2.8.4 Temporary Patches

2.8.4.1 If immediate repairs to the traveled way are not feasible-and if the District Public Works Section concurs-a temporary patch may be used until permanent repairs are completed. Figure 2-3 shows the minimum design requirements for temporary patches: at least 8 inches of compacted graded aggregate overlaid by at least 2 inches of Superpave Type C 160 Gyration, PG 64-22. When weather conditions prohibit the use of such mix, District Public Works can approve 10 inches of compacted graded aggregate overlaid by at least 2 inches of cold patch mix.

2.8.1.2 Figure 2-3 also illustrates trench width and backfill layer requirements. Backfill shall be placed and compacted in successive layers. Trench widths vary, but should not be less than 2 feet plus the outside diameter of the pipe. Each backfill layer is to be placed in a level, uniform cross section not exceeding 8 inches in loose depth, and then compacted with a mechanical tamper according to the Standard Specifications Division 200 regarding Earthwork.

2.8.5 Surface Treatments And Hot Mix Pavements

2.8.5.1 Firgure 2-4 illustrates the details of permanent cross-road or longitudinal utility patches for surface-treated or hot mix asphalt roads and shoulders. Note that this is a minimum patch. If the existing roadway has a heavier cross section than indicated in Figure 2-4, it will be replaced with the same cross section or as directed by the District Public Works Section.

2.8.5.2 The compaction requirements for both the patch material and the backfill material are covered in Division 200 of DelDOT's Standard Specifications.

2.8.5.3 The details for a temporary patch are shown in Figure 2-3.

2.8.6 Portland Cement Concrete Pavements

2.8.6.1 Portland cement concrete (PCC) streets and roads must be patched as described in Section 503-"Patching Portland Cement Concrete Pavement"-of the Standard Specifications. The details are shown in the DelDOT's Standard Construction Detail P-2 for PCC Pavement Patching.

2.8.6.2 An approved concrete saw shall be used to make a vertical, full-depth cut in the concrete pavement. The cut is to be made to ensure a straight, clean, vertical surface.

2.8.6.4 Temporary patches are discouraged in PCC pavements in favor of plating the opening and returning the next day to pour permanent ones. If a temporary patch is to be used, it will require the same cross section as shown in Figure 2-3 (8 inches graded).

2.8.6.5 Other details of utility patches in PCC pavements are shown in Standard No. P2 of DelDOT's Standard Construction Details.

2.8.7 HOt Mix Overlays On Pcc Pavements

Utility patches made in PCC pavements with hot mix overlays shall comply with the current Standard Specifications and gain approval of the District Public Works Section. The patch layout is illustrated in Standard No. P2 of DelDOT's Standard Construction Details.

2.8.8 Roadsides

2.8.8.1 Damage to roadside areas in the right of way shall be repaired as soon as possible to conditions at least equivalent to those existing prior to utility work. The restoration of roadside areas is concerned mainly with trenching and backfilling requirements. First, excavation widths will vary depending on the type of utility being placed.

2.8.8.2 Trenches for cables, conduits, conductors, or pipes-other than those that are plowed or cut by a small trencher with a 4-inch to 6-inch cut-must be at least 8 inches wide.

2.8.8.3 Trenches for pipe (other than rectangular or square conduit) with an outside diameter of 6 inches or more must be cut 2 feet wider than the outside diameter of the pipe. The pipe will then be placed in the trench with a 1-foot clearance on each side.

2.8.8.4 Trenches are to be backfilled or covered immediately after installation of the utility facility. They cannot be left open overnight because they pose a hazard to the public. Authorization to use steel plates at any time other than April 15 through October 31 must be obtained from the District Public Works Section.

2.8.8.5 Acceptable material must be used to backfill trenches. It shall be placed in 8-inch layers (loose measurement) and thoroughly compacted-just as for trenches in pavement areas. The backfill material and compaction method must meet the requirements of the Standard Specifications.

2.8.8.6 Excavated material that is not satisfactory for backfill shall be removed from the area immediately after excavation. Material that is satisfactory for backfill must be stockpiled in a safe and orderly manner-preferably not stored on the roadway. District Public Works can approve storage on the roadway if necessary. Material stockpiled in the immediate work area must not pose a hazard to the traveling public. All materials shall be stockpiled in accordance with the rules established by the Manual on Uniform Traffic Control Devices (MUTCD).

2.8.9 Manholes And Valve Boxes

2.8.9.1 Where manholes or valve boxes are repaired in pavement areas, backfill shall be placed in 8-inch layers (loose measurement) and thoroughly compacted-the same as for trenches in pavement areas. The backfill material (Type C Borrow) and compaction method must meet the current Standard Specifications.

During construction, areas around manhole lids and valve boxes must be dug by a non-destructive method. The details of proper roadway patching around manhole lids are shown in Figure 2-5.

2.8.10 Test Holes

2.8.2.10.1 When possible, test holes are to be dug by a nondestructive method-such as by vacuum removal in a hole less than 244 square inches. The repair shall be only the size of the hole. The fill shall be compacted in lifts, and the same amount of stone, hot mix, concrete, etc.- as the existing roadway-shall be replaced.

2.8.2.10.2 Sometimes small holes (up to 2 inches in diameter) bored in the surface for any type of utility testing or maintenance will be repaired with a flexible embedding sealer (cold poured resilient type epoxy joint sealer) approved by the District Public Works Section.

2.8.11 Highway Construction Projects

2.8.11.1 The restoration requirements defined in Sections 2.8.2.1 through 2.8.2.7 apply to the placement of utilities on existing roadways and rights-of-way. Where utility relocations and adjustments are made in conjunction with a highway improvement project, some portions of the restoration by the utilities may be unnecessary. For example, full restoration is unnecessary when the area will be repaved as a part of the highway improvement. Under these circumstances, appropriate portions of the restoration requirements may be waived.

2.8.11.2 The utility is responsible for restoring all sedimentation and erosion control measures to their original conditions and for maintaining temporary patches.

3.0 Master Franchise, Permits and Agreements

3.1 Definitions and General Requirements

3.1.1 Definitions

The Department uses three different types of documents to manage the installation and/or occupancy of utility facilities on, under or across State right-of-way. These documents include franchises, permits, and agreements.

Public Utility Annual Master Franchise - The Public Utility Annual Master Franchise is a legal instrument that grants the use of highway rights-of-way. It authorizes a public utility to place its facilities within State rights-of-way without any vested interest therein (under the provisions of Title 17 of the **Delaware Code**). A franchise does not serve as a control instrument over construction methods, traffic control features, or timing as opposed to a permit, which does. The only type of franchise accepted by the Department is the Public Utility Annual Master Franchise established October of 2004. The Master Franchise eliminated the need for a public utility to apply for a franchise each time a new utility installation was to be located within State right-of-way. The public utility applies for a Master Franchise for each County where it owns facilities within the State right-of-way. The executed Master Franchise remains in force for a period of 50 years and automatically renews annually for another 50 years unless otherwise agreed to by the parties.

Use and Occupancy Agreement - This agreement is between the Department and an individual or entity for a privately owned utility that crosses a State-maintained road. It provides the Department with information about the crossing and sets forth the conditions for it. This agreement may also be used for privately or individually owned facilities to be located on State rights-of-way.

Utility Construction Permit - A Utility Construction Permit authorizes a utility to construct, maintain, or repair a utility facility within State rights-of-way. The highway is under the control of District Public Works, and a Utility Construction Permit is used to secure the District Public Works Section's approval of the details controlling construction activities.

Letter Agreement - A letter agreement is a legal instrument between a utility and the Department to establish the utility work in conjunction with a DelDOT highway construction project that the Department has determined to be reimbursable. It describes the terms and conditions-in accordance with the State code-by which the work and subsequent payment will be handled. An executed letter agreement is required prior to the performance of any work that is to be reimbursed. See Chapter 4 for further discussion.

3.1.2 General Requirements

A Master Franchise is required if a public utility locates facilities on State right-of-way. A public utility must submit a franchise application for each County where its facilities are located within the State rights-of-way.

A Utility Construction Permit is required in all cases of maintenance or installation of utility facilities on State right-of-way, including right-of-way within a municipality unless otherwise specified for a State Highway Construction Project. A Master Franchise or a Use and Occupancy Agreement must be in force before a construction permit is valid. The application for a Utility Construction Permit must be submitted to the applicable District Office of Public Works.

A Utility Construction Permit may not be issued to place aboveground or underground parallel facilities along both sides of a traveled way, unless justified and approved by the District Public Works Section or located within subdivisions. In the case of underground, safety and adequate space for other utilities should be considered before exceptions are approved.

If the utility crosses over or under a railroad, the District will make a notation on the permit that the work is subject to approval by the railroad company. A copy of the railroad company approval shall be supplied upon request to the District prior to crossing the railroad.

3.2 Master Franchise

3.2.1 Purpose

The Master Franchise is a legal instrument by which the use of highway right-of-way is granted. It is not a control instrument over construction methods, traffic control features, or timing as opposed to a permit. The Department may grant a Master Franchise to the following utilities:

3.2.1.1 a public utility subject to the regulatory jurisdiction of the Public Service Commission;

3.2.1.2 a cable system operator or video services provider franchised by the Public Service Commission or a municipality; or

3.2.1.3 a utility owned, operated, controlled or created by the State, a municipality, county, or other political subdivision.

The Public Utility Annual Master Franchise form is located in Appendix B of this manual.

3.2.2 Conditions

The Master Franchise requires that all facilities to be constructed must meet the requirements set forth in this manual for locations, construction, construction methods, timing, etc.

3.2.3 Preparation

The utility submits three Master Franchise forms for each County where they own facilities in the State rights-of-way. The three forms shall be signed with signature attested and the Company seal affixed. The franchise forms are to be submitted to the Utilities Engineer's office for processing.

3.2.4 Processing

The appropriate Utility Coordinator reviews the Master Franchise forms for accuracy and completeness. If satisfactory, DelDOT Deputy Attorney General, Assistant Director of Engineering Support, and the Director of Technology and Support Services will execute the agreement and affix the Departmental seal. An original will be returned to the utility, one is forwarded to the DelDOT Director of Technology and Support Services, and one is retained in the Utilities Section. A copy of the Master Franchise will be forwarded to the appropriate District.

3.2.5 Renewals

Each Master Franchise remains in effect for 50 years from the date of execution by the Department. The Master Franchise shall automatically renew annually for another 50 years unless otherwise agreed to by the parties. There is no need to file the franchise application annually.

3.2.6 Subdivisions

Upon completion and acceptance of the subdivision or industrial streets, the utilities that are located within the State right-of-way shall be franchised in accordance with the existing countywide Public Utility Annual Master Franchise for each individual utility. Future work performed in that development will require only a utility construction permit. Please refer to the Standards and Regulations for Subdivision Streets and State Highway Access for requirements regarding subdivisions.

3.2.7 Freeway Right-of-way

3.2.7.1 Only in exceptional cases are utilities granted a Utility Construction Permit to cross freeway right-of-way on new locations, and rarely are they permitted to run longitudinally on freeway right-of-way.

3.2.7.2 A utility will be permitted along a freeway on a new location only under strictly controlled conditions. An application for permission to use or occupy the freeway right-of-way must be directed to the District Public Works Section.

3.2.7.3 The application must address the following:

3.2.7.3.1 the direct and indirect environmental and economic effects of any loss of productive agricultural land which may result from disapproving the use of the right-of-way,

3.2.7.3.2 the utility's compliance with the provisions of this manual and AASHTO policies as referred to in Appendix D,

3.2.7.3.3 why any other utility location would be extremely difficult and unreasonably costly for the utility consumer and

3.2.7.3.4 how the utility's installation on the freeway right-of-way will not adversely affect the design, construction, stability, traffic safety, or operation of the freeway.

3.2.7.4 The District Public Works Section will assess the situation and send the application with a recommendation and justification to the Utilities Engineer for coordination and comment. The Utilities Engineer will then review the application and provide the necessary coordination. Next, the application will be sent to the Assistant Director, Engineering Support for review.

3.2.8 Coordination Between Utility and State

Both the Department and the utility company representatives need to exchange information regularly to help avoid conflicts between utility company projects and Department projects in terms of location, construction, or method of installation.

3.3 Use and Occupancy Agreements

3.3.1 Purpose

The Use and Occupancy Agreement (shown in Appendix B) is to be used for privately or individually owned facilities that are located on or across a State-maintained roadway. For example, if a landowner owns both sides of a State roadway and needs to convey irrigation lines, water lines, gas lines, etc., between the properties, the landowner and Department must execute a Use and Occupancy Agreement.

The Utility Use and Occupancy Agreement provides the Department with information about the facilities and sets forth their conditions. The owner must obtain a Utility Construction Permit for any construction, maintenance, or repair.

3.3.2 Conditions

The Use and Occupancy Agreement provides the Department with information about the crossing and sets forth the conditions for the facilities. Only crossings will be allowed; longitudinal lines will not be permitted.

Signs will be provided by the Department to mark the utility crossing at each right-of-way line. Furnishing the mounting post and installation in accordance with Department requirements is the responsibility of the utility owner.

3.3.3 Preparation

A Use and Occupancy Agreement must be prepared by the owner, in triplicate, for each installation where a facility is placed on a State-maintained roadway.

3.3.4 Processing

The Utility Use and Occupancy Agreement is then processed according to the following steps:

- The agreement is reviewed by the appropriate District Public Works personnel for completeness, accuracy, and compliance with the provisions contained in this manual.
- The District Public Works Section reviews the agreement and forwards a copy with sketches to the Utilities Engineer for review.
- The Utilities Engineer reviews the information and makes comments to the District Public Works Section.
- The District Public Works Section approves and signs the agreement after all corrections have been made, and then returns one copy to the applicant, sends one copy to the Utilities Engineer, and retains one copy.
- In event of a dispute, the Chief Engineer has final approval.

3.4 Construction Permits

3.4.1 Purpose

A Utility Construction Permit form (Appendix B) must be completed for all utility construction not performed in conjunction with a DelDOT construction project. A permit is required if utility work is done in advance of the construction project where DelDOT Construction has not yet been assigned. The permit is used to secure the District Public Works Section's approval of the details controlling construction activities. An executed Public Utility Annual Master Franchise shall be on file prior to submission of a construction permit application for Public Utilities. A privately owned facility must have a Utility Construction Permit and a Use and Occupancy Agreement before any type of installation, repairs or relocation.

To apply for a permit, contact the appropriate District Public Works Office:

- South District Public Works - Sussex County: 302-853-1340
- Central District Public Works - Kent County: 302-760-2473
- North and Canal District Public Works-New Castle County: 302-326-4679

North District: Area north of and including I-95 and I-495 (except area west of Route 7, south of Route 2), including the City of Wilmington.

Canal District: Area south of I-95 and I-495 (including west of Route 7 and south of Route 2 to Kent County, including the City of Newark.)

Usually, four sketches or plans must be attached to the construction permit application upon submittal. However, it is best to contact the District to see if there have been any changes to the requirements.

3.4.2 Electronic Permits

A computerized permit process intended for large users may supplement the construction permit process. The utilities wishing to use the system will need to execute a letter agreement with the Department specifying the conditions of the electronic permits.

3.4.3 Requirements

A Utility Construction Permit is required any time utility construction work (including excavations or openings) will disturb anything on the roadway or State right-of-way. The permit is necessary each time a facility is upgraded or rebuilt, or an installation is added (excluding services). Project Design Work (as defined in Section 2.1) is excluded from this requirement except in cases when Utility Work is performed in advance of construction or the Department requests test holes for the locations of utilities. The District may waive the permit requirement for test holes.

Permits for Public Utilities will be issued only if a Master Franchise is in force. Private owners of facilities must have a Use and Occupancy Agreement along with a permit. The new permit request must show the existing and proposed installation.

A utility that performs work on the State right-of-way longer than one working day to repair or adjust an existing facility-or that disturbs the roadway-must have a construction permit. If the work takes less than one day, and does not disturb the roadway, a permit is not required. However, the utility must notify the District Public Works Office of any lane closure on any roadway outside of a subdivision before starting work. The notification must include the location and type of work to be performed.

In an emergency, the utility must promptly notify the District Public Works Office. The utility is responsible for communicating the type of emergency and location of the work to be performed and other pertinent information. The utility must submit a construction permit to the District Public Works Office as soon as possible. In case of an emergency during normal business hours, call the District Public Works numbers listed in Section 3.4.1. After normal business hours, please call:

New Castle County: 302-323-1111
Kent County: 302-760-2473
Sussex County: 302-855-1111

3.4.4 Fees

No fees are authorized at this time.

3.4.5 Preparation

3.4.5.1 Utility Construction Permits are to be prepared in four copies (unless submitted electronically) by the utility company and submitted to the office of the District Public Works Section along with four copies of plan. The sketches or plans must show the:

__ 3.4.5.1.1 width of the right-of-way,
__ 3.4.5.1.2 type of roadway,
__ 3.4.5.1.3 width of traveled way,
__ 3.4.5.1.4 distance from the crossroad or side road to the installation,
__ 3.4.5.1.5 distance from the centerline of the roadway to the installation,
__ 3.4.5.1.6 type of shoulder,
__ 3.4.5.1.7 width of shoulder,
__ 3.4.5.1.8 drainage system in the utility area,
__ 3.4.5.1.9 trench and restoration details,
__ 3.4.5.1.10 north arrow, scale and legend, and
__ 3.4.5.1.11 railroads crossing roadways.

3.4.5.2 In addition, all sketches for pressure pipeline installations must specify the class of transmittant, the maximum working pressure, the maximum design pressures, and the design standards for the carrier.

3.4.5.3 When a Utility Construction Permit is needed after a DelDOT highway contract has been awarded, the utility must obtain written permission from the DelDOT contractor to work in the project area. This policy includes any utility work not caused by the construction or improvement of a highway. For an exception to be made, the utility must have written permission from DelDOT to perform such work. To give this written permission, DelDOT must first obtain a satisfactory waiver, release, and quit claim from the State's contractor. It must cover all damages and all defenses whatsoever for delays caused by the utility work. If a dispute arises or the contractor will not provide the appropriate document, then the District Public Works Section has the option of setting a time frame in which the utility may work.

3.4.6 Processing

The Utility Company submits a permit application to the District Public Works Office. The District assigns a permit number and distributes the originals as follows:

- original to the responsible District Public Works personnel,
- two copies to the utility, and
- one copy to the State Inspector

Utility Construction Permits are required for work to be performed on state right of way or state maintained roads within the incorporated limits of a municipality. The utility must also have approval of the municipality.

3.5 Utility Construction, Relocation, Or Repair Not Due To Highway Construction

3.5.1 A public utility must not start construction of a new installation, repairs, or relocation until a Utility Construction Permit has been issued and a Master Franchise is in force. A privately owned facility must have a Utility Construction Permit and a Use and Occupancy Agreement before any type of installation, repairs or relocation.

3.5.2 The District Public Works office must be notified at least one working day before the start of construction. (Notification may be given in writing, orally, or by fax.) The information transmitted must include the starting date, road number, and permit number. Refer to Section 3.4.3 for further details including emergency situations.

3.5.3 Permits issued by the State may be revoked whenever state authorities ascertain a threat to the traveling public. Other causes for revocation may include--but may not be limited to--misuse, noncompliance with State requirements, or improper maintenance of traffic. Depending on the circumstances, any permit application may be denied.

3.5.4 The utility company or its contractor must have a responsible representative at the job site at all times to supervise the work. Information on the Utility Construction Permit must be available to this responsible representative.

3.5.6 Utilities must notify "Miss Utility" at least two working days before starting work. A "working day" shall mean every day, except Saturday, Sunday and state, federal and recognized operator holidays.

3.6 Noncompliance

3.6.1 If a utility fails to comply with any of the conditions, restrictions, or regulations prescribed by DelDOT and stated in this manual, the following actions will be taken:

__ 3.6.1.1 The State will notify the utility, in writing, of the noncompliance. The State may also impose such actions, as it may deem appropriate, including an immediate stop work order until the utility complies.

__ 3.6.1.2 The utility must correct the noncompliance within 30 days after receiving written notice from the State.

__ 3.6.1.3 After the thirty 30 day period, the State will be required to take any action necessary to protect the safety of the traveling public. This may include restoration of roads or taking possession of and removing poles, pole lines, wires, pipelines, conduits, fixtures, or other structures or property owned by the utility and located on State right-of-way.

__ 3.6.1.4 The utility will be responsible for all costs and expenses associated with the necessary action to correct the situation.

4.0 Utility Adjustments for Highway Construction

Existing utilities along highways that are to be reconstructed may sometimes be allowed to remain in place, however they usually must be adjusted or relocated to accommodate the construction work and the reconstructed highway.

Utility facilities must not be in the way of the reconstruction work in order to remain in place. In addition, their future maintenance must not create a hazard for the traveling public. The Utilities Engineer shall determine whether they may remain in place.

In general, utilities are not reimbursed by the State for the cost of adjusting or relocating their facilities. In accordance with Section 143, Title 17, **Delaware Code**, however, some work is reimbursable. Both cases are discussed in this chapter.

4.1 Preconstruction Coordination

The Utilities Section shall manage coordination of the design process for utility relocations and adjustments associated with highway construction projects. Utility companies shall provide information to the Department for all of their facilities within the existing or proposed right-of-way. The information provided will include the facility types, sizes, and locations.

4.1.1 Concept Phase

In the concept phase, the Department Project Manager is responsible for defining the limits of the right-of-way necessary to construct, operate, maintain the highway and plan for utility relocation. To minimize design time and avoid costly revisions, the Project Manager shall consult with the Utilities Section early in the design process. The Project Manager collaborates with the assigned Utility Coordinator to determine potential utility impacts. The Project Manager and Utility Coordinator shall determine the extent and timing of utility designation.

The Utility Coordinator identifies existing utilities and contacts existing utility companies as necessary. The utility companies shall submit any easement or "prior rights" documentation to the Utilities Engineer. The purpose of the submittal is to establish a compensable interest if the utility is seeking reimbursement in accordance with **Delaware Code**. An executed agreement between the Department and the utility shall be in place for all eligible adjustments before any utility work can begin. Refer to Section 4.3 for more information regarding agreements.

Note: It is the sole responsibility of the utility to provide the documentation of a compensable interest and **NOT** the Department's responsibility to seek it.

4.1.1.1 Utility Designation

The Project Manager and the Utility Coordinator will determine whether utility designation will be performed through MISS UTILITY, a Subsurface Utility Engineering (SUE) consultant or if utility

designation is not required. The Project Manager specifies the Federal Highway Administration (FHWA) quality level of the SUE process required for the design of the project. If test holes are required, the Project Manager also specifies the number of test holes needed. The FHWA quality levels are classified as follows:

- Level D information is retrieved from existing utility records.
- Level C involves surveying visible aboveground utility facilities and correlating this information with existing utility records.
- Level B involves the use of surface geophysical techniques to determine the existence and horizontal position of underground utilities.
- Level A involves the use of non-destructive digging equipment at critical points to determine the precise horizontal and vertical position of underground utilities, as well as the type, size, condition, material, and other characteristics.

The American Society of Civil Engineers Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data CI/ASCE 38-02 shall be followed for the classification and depiction of subsurface utility data.

The results of the designation shall be forwarded to the Project Manager for incorporation into the plans and cross sections. The Project Manager, in coordination with the Utility Coordinator, shall determine which conflicts cannot be avoided and discuss alternatives with the affected utility company. The utility companies shall identify potential problems that could affect the project schedule at this stage of the plan development.

4.1.1.2 Subsurface Utility Engineering (SUE) Consultant

A Utilities Section SUE consultant or SUE consultant subcontracting to an approved Design Consultant may be utilized to acquire utility facility information. In all cases, the SUE consultant shall provide all information obtained from the approved tasks to the Project Manager, the approved Design Consultant for the project, and the DelDOT Utilities Section Coordinator. The SUE tasks may include utility designation, test holes, and coordination services. The SUE information includes, but is not limited to plans, test hole results, and review meetings.

The utilities are required to provide or verify the designation information on their facilities regardless of the Department's use of a SUE consultant.

4.1.2 Survey Plans

The Project Manager will provide two sets of survey plans per utility to the Utility Coordinator for distribution to each utility company. The utility will identify its existing and known abandoned facilities on the plans, indicating whether they are aerial, surface, or buried underground. The utility will also include information indicating

- the sizes of pipes,
- number of conduits,
- approximate depths of the facilities,
- private easements,
- any private services that may be affected,
- the identity of other utility company facilities (attached, housed, aerial or underground),
- any other information pertinent to the facilities,
- and any planned relocations or reconstruction to occur within the limits of the project.

The utility company must return the information to the Utilities Section within 30 days of receipt unless a later date is agreed upon by the Project Manager and the utility representatives.

4.1.3 Preliminary Plans

4.1.3.1 The Project Manager shall prepare preliminary plans showing the proposed alignment, typical sections, profile, schematic drainage alignment, existing right-of-way, proposed right-of-way, easements, clear zone, test hole data on cross-sections (if obtained), existing utility facilities from the survey data, and other details. The American Society of Civil Engineers Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data CI/ASCE 38-02 standards shall be followed for the classification and depiction of subsurface utility data.

4.1.3.2 The Project Manager will provide the Utilities Coordinator with two sets of preliminary plans to distribute to each utility involved in the project. If current, the utility information on the previously marked Survey plans will be shown on the preliminary plans.

4.1.3.3 The utility company is required to mark the preliminary plans with any additional right-of-way necessary for relocation of facilities. The following is typically requested with the marked Preliminary Plans:

4.1.3.3.1 suggested design modifications that would eliminate relocations,
4.1.3.3.2 description of utility relocations along with estimated timeframe for construction,
4.1.3.3.3 list of stations and offsets where test holes are needed,
4.1.3.3.4 identification of any permits that may be required, and
4.1.3.3.5 information on any other utility's facilities located on its poles.
4.1.3.3.6 Joint Use or third party installation requirements.

4.1.3.4 A utility may be dependent upon another utility's plans and actions in order to complete the work. The Utility Coordinator should be made aware of this condition in order to ensure efficient coordination of the project.

4.1.3.5 The utility company owning the pole, duct system, etc is responsible for coordinating the relocation of any renters or lessees as required by the Telecommunication Act of 1996.

The utility company shall return the proposed work plan on one set of plans provided by the Department within 30 days of receipt. If a site meeting is held, the plans will be returned within two weeks of the meeting. In either case, a later date may be agreed upon by the project manager and the utility representatives.

4.1.3.1 Coordination & Site Meeting

If a subsequent site meeting is held, the utilities shall return preliminary plans at the meeting or within two weeks of the meeting. The Utilities Section will forward a copy of the plans to the Project Manager.

The Project Manager, in coordination with the Utility Coordinator and the utility company's representative, will review the preliminary plans for potential conflicts with existing utilities, and will determine which conflicts cannot be avoided. Any proposed signage or street lighting to be done in conjunction with the project shall also be reviewed and coordinated. If power lines must be relocated, the Project Manager shall coordinate the lighting needs, street lighting, signalization, traffic coordination installations, Traffic Impact Study (TIS) recommendations, etc. with the power company. DelDOT should apply for any necessary electric service from the utilities at this stage. If feasible, the utility poles may serve as light standards as well as carry the lines. Joint use agreements and location of DelDOT facilities shall be clarified as well.

4.1.3.2 Reimbursable Work

If reimbursable work is involved and the letter agreement has been executed, the utility shall provide a cost estimate for the preliminary engineering (PE). The Utilities Engineer may elect to waive a detailed cost estimate for Preliminary Engineering.

The Utilities Engineer shall grant a notice to proceed for preliminary engineering upon Departmental authorization of funding. A notice to proceed must be issued before the utility begins preliminary engineering in order for the preliminary engineering costs to be considered reimbursable by the Department.

Within 30 days of the issuance of the notice to proceed and receipt of preliminary plans, or the date agreed to by the Utilities Engineer, the utility company shall supply a Utility Plans, Specifications and Estimate (Utility PS&E) package, consisting of plans, specifications, and estimate and four sets of marked color-coded plans. Utilities may submit color-coded plans electronically, however they must be printable on standard size paper. These plans indicate:

1. existing to remain,
2. existing to remove,
3. proposed reimbursable and
4. proposed non-reimbursable.

Refer to Section 4.3 for further details on plan preparation and reimbursable work.

The Utilities Engineer will review the Utility PS&E package and verify any proposed reimbursable work.

4.1.4 Semifinal Plans

The Project Manager will give the assigned Utility Coordinator two sets of semifinal plans to distribute to each utility involved in the project. Any unresolved conflicts with the proposed construction and the utility's proposed relocation scheme need to be resolved.

The proposed relocation plan will be shown on the semifinal plans with any corrections to existing facilities and submitted along with the utility company's proposed Utility Statement (Resume of proposed work).

The Utility Statement (Resume of proposed work), submitted by the utility company, shall contain:

1. a description of the existing facilities;
2. any proposed changes, adjustments, or relocations;
3. the location, of the changes using station count and offsets;
4. quantities of borrow Type C if necessary;
5. the proposed time schedule (in calendar days) for completing the alterations, adjustments, or relocations for each phase of the Project's Sequence of Construction/ Maintenance of Traffic Plan; and
6. Any other information that may impact the state's contractor.

The utility will return one set of semifinal plans with the changes marked, the proposed relocation plan, and their proposed Utility Statement to the Utilities Engineer within thirty (30) days of receipt unless a coordination meeting is requested. If a coordination meeting is scheduled, the plans should be returned within two weeks of the meeting. In either case, a later date may be agreed upon by the project manager and the utility representatives. The Utilities Engineer will verify any proposed reimbursable work.

The DelDOT Project Utility Statement is subsequently prepared from all of the Utility Statements submitted by each of the public utilities. The DelDOT Project Utility Statement includes construction phases in which the work will occur and may include a list of locations for open cutting of roads. The Utilities Engineer will forward the DelDOT Project Utility Statement to the Project Manager. The applicable proposed relocation plans will also be forwarded.

The DelDOT Project Manager shall generate a bar chart showing the road construction sequencing and how it coordinates with the utility relocation sequencing. The Utilities Engineer with the concurrence of the Project Manager and Regional Construction Engineer may waive the bar chart requirement for minor projects.

The Project Utility Statement shall be submitted with the bar chart to construction. The Project Manager shall include the utility costs in the project cost estimate and append a construction sequencing bar chart, which does not contain specific dates. The following note shall be placed on the bar chart:

"The information shown in the Contract Documents, including the Utility Statement and the Utility Schedule contained herein, concerning the location, type and size of existing and proposed utilities, their locations, and construction timing has been compiled by the preparer based on information furnished by each of the involved Utility Companies. It shall be the responsibility of the State's Contractor to verify all information and coordinate with the Utility Companies prior to and during construction, as specified in Section 105.09 of the Standard Specifications." Other general notes referencing contractor expectations to be included on the DelDOT Utility Statement are shown in Appendix H.

The Project Manager shall sign approval of the DelDOT Utility Statement and return it to the Utilities Engineer.

If necessary, a coordination meeting will be scheduled with affected utility companies to review the Utility Statements and sequencing bar chart. Utility companies shall modify their Utility Statements based upon the coordination meeting. Final Utility Statements from the utility companies are to be submitted to DelDOT within 30 days of the meeting so that a revised DelDOT Utility Statement can be prepared.

4.1.5 Final Plans

When the plans are completed and the project is advertised, one set of final plans will be forwarded to each utility involved in the project. The Construction Engineer shall issue the notice to proceed with the relocation of facilities at or following the Preconstruction meeting.

For reimbursable alterations, adjustments, or relocations, the Utilities Engineer shall notify the utility, Project Manager, and Construction Region when the proposed utility work has been authorized. The Utilities Engineer will also direct the utility to proceed with its alterations, adjustments, or alterations. See Section 4.3 for further details.

4.2 Non-reimbursable Work

Adjustments to utility facilities occupying highway right-of-way by Master Franchise are not eligible for reimbursement. Exceptions are discussed in Section 4.3. If the facilities have to be relocated due to the

Department's project, the Department will provide right-of-way for relocation of the facilities. The relocation of the utility facilities will be at the sole expense of the utility.

4.3 Reimbursable Work

4.3.1 Utility Reimbursement on Highway Construction Projects

Section 143, Title 17, **Delaware Code** determines the policies governing expenses of utility adjustments, removals, and relocations. A copy of Section 143 is located in Appendix F. The most recent copy of the **Delaware Code** may be found at Online **Delaware Code** at http://www.delcode.state.de.us/.

Utilities are required to use the procedures established by FHWA for reimbursement. These are explained in the U.S. Department of Transportation Federal Highway Administration Program Guide for Relocation And Accommodation on Federal-Aid Highway Projects including amendments.

4.3.1.1 Funding

The State shall fund adjustments, alterations, or relocations caused by DelDOT reconstruction, construction, relocation, repair, or maintenance of a public highway in the following circumstances:

1. Governmental Facilities - The facilities are owned and/or operated by a public utility of a municipality or of any governmental body or political subdivision of the State.

Appendix B - Agreement 86U-04
Appendix B - Agreement 86U-05
Appendix B - Agreement 86U-06
Appendix B - Agreement 86U-07

2. Court of Chancery Decision - The facility is private but located on fee simple real estate owned by the utility, or on a documented easement granted by a third party to the utility.

Appendix B - Agreement 86U-04
Appendix B - Agreement 86U-05
Appendix B - Agreement 86U-06

If the utility is the owner of the right-of-way in fee-or if the facility is located legally on private property-and this property is acquired by the State for the reconstruction of a highway or structure, the State will assume liability for the cost of altering, adjusting, or relocating the existing facilities. The utility must provide documentation in the form of a copy of the record from the Recorder of Deeds. The utility may request "prior rights" rather than compensation by the Department before the Department extinguishes the existing easement. Documentation must be completed by DelDOT Real Estate personnel and subsequently submitted to the Recorder of Deeds in the county in which said facilities are located.

3. "Prior Rights" - The utility may have "prior rights". Prior rights exist when a utility is determined to have legally occupied a public right-of-way prior to the time such right-of-way was conveyed to or acquired by the Department. Please see Section 4.3.3 for further details.

4. "Second Move" - The Department requires a second alteration or relocation of the same nongovernmental public utility facility within ten years from the date of completion of the initial alteration or relocation.

Appendix B - Agreement 86U-38

5. Change in Plans - The Department alters its plan of construction before project completion, requiring a nongovernmental public utility to relocate its facility that has already been partially or fully relocated in connection with the project. The Department shall reimburse the public utility for the cost of altering or relocating in relation to the change in the Department plans. An approved Utility PS&E is required before a notice to proceed for this work can be issued.

Appendix B - Agreement 86U-38

6. Delay - The Department cancels or does not commence a highway construction, reconstruction, relocation, repair, or maintenance project within a period of two (2) years from the date of authorization to proceed with nongovernmental utility work.

Appendix B - Agreement 86U-38

7. Temporary Facilities - The Department requests a temporary alteration or relocation of the nongovernmental public utility facility. For example, if facilities need to be relocated temporarily for a bridge replacement and will need to be moved again when the construction project is complete.

Appendix B - Agreement 86U-38

The amount of reimbursement to be paid to a public utility in Section 4.3.1.1 is the entire cost of alteration or relocation minus any betterment of the altered or new facility and any salvage value derived from the old facility.

4.3.1.2 Discretionary Funding

Decisions to fund utility relocations and adjustments in the following circumstances are left to the discretion of the Secretary of Transportation. The Department may enter into an agreement with a nongovernmental public utility by reason of highway construction, reconstruction, relocation, repair, or maintenance project as follows:

8. Special Circumstances - The Department may enter into an agreement with a nongovernmental public utility to reimburse for up to 50% for alterations or relocation if the facility is located within a highway right-of-way or public right-of-way by grant or franchise. The alteration or relocation must be necessitated by special circumstances with written approval from the Secretary of the Department of Transportation. A copy of the written determination of the Secretary shall be forwarded to the Public Service Commission for filing with the public records of the Commission.

Appendix B - Agreement 86U-36

9. Unique Materials - The Department may enter into an agreement if the nongovernmental public utility construction specifications require the use and/or storage of unique materials or supplies in advance of the construction contract.

Appendix B - Agreement 86U-37

10. Advance Move - If the Department determines it is beneficial, the Department may enter into an agreement to reimburse a nongovernmental public utility for increased expenses incurred as a result of alteration or relocations of a facility in advance of the commencement of a highway construction, reconstruction, relocation, repair or maintenance project.

Appendix B - Agreement 86U-37

11. State Contractor - The Department may enter into an agreement with a nongovernmental public utility for work to be performed by the state contractor or subcontractor for specific facility alteration or relocation construction items identified and approved for construction. As part of the agreement, the public utility must agree to reimburse the Department or the Department's contractor or subcontractor for the construction items.

Appendix B - Agreement 86U-39

12. Net Cost Savings Enhancement - The Department may enter into an agreement with a nongovernmental public utility to reimburse the utility for a specific facility enhancement if in the judgment of the Department, the enhancement will result in net cost savings to the Department, will expedite the project, or will otherwise result in increased public benefit and convenience.

Appendix B - Agreement 86U-39

13. Support and Protection - The Department may enter into an agreement to reimburse the utility to design and inspect facility Support and Protection as necessary per the OSHA Technical Manual Section V Chapter 1 and the Delaware Code Title 26 Section 806. Costs shall be reimbursed on a force account basis.

Appendix B - Agreement 86U-04

Appendix B - Agreement 86U-05

Appendix B - Agreement 86U-06

Appendix B - Agreement 86U-07

4.3.2 Betterment

Betterment is defined as any upgrade to a facility being relocated, made solely for the benefit of and at the election of the utility and not attributable to highway construction as determined by the Utilities Engineer. The cost of a betterment or increased size in facilities is only reimbursable in accordance with FHWA regulations of facility increase due to public safety or as allowed by specific agreements enabled by Delaware law.

When seeking reimbursement with betterment involved, the utility shall submit two (2) Utility PS&E packages. The first detailed estimate with color-coded plans indicates relocation or adjustment in kind and the second shows the facility size increase or betterment. Right-of-way acquisition and salvage value shall be included where applicable on all estimates. Refer to Appendix C for details.

4.3.3 Prior Rights

Prior Rights, as mentioned above, exists when a utility's existing facilities have a compensable right to be located on DelDOT right-of-way. Prior Rights occur in the following circumstances:

1. The utility facility was constructed on private property through a recorded easement of record in the Recorder of Deeds office and the facility and its easement are encompassed by a DelDOT project.

2. The utility facility was relocated onto or remained in DelDOT right-of-way under a previous project and at the time, it was agreed that if it became necessary to relocate for a future transportation project, the cost would be borne by the project participants. (For proper documentation of this right, the utility must furnish a copy of the utility agreement stating the arrangement previously agreed to by DelDOT.)

In cases of Prior Rights, the Department must approve all documentation. A flowchart of the process is located in Appendix K.

Utilities normally do not have compensable interest or "Prior Rights" in subdivisions. The right-of-way in subdivisions belongs to the State upon recordation.

4.3.4 Reimbursable Work Process

During the process of plan review discussed in Section 4.1, reimbursable work may be discovered. If the utility and the Utilities Section agree that reimbursable work will be involved, then the following must occur:

- The State and the utility shall agree in writing as to the obligations and responsibilities of each party.
- The agreement shall incorporate the conditions of occupancy for each party. The agreement shall also include the rights vested in the State and the rights and privileges retained by the utility.
- The interest to be acquired by or vested in the State in any portion of the rights-of-way of a highway project to be used, occupied, or vacated by utilities shall be adequate in nature and extent for the construction, safe operation, and maintenance of the project.

4.3.5 Utility Adjustment Agreements

Utility alteration, adjustment, or relocation agreements are used where the Department will be responsible for the cost of the work. An executed agreement shall be in place before any work begins when State and/or federal funds are used to pay for all or part of eligible utility adjustments. Samples of these letter agreements can be found in Appendix B.

4.3.5.1 Agreement Requirements

Utility adjustment agreements must include:

- the incorporating limits or areas to be served;
- the responsibility of each party;
- the terms and conditions regarding the relocation, adjustments, or reconstruction;
- the action to be taken in case of noncompliance with State requirements; and
- other provisions as deemed necessary to comply with State laws and regulations.

Work incidental to utility relocations shall be performed by the utility with its own forces including a utility's open-end and/or continuing construction contractor, or by an approved utility contractor, unless such work is included in the Department's construction contract by separate agreement. When a utility obtains a contractor for the relocation work, the utility, federal and state regulations apply.

4.3.5.2 Preparation of Agreements

When it is determined that a utility is to be reimbursed by the Department for a utility adjustment, the Utilities Section will prepare a letter agreement. The agreements are based upon State law and Court of Chancery decisions authorizing reimbursement, the type of ownership of the utility, state and/or federal participation, and the process for design and installation. Appendix B provides samples of letter agreements used by the Department.

The Utilities Section will prepare the appropriate letter agreement for adjustment work. The agreement will include preliminary engineering that may be accomplished as part of the Department's project, either by the utility's own forces or by its contractor. The preliminary engineering is considered part of the Department's project because the existing locations and the proposed adjustments or relocations are incorporated in the Department's construction plans.

The proposed letter agreement is forwarded to the Department's Deputy Attorney General for review/signature and/or comments. Any changes made by the attorney are incorporated in the agreement. Four original letter agreements are forwarded to the utility for signature and seal affixation, and returned to the Utilities Engineer. The Chief Engineer or the Assistant Director of Engineering Support as designee provides signature approval with the final authorization provided by the Director of Technology and Support Services. The agreement is considered executed when the Department's seal is affixed.

The distribution of the executed agreement is as follows:

- original to the Director of Technology and Support Services,
- original to the utility,
- original to DelDOT Finance (upon funding authorization request, i.e. Utility PS&E submission) and
- original retained by the Utilities Section.

Executed agreements are a part of the Utility PS&E submissions. The approved estimate and color-coded plans of the work involved are attached and considered part of the agreement.

4.3.5.3 Utility Plan Preparation

The Project Manager will furnish the Utilities Engineer with construction plans and cross-sections for review. When reimbursable work is involved, the plans shall be used by the utility to estimate the scope of the utility work to be done. Reimbursable work is described in Section 4.1.3.1. The utility shall submit the preliminary engineering (PE) estimate for any engineering required to design the alteration, adjustments and/or relocation. The Department Utilities Engineer may elect to waive a detailed cost estimate for preliminary engineering. A sample of the engineering estimate is located in Appendix C.

Utilities are required to use the procedures established by FWHA for reimbursement. The procedures are explained in the U.S. DOT FHWA Program Guide for Utility Relocation And Accommodation on Federal-Aid Highway Projects including amendments and the Federal-Aid Policy Guide (FAPG) Code of Federal Regulations Title 23.

The PE estimate shall become part of the letter agreement mentioned above in Section 4.3.4.2. When the PE estimate is approved, a notice to proceed will be provided to the utility to begin the design for the adjustments and/or relocations. The utility shall prepare the Utility Plans, Specifications and Estimate (Utility PS&E) for the relocation or adjustment and forward them to the Utilities Engineer for review.

Once the Utility PS&E package is reviewed and approved, it is forwarded to DelDOT Finance for funding authorization and approval. The Utilities Section must issue a notice to proceed before the utility can begin construction work. Any work performed prior to notice to proceed shall be at the sole expense of the utility.

4.3.5.4 Employment of a Consultant for Utility PS&E

As mutually agreed to by the Department and utility, preliminary engineering activities associated with utility relocation work may be done by an engineering consultant selected by the utility, with the approval of the Department. A utility must submit a letter to the Utilities Engineer requesting authorization to obtain a consultant to provide preliminary engineering services for utility relocations. The request shall state the type of work the consultant is expected to perform during the utility relocation for the project-i.e., prepare utility plans, specifications, estimates; inspect materials; and supervise work. The request shall meet the provisions established by federal procurement regulations of the U.S. DOT FHWA, and the applicable regulations of the Program Guide for Utility Adjustments on Federal-Aid Highways. Federal funds may participate in the cost of such services performed under existing written continuing contracts when it is demonstrated that such work is performed regularly for the utility in its own work and that the costs are reasonable.

When a consultant is to prepare the Utility Plans, Specifications and Estimates, the utility must provide the DelDOT Utilities Engineer with preliminary plans, estimates, and a fee schedule from the consultant for performing the work. (The utility is required to review and approve the data before submitting it to the Utilities Engineer.) After Departmental review, the information may be forwarded to FHWA for concurrence.

When the estimate and other data are acceptable to the State (and to FHWA, if applicable) the utility is notified to prepare and submit to the Utilities Engineer the specifications, estimates, and a draft of the contract between the responsible consultant and the utility. The draft must stipulate the work to be done under the agreement and the method of payment for preparing the Utility PS&E package.

A consultant fee that is based on a percentage of the work to be performed will not be approved.

When federal participation is involved in a highway construction project, the agreement with the consultant shall conform to federal procurement regulations and appropriate U.S. DOT regulations. Upon approval of the draft, the State may authorize the utility to execute the agreement with the consultant.

4.3.5.5 Processing Utility PS&E Packages

The Utility Plans, Specifications and Estimates (Utility PS&E) submitted by the utility shall include:

- Utility Statement (See Section 4.1.5)
- a detailed estimate of the work to be performed. See Appendix C for sample. Note: Other colors can be used provided they are legible and clearly labeled in the legend.
- marked color coded plans indicating:
  - existing to remain (green)
  - existing to be removed (red)
  - proposed reimbursable (blue)
  - proposed non-reimbursable (yellow)
- the terms under which the utility is to cross or otherwise occupy the highway rights-of-way;
- a description of the size, type, nature, and extent of each utility company's facility to be located within the highway rights-of-way;
- a description of each installation's construction requirements, traffic protection, maintenance, access restrictions, and any special conditions;
- adequate drawings or sketches that show the existing and proposed locations of the utility facility, including the:
  - facility locations within the highway right-of-way with respect to the existing or planned DelDOT improvement, the traveled way, or the right-of-way, and
  - control-of-access lines and approved access points; and
  - the responsibilities of the utility for future adjustments of its facilities in order to accommodate Departmental improvements.

4.3.5.5.2 Four complete Utility PS&E packages shall be forwarded to the Utilities Engineer. The utility may in submit the color-coded Utility PS&E package electronically if in an acceptable format. Upon review and approval of the package for completeness and accuracy by the Utilities Engineer, the Utilities Section requests funding authorization and notifies the Project Manager. One copy of the Utility PS&E package is forwarded to the Construction Region for their use in concurring that the work is done in accordance with the Utility PS&E. See Section 4.4.4 for information regarding inspections.

4.4 Construction Coordination

4.4.1 Authorization Of Utility Work

The Utilities Engineer will notify the utility, Project Manager and Construction Region when the proposed utility work has been authorized. The Construction District directs the utility to proceed with its alterations, adjustments, or relocations.

When State or federal funds will pay all or part of the costs of adjustments, all work done by the utility's own forces shall be on a force account basis.

When a utility's request to perform the work by competitive bid has been approved, the following steps shall be taken:

- Two copies of the bid tabulation, with the preliminary estimate included, are forwarded to the Utilities Engineer.
- One copy of the bid tabulation is forwarded to FHWA, if applicable.
- After approval from the State and FHWA, (if applicable) the utility is instructed to award the contract.

- An executed copy of the contract between the utility and the contractor is furnished to the Utilities Engineer.

When a utility requests permission to perform the work with a current continuing contract, using an outside contractor, the following shall take place:

- The request is supported by an estimate based on the applicable contract unit prices.
- After approval by the State and FHWA, (if applicable) the utility is instructed to proceed with the work.
- An executed copy of the contract between the utility and its contractor is furnished to the Utilities Engineer.

4.4.2 Coordination During Construction

4.4.2.1 Utility Preconstruction Conferences

Representatives of each utility having facilities within the project limits, along with representatives of the contractor, may be required to meet with the Construction Region Engineer's representative to discuss in detail the effect that each utility's adjustment or relocation will have on the progress of the project.

4.4.2.2 Preconstruction Conferences

The Construction Region Engineer will notify the appropriate utilities, the "Miss Utility" Center, and the "Miss Utility" Representative, as to the place, time, and date that a preconstruction conference will be held.

4.4.2.3 Contractor's Schedule

The utility work on Department projects most often occurs simultaneously with the contractor's work and thus requires coordination. When this coordination is via a project utility meeting, a utility representative is required to attend. The utility and the contractor shall cooperate in scheduling work so that neither one is delayed by the other's operations. In addition, all traffic control for utility work must be performed according to DelDOT's Traffic Control Manual (Traffic Controls for Streets and Highways Construction, Maintenance, and Utility Operations) and coordinated with the immediate DelDOT project supervisor. This will be done to avoid conflicts and unnecessary disruptions in traffic flows through construction projects.

The utility is required to attend progress meetings called by the Construction Region Engineer or a designated representative to review progress on certain projects.

4.4.3 Revisions

This section refers to changes required to the plans or estimates after the notice to proceed is given. Occasionally, field conditions necessitate revision to a utility's approved plan of adjustment or relocation.

4.4.3.1 Revision to Construction Project

Changes to Construction Projects and their impact on utility relocation costs shall be carefully considered before proceeding. Refer to the Section 4.3.1.1 summary of reimbursement to public utilities for "Second Moves" and "Change in Plans." The time involved, material availability, additional labor and utility costs shall be evaluated before changes are pursued.

The Utilities Engineer, Construction Engineer, and the Project Manager shall review any project plan revisions. Their approval is necessary in order to proceed with the revision.

4.4.3.2 Revision of Utility Plans and Estimates

The utility shall forward a copy of the revised plan and/or estimate and the justification for the change for approval by the Utilities Engineer. Upon approval of the change, the Utilities Section shall request additional funds to cover the added cost.

4.4.3.3 Change Orders

The Construction Region Engineer shall send copies of all change order correspondence and copies of all correspondence directed to the utilities, to the Utilities Engineer.

4.4.4 Progress Inspections

Representatives of the Construction Region Engineer are responsible for inspecting the work performed by the utility including any utility work in advance of construction. Inspectors will monitor the material used, equipment used, and number and classification of personnel working at the location; and will keep daily logs showing a record of the same.

4.5 Payment for Work

4.5.1 Progress Payments

4.5.1.1 Utility Billing

The utility may submit progress billings for costs incurred after the executed utility agreement has been approved and notice to proceed has been received. The utility may also submit progress billings for the cost of materials stockpiled at the project site or specifically purchased and delivered to the utility for use on the project following similar approval. Any materials purchased or work performed prior to written authorization from the Utilities Engineer shall be done at the Company's sole expense. All invoices shall conform to the provisions of the Federal-Aid Policy Guide (FAPG): Code of Federal Regulations, Title 23, Highways, Part 645.

Billing documents shall be submitted to the Utilities Section. The Utilities Section forwards the invoice to the Construction Region Engineer for verification of work accomplished. The Utilities Section proce sses the payments after verification in accordance with Section 4.5.5.2.

4.5.1.2 DelDOT Billing Utility

When the Department agrees for utility alteration or relocation work to be performed by the state contractor or subcontractor, the Department may submit progress billings.

4.5.2 Final Payment

4.5.2.1 Final Bill From Utility

A final and complete billing of all costs incurred will be made by the utility within six months from the last chargeable day of the project in compliance with the executed agreement. The statement of billing must follow the order of the items in the Utility PS&E identified as part of the executed letter of the agreement between the State and the utility. The statement shall be itemized to show:

- the State Contract Number, Federal-Aid Project Number, project location and the executed Utility Agreement Number,
- A brief description of work performed, identifying the Utility PS&E submission incorporated in project limits,
- the date on which the last work was performed on the last item of billed expense,
- a statement from the utility that it has or has not been paid in full for all reimbursable work performed,
- the totals for each of the following costs: labor, overhead costs, travel expenses, transportation, equipment, handling costs, material and supplies, and other services,
- salvage credits from recovered and replaced permanent material and recovered temporary material,
- the replacement cost or the original charge for temporary use of material,
- the location where the records and accounts billed can be audited, and the name of a contact person for auditing purposes,
- a copy of the as-built plans, and
- the final invoice specifying "final" and containing a summary of total project costs billed.

4.5.2.2 Final Payment Process

The utility shall provide three copies of the final invoice along with as-built plans. The final billing will be processed in the following steps:

1. The Utilities Section will check the final billing for accuracy and adequate support documentation.
2. The Utilities Section will review the documentation to assure that all items are eligible for State participation.
3. The Utilities Section will forward billing and as-built plans to the Construction Region Engineer for verification that all work covered by the final billing has been satisfactorily completed.
4. The Utilities Section will process the final billing for payment after verification by the Construction Region Engineer.
5. DelDOT Audit is responsible for administering a final audit predicated on the relevant agreement and billing data upon notification and audit request from the Utilities Section.
6. DelDOT Audit will forward a copy of the completed audit report to the Utilities Section.
7. The Utilities Section will inform the utility of the audit findings. The utility phase of the project is closed out after the Department notifies the utility that it accepts the project.

The project's administrative documents shall be closed out and funds terminated within one year of the last chargeable day of the projects. Exceptions will be approved if the Utilities Section is notified in writing of a pending invoice prior to last chargeable day.

Appendix A: Definitions

AASHTO: American Association of State Highway and Transportation Officials. AASHTO is a nonprofit, nonpartisan association representing highway and transportation departments in the 50 states, the District of Columbia and Puerto Rico. It represents all five transportation modes: air, highways, public transportation, rail and water. Its primary goal is to foster the development, operation and maintenance of an integrated national transportation system.

Active Federal-aid Highway Projects: Projects for which any phase of development has been programmed for federal aid highway funds and the State controls the highway rights of way. A project will be considered active until the date of its final acceptance by the Federal Highway Administration and thereafter will be considered complete.

Adjustment: The relocation, removal, replacement, abandonment, etc., of existing utility facilities as necessitated by a highway construction project.

Agreement: A legal instrument entered into by the Department and a utility on a highway construction project which outlines the legal and financial responsibilities of both parties.

Arterial roadway: The functional classification for partial-access-control roads that serve to distribute traffic and are moderate in speed. Arterials carry traffic between collector roads and freeways. The DelDOT highway system map designates which roadways are arterials.

Authorization: Permission by the applicable District Engineer, Construction Region Engineer or Utilities Engineer for the utility to proceed with any phase of a project.

Backfill: Material used to replace or the act of replacing material removed during construction; also may denote material placed or the act of placing material adjacent to structures.

Bar Chart: A schedule showing the proposed start and end dates for various utility activities on a complex singular contract or project. DelDOT prepares the Bar Chart based upon the Utility Statements submitted by the utilities.

Betterment: Any upgrade of the facility being relocated made solely for the benefit of and at the election of the utility, not attributable to highway construction, as determined by the Utilities Engineer.

Boring: The operation by which large carriers or casings are jacked through oversize bores. The bores are carved progressively ahead of the leading edge of the advancing pipe as soil is mucked back through the pipe.

Casing: A larger pipe, conduit, or duct enclosing a carrier. Casings are installed in open cuts or by boring or driving. They are usually sealed at the ends and sometimes vented when the pipelines carry lighter-than-air gases. Casings are usually required to avoid the need for trenching through existing pavements, to prevent the destruction of the roadway due to leakage of liquids under pressure, or to prevent or contain leaking under pressure.

Chief Engineer: Shall be a civil engineer registered or eligible for registration as such in Delaware and qualified to design as well as direct road engineering work as specified in the **Delaware Code**.

Clear Roadside Policy: The Department's policy of providing a clear recovery area (clear zone so as to increase safety, improve traffic operations, and enhance the aesthetic quality of highways by designing, constructing, and maintaining highway roadsides as wide, flat, and with no abrupt changes in slope as practical and as free as practical from natural or manufactured hazards such as trees, drainage structures, non-yielding sign supports, highway lighting supports, utility poles, and other ground-mounted structures. The policy addresses the removal of roadside obstacles that are likely to be associated with accident or injury to highway users. However, when such obstacles are essential, the policy provides for appropriate countermeasures to reduce hazards. Countermeasures include placing utility facilities at locations that shield the hazard from out-of-control vehicles by using breakaway features, impact attenuation devices, or shielding. Full consideration is to be given to sound engineering principles and economic factors in all cases. See the DelDOT Road Design Manual and the AASHTO Roadside Design Guide for more details.

Clear Zone: 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, and/or a clear run-out area clear of fixed or non-traversable objects. The purpose is to provide errant vehicles a reasonable

opportunity to stop safely or otherwise regain control of the vehicle. The desired width is dependent upon the traffic volumes and speeds, and on the roadside geometry. See the DelDOT Road Design Manual and the AASHTO Roadside Design Guide for calculation of Clear Zone widths.

Code of Federal Regulations, Title 23, Highways, Part 645: The current regulations on utility relocations. Subpart "A" defines policy, procedure, and cost development for utility relocation, adjustments, and reimbursement. Subpart "B" defines policy and procedure for accommodating utility facilities on federal-aid highways.

Collector Roadway: The functional classification for partial-access-control roads. Provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials. The DelDOT highway system map designates which roadways are collectors.

Conduit: An enclosed tubular casing, singular or multiple, for the protection of wires, cables, or lines, usually jacketed and often extended from manhole to manhole.

Conflict: Exists when a utility is in the way of highway construction or maintenance operations and needs adjustment or relocation. The presence of utilities in the right of way does not necessarily constitute a conflict.

Coordination Meeting: Periodic meeting attended by representatives of utilities, for the purpose of informing those utilities of current policy and procedures and for discussing current topics of general interest.

Construction: The actual building and all related work, including relocation or adjustments, incidental to the construction or reconstruction of a highway project-except for preliminary engineering, Subsurface Utility Engineering, test holes, or rights of way work which is programmed and authorized as a separate phase of work.

Construction Plans: The large scale-usually 1 inch = 30 feet-plan sheets which show the highway project in detail.

Consultant: A registered professional engineer engaged by the Department of Transportation, State of Delaware, or a utility, to develop plans, specifications, and estimates for the Department or for a utility.

Control of Access: The condition where the right of owners or occupants of abutting land or other persons to access, light, air, or view in connection with a highway is fully or partially controlled by public authority.

- Full control of access means that the authority to control access is exercised to give preference to through traffic by providing access connections with selected public roads only, by prohibiting at-grade crossings and direct private driveway connections.
- Partial control of access means that the authority to control access is exercised to give preference to through traffic to a degree that, in addition to access connections with selected public roads, there may be some at-grade crossings and private driveway connections.

Corner Cut (Daylight Corner): A right-of-way area at an intersection reserved for sight clearance and/or turning clearance, usually by a diagonal right-of-way line.

Cost of Relocation: The entire amount paid by or on behalf of the utility properly attributable to the relocation after deducting from that amount any increase in value of the new facility, and any salvage derived from the old facility.

Cost of Removal: The amount expended to remove utility property including the cost of demolishing, dismantling, removing, transporting, or otherwise disposing of utility property and of cleaning up to leave the site in a neat and presentable condition.

Cost, Replacement: The remaining portion of the total cost of the relocation of a facility after deducting therefrom the cost of betterment, credit for salvage, and expired service life credit.

Cost, Right-of-Way: The cost of land and interests to the acquisition of land or interest in land required for the relocation of the utility facility.

Cost of Salvage: The amount expended to restore salvaged utility property to usable condition after its removal.

Costs, Overhead or Indirect: Those costs, which are not readily identifiable with one specific task, job, or work order. Such costs may include indirect labor, social security taxes, insurance, stores expense, and general office expenses. Costs of this nature generally are distributed or allocated to the applicable job or work orders, other accounts and other functions to which they relate. Distribution and allocation is made on a uniform basis which is reasonable, equitable, and in accordance with generally accepted cost accounting practices.

Cover: Depth to top of pipe, conduit, casing, cable or similar line or utility tunnel below the earth or roadway surface. It is normally referenced from the bottom of the highway ditch.

Department: Department of Transportation, State of Delaware (DelDOT).

Designation: The process of using a surface geophysical method or methods to interpret the presence of a subsurface utility and to mark its approximate horizontal position (its designation) on the ground surface.

Designer: The Department employee engaged in the design of a highway project, or the outside engineering consulting firm hired by the Department for that purpose.

Direct Burial: Installing a utility underground without encasement.

District Engineer: District Engineer of North, Canal, Central, or South District. The Engineer that is the highest authority in a district.

District Public Works Section: The unit within each district that is responsible for utility operations under the direction of the District Engineer.

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

Eligibility: The costs incurred on a project or a specific phase of a project that, when authorized, may be reimbursable provided they are legally qualified under the applicable State Highway Laws.

Emergency: A situation where the safety of the traveling public or general public, or the structural integrity of the highway facility, is placed in immediate danger (as defined in the **Delaware Code**, Title 26, Chapter 8-the "Miss Utility Law").

Encasement: A structural element that surrounds a carrier or casing.

Expired Service Life Credit: In any instance where the relocation involves the substitution of a replacement facility for an existing facility, a determination shall be made by the Department whether a credit is due to the project for the value of the expired service life of the facility being replaced. Such credit shall take into account the effect of such factors as wear and tear, action of the elements, and functional or economic obsolescence of the existing facility, not restored by maintenance during the years prior to the relocation.

Expressway: A divided arterial highway for through traffic with full or partial control of access and generally with grade separations at major intersections. (See "Freeway.")

Federal-Aid Coordinator: Maintains liaison with the Federal Highway Administration, insofar as fiscal matters are concerned, if federal monies are involved in the utility adjustment.

Federal-Aid Highway Projects: Active or completed projects administered by or through DelDOT, involving the use of federal aid highway funds for the development, acquisition of right of way, construction, or improvement of the highway or related facilities, including highway beautification projects under 23 U.S.C. 319, Landscaping and Scenic Enhancement.

Federal Highway Administration (FHWA): Highway agency of the U.S. Department of Transportation.

Final Billing: The detailed summary of the actual costs incurred by the utility on their relocation including the documentation necessary to verify the amounts expended.

Fixed or Non-traversable Objects: Existing or planned objects, whether natural or manufactured, such as trees, drainage structures, non-yielding sign or lighting structures, drainage ditches, retaining walls, rock outcroppings, utility facilities, etc.

Force Account Basis: Utility work performed by the utility's own forces with reimbursement at actual cost.

Freeway: An expressway (divided arterial highway) with full control of access.

Highway, Street or Road: Any public way for vehicular travel, including the entire area within the rights of way and related facilities.

Highway Construction Project: The construction, reconstruction, widening, or resurfacing of a State Highway, within the existing legal right of way or within a new required right of way, by contract or by Department forces or agent of the Department.

Highway Right-of-Way: Real property or interests therein, acquired, dedicated, or reserved for the construction, operation, and maintenance of a highway. Lands acquired under Section 319(b), Title 23, U.S.C. (Scenic strips_1965 Highway Beautification Act) shall be considered to be under the jurisdiction of the Department.

Horizontal Clearance: As stated in the DelDOT Road Design Manual; the lateral distance from edge of traveled way to a roadside feature or object for a roadway with barrier curb. Roadways having curbed sections should be provided with a minimum horizontal clearance of 1.5 feet beyond the face of curb, with wider offsets (if possible to the full clear zone width) provided where practical since most types of curbs provide little help in redirecting an errant vehicle. Please see the DelDOT Road Design Manual and the AASHTO Green Book for more information regarding horizontal clearance.

Initial Payment: First relocation payment to the utility by the Department under the terms of a reimbursement agreement.

Interim Payment (periodic billing): Reimbursement by the Department to the utility, either in specified minimum amounts or definite billing periods, as invoices for completed relocation work are submitted, whenever provided for in the reimbursement agreement.

Jacking: The pushing of a sleeve or casing pipe under a highway to make an underground utility crossing without disturbing the roadbed by open trenching.

Manhole (Utility Access Hole): An opening in an underground system which workers may enter for the purpose of making installations, removals, inspections, repairs, connections, and tests.

Master Franchise: The legal document that authorizes a regulated Public Utility to place its facilities within State rights of way, without any vested interest therein, under the provisions of **Delaware Code** 1953, Title 17, and supplements thereto.

Median: The portion of a divided highway separating the traveled ways for traffic in opposite directions.

Non-participating: Whenever utility relocations are not programmed with FHWA for reimbursement to the Department from federal funds, they are called "non-participating." Project design, right-of-way acquisition, and construction can be "participating," while utility relocations can be "non-participating." Particular utility relocations may be handled as "non-participating" on a federal-aid project, even when other utility relocation work on the same project is programmed as "participating."

Offset: A. Surveying offset-A distance measured at right angles from the centerline of a highway to a specific point. B. Roadway offset-A measured distance along the centerline of a highway in feet from an established segment.

Participating: Refers to utility adjustments or relocations performed after work has been programmed with and authorized by FHWA. Such funds are requested by the State at the pro-rata share applicable for the project where FHWA requirements are met by the Department and the utility.

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

Flexible Pipe - A plastic, fiberglass, or metallic pipe having large ratio of diameter to wall thickness, which can be deformed without undue stress.

Rigid Pipe - Pipe designed for diametric deflection of less than one percent.

Semi-Rigid Pipe - Pipe designed to tolerate from one percent to three percent diametric deflection.

Plan Sheet Index: The small-scale highway plan sheet, usually sheet number two, showing the entire project.

Preliminary Engineering (PE) estimate: Estimate of the preliminary engineering required to design the alteration, adjustments and/or relocation.

Preliminary Engineering (PE): The making of surveys, the preparation of utility plans, specifications, estimates (PS&E) and other related preparatory work in advance of construction operations.

Prior Rights: Exist when a utility is determined to have legally occupied a public right of way prior to the time such right of way was conveyed to or acquired by the State of Delaware's Department of Transportation.

Private Lines: Privately owned facilities that convey or transmit utility commodities devoted exclusively to private use.

Private Right-of-Way: Lands in which utilities have a real property interest for the purpose of distributing or transmitting service. This term, when used for determining eligibility for reimbursement, shall mean any area outside of a public right of way, except lands owned by the State that are occupied by right of a license.

Private Right-of-Way Status: Facilities located within the right of way regarded by the Department as having private rights for the purpose of determining liability for relocation costs in the event of further relocation. In this situation, the Department is responsible for paying relocation costs or for providing substitute right of way.

Project Manager: The DelDOT staff member responsible and accountable for satisfactory completion of the construction project.

Prorated Shares: The percentages of financial responsibility of the utility and the Department on a utility relocation necessitated by a highway construction project. Generally, proration is based on the original location of utility facilities.

PS&E: Stands for "plans, specifications, and estimates."

Public Right-of-way: The legal right of way of any public highway, street, road, or alley that is under the jurisdiction of the Department or any municipality or political subdivision. Law also designates certain navigable waterways as public rights of way.

Public Utility: 'public utility' means a utility as defined in 26 **Del.C.** §102(2) and (4) per the **Delaware Code** §143, Title 17. A private business organization, subject to governmental regulation, that provides an essential commodity or service, such as water, gas, electricity, wastewater, or telecommunications, to the public.

Real Property Interest Document: Evidence of the utility's title to a compensable real property interest.

Reimburse and Participate (or their derivatives): Shall mean that State funds may be used to repay the utility to the extent provided by law.

Relocation: The adjustment of utility facilities required by the highway project. It includes removing and reinstalling the facility, including necessary temporary facilities, acquiring necessary right-of-way 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.

Replacement Facility: The replacement of the function of a facility rather than installing a replica facility.

Required Right-of-Way: Private property to be acquired by the Department for highway purposes by amicable settlement or by Eminent Domain proceedings.

Right-of-Way: Real property, or interests therein, acquired, dedicated, or reserved for the construction, operation, and maintenance of a highway, road, or street.

Right-of-Way Certificate: A contract document that certifies that the right of way necessary to construct the project is available.

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: In general, the portion of a highway, including shoulders, for vehicular use. A divided highway has two or more roadways. In construction specifications, the portion of a highway within the limits of construction.

Sacrificed Life: A reimbursable charge in the amount of the computed value of the unused life of a facility removed from private property and not functionally replaced.

Salvage: The material removed and used or placed in storage for future use.

Salvage Value: The amount received from the sale of utility property that has been removed or the amount at which the recovered material is charged to the utility's accounts, if retained for reuse.

Scrap: Material that is not suitable for reuse and which is removed by the utility and sold, for which the State will receive proper credit.

Service Connection: A line from a utility's main distribution line to the premises served, sometimes privately owned.

Single-pole Construction: Use of single poles to support aerial facilities rather than double-pole arrangements such as H-frames.

Sleeve: A short casing through pier or abutment of highway structure.

Standard Construction Details: The DelDOT Standard Construction Details in effect on the date work commenced. The Details can be found at the following Web address: http://www.deldot.gov/static/publications_forms.html

Standard Specifications: The Standard Specifications for Road and Bridge Construction of DelDOT, in effect on the date work commenced. The Specifications can be found at the following Web address: http://www.deldot.gov/static/publications_forms.html

State: Department of Transportation, (DelDOT), State of Delaware.

Test Hole Locating: The locating, through the use of test holes, of underground utility facilities. The entire procedure includes surveying and providing data for the top and bottom of the located facility as well as the existing ground at the site; tying vertical controls to a minimum of the two checked bench marks or available datum; properly backfilling the test holes and restoring the pavement to an acceptable condition approved by the Department; and providing data on Department plans as may be required.

Total Estimated Service Life of the Replaced facility: The sum of the period of actual use plus the period of expectant remaining life. In instances where such a facility is still in operation but fully depreciated on the utility accounts, there shall be a mutual determination by the interested parties to establish the expected remaining life of the replaced facility.

Traveled way (or travelway): The portion of the roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

Use and Occupancy agreement: The document (written agreement or permit) by which the Department approves the use and occupancy of highway right-of-way by utility facilities or private lines.

Utility Coordinator: Coordinates the relocation or adjustment of all utilities between the utility and the Department of Transportation, State of Delaware.

Utilities Engineer: The Engineer and authorized Representative of the Chief Engineer responsible for utility coordination work performed within DelDOT Transportation Solutions, Engineering Support.

Utilities Section: The unit within DelDOT Transportation Solutions, Engineering Support responsible for matters concerning utilities under the direction of the Utilities Engineer.

Utility Clearance: The arrangements by the utilities to accommodate the highway construction project. It does not indicate that the utility facilities are actually removed from the area but that facilities have been either adjusted to accommodate construction or that arrangements have been made to coordinate the relocation work with the highway contractor's operations.

Utility Construction Permit: A permit that authorizes a utility to construct, maintain, or repair a utility facility within State rights of way.

Utility Design Meetings: Utility-DelDOT meetings held to discuss utility relocations on specific highway construction projects. Usually, two such meetings are held on each project, the initial meeting to discuss probable relocation schemes and the final meeting to review relocations for inclusion in the highway plans.

Utility Plans, Specifications and Estimate (PS&E): The detailed relocation cost estimate, prepared by the utility, consisting of highway plan sheets marked to show the relocation and any additional utility drawings or supplemental sheets that are necessary to provide a clear picture of the work to be performed and how the estimated costs were determined.

Utility Statement: A synopsis of utility relocation work and its anticipated schedule that is incorporated in the bid package upon approval by the Department. (See Section 4.1.5.)

Verification of Facilities: The furnishing of information by the utility to verify the type, size, and location of facilities for the mutual benefit of both parties. It is intended that this may be accomplished at nominal cost to the utility, e.g., through maps, records, etc.

Work Order System: A procedure for accumulating and recording into separate accounts of a utility all costs to the utility in connection with any change in its system or plant.

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