Policy
of the

Iowa Department of Transportation Highway Division

For Accommodating

Utilities on the Primary Road System

Adopted May, 1970
Revised February, 1973
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In Accord With Section 314.20
of the Seventy-Second
General Assembly, 1988 Session

Iowa Department of Transportation

UTILITY ACCOMMODATION POLICY
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POLICY

OF THE

IOWA DEPARTMENT OF TRANSPORTATION

FOR ACCOMMODATING UTILITIES

ON THE PRIMARY HIGHWAY SYSTEM

WHEREAS, proper regulation of the location, design, and methods for installation, maintenance and adjustment of private and public utility facilities on the Iowa Primary Road System is necessary for safety, public service and orderly development, and

WHEREAS, it is the desire of the Department that such regulations be established and uniformly administered in a manner which will be in the best interest of the Primary and Interstate Road System and the public use thereof, with due consideration given to the public service afforded by adequate and economical utility installations, and

WHEREAS, Section 306A of the Code of Iowa states that the Iowa Department of Transportation has authority to plan, regulate and control the use of all highways which have been designated or established as primary road controlled access facilities, and

WHEREAS, the Iowa Department of Transportation has designated all primary highways, exclusive of the Secondary Roads System, the Institutional Road System, and the State Park System as controlled access highways, and

WHEREAS, as an exercise of the authority granted by Section 306A of the Code of Iowa, the Iowa Department of Transportation desires to establish uniform regulations for allowing utility facilities to occupy primary highway right of way, and

WHEREAS, in accordance with Laws of the Seventy-Second and Seventy-Third General Assembly Section 314.20 entitled Utility Easements on Highway Right-of-Way, The Department shall develop an accommodation plan for the

longitudinal utility use of freeway right of way, in consultation with the utilities board. The plan shall be consistent with the rules of the federal highway administration of the United States department of transportation. It shall provide for extended payment and lease agreements to provide continuous funding for the living roadway trust fund with all moneys collected being credited to the living roadway trust fund established under Section 314.21.

NOW, THEREFORE, BE IT ORDERED that the attached Utility Accommodation Policy of the Iowa Department of Transportation be adopted.

STATEMENT OF POLICY

This policy covers initial placement, adjustment, relocation and replacement of utility facilities in, on, above or below all highway right of way over which the Iowa Department of Transportation exercises control of access. It embodies the basic specifications and standards needed to insure the safety of the highway user and the integrity of the highway.

In cases where the Department, in its unfettered discretion, determines that literal application of this policy will defeat its objective, the Department may, but is not required to, depart from the literal application of the policy.

SECTION 1. DEFINITIONS

Agreement
: A contract between the Iowa Department of Transportation and a utility company relative to utility facility relocation and reimbursement.

ANSI
: American National Standards Institute

Appurtenances
: Utility facility related features such as vents, drains, manholes, markers, etc.

Backfill
: Replacement of suitable material compacted as specified around and over a pipe, conduit, casing, or gallery.

Cable
: An insulated conductor or combination of insulated conductors.

Carrier
: Pipe directly enclosing a transmitted fluid (liquid or gas), or slurry.

Casing
: A larger pipe enclosing a carrier.

Clear Roadside Policy
: The policy employed by a highway authority to increase safety, improve traffic operation, and enhance the appearance of highways by designing, constructing, and maintaining highway roadsides as wide, flat, and rounded as practical and as free as practical from physical obstructions above the grounds such as trees, drainage structures, massive sign supports, utility poles, and other ground mounted obstructions.

Clear Zone
: That roadside border area, starting at the edge of the traveled way available for use by errant vehicles.

Communication Line
: A circuit for telephone, telegraph, alarm systems, television transmission or traffic control purposes.

Conduit or Duct
: An enclosed tubular runway for protecting wires or cables.

Control of Access
: A highway or street especially designed for through traffic, and over, from or to which owners or occupants of abutting land or other persons have no right or easement of access, or only a controlled right or easement of access, by reason of the fact that their property abuts upon such controlled access facility or for any other reason. All primary highways are controlled access highways.

Cover
: Depth to top of underground utility facility below grade of roadway or ditch.

Fully Access-Controlled Highways
Primary highways on which the rights of ingress and egress from abutting properties has been legally eliminated and which have grade separated intersections, only, with selected roads and streets.

Department
Iowa Department of Transportation, acting in behalf of the State of Iowa.

Direct Burial
Installing a utility facility underground without encasement, by plowing.

Drain
Appurtenance to discharge moisture or liquid contaminants from casings.

Encasement
Structural element surrounding a pipe or cable

Engineer
The Chief Engineer of the Department acting directly or through his duly authorized representative, such representative acting within the scope of the particular duties assigned to him, or of the authority given him.

Freeway
For purposes of this Policy, freeways shall be defined as those highways constructed as fully controlled access facilities where access is available only at interchange locations.

Non-Freeway
For purposes of this Policy, non-freeway highways shall include all highways which have not been constructed as fully controlled access facilities.

Frontage Road
A public street or road auxiliary to and usually located along side and parallel to a primary highway for purposes of maintaining local road continuity and for control of access.

Gallery
An underpass for two or more utility lines.

Grade Separation
A structure which carries an intersecting highway over or under another highway or railroad.

Highly Energized
As used in this policy shall refer to an energy level which could be hazardous if the facility is struck or exposed. For purposes of this policy, highly energized will be considered anything over 60 volts.

Highway, Street or Road
A general term denoting a public way for purposes of vehicular travel, including the entire area within the right of way.

Interchange
A system of interconnecting highways in conjunction with a grade separation or separations providing for the interchange of traffic between two or more intersecting roadways.

Manhole
An opening in an underground system which workmen or others may enter for the purpose of making installations, inspections, repairs, connections, and tests.

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

MUTCD
Manual on Uniform Traffic Control Devices.

Natural Gas Distribution System
Natural gas mains within municipalities together with mains extending out of municipalities to serve patrons and those mains extending from transmission or feeder mains into municipalities provided such lines are plainly and adequately marked as to location. All lines referred to within this definition shall be constructed to Class 4 standards as defined by the U.S. Department of Transportation, Transportation of Natural Gas and Other Gas by Pipeline; Minimum Safety Standards.

Pavement
That portion of the roadway used for the movement of vehicles, exclusive of shoulders.

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

Permit
Use and occupancy agreement.

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

Pipeline
A carrier system used to transport liquids, gases, or slurries.

Plowing
Direct burial of utility lines by means of a plow type mechanism which breaks the ground, places the utility line and closes the break in the ground in a single operation.

Power Lines
Overhead electrical conductors with supporting poles or structures and underground electrical conductors or cables with the conduit in which they are contained.

Pressure
Relative internal pressure in ppsig (pounds per square inch gauge).

Primary Roads or Primary Highways
Those roads and streets so designated in accordance with 306.3(2) of The Code. This definition includes primary road extensions in municipalities.

Private Utility Facility
Any pole, pipeline, pipe, pipeline, sewer line, conduit, conveyor cable, aqueduct, or any other structure or appurtenance thereof which is privately owned and dedicated to private use.

Public Utility Facility
Any pole, pipeline, pipe, pipeline, pipeline company facility, conduit, cable, aqueduct, or any other structure or appurtenance thereof whether publicly or privately owned which is used to provide a service to the public or which is directly or indirectly dedicated to public use.

Relocation
The removal, rearrangement, reinstallation, protection, or adjustment of a utility facility.

Right of Way
A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes. For the purposes of this policy, the right of way line for a freeway is the access control line.

Roadway
The portion of a highway, including shoulders, for vehicular use. A divided highway has two or more roadways.

Rural Type Roadways
Any roadway other than an urban type roadway.

Safety Rest Area
A roadside area with parking facilities separated from the roadway provided for motorists to stop and rest for short periods. It may include drinking water, toilets, tables and benches, telephones, information, and other facilities for travelers.

Scenic Overlook
A roadside area provided for motorist to stop their vehicles beyond the shoulders, primarily for viewing the scenery in safety.

Service Connection
Any water, gas, power, or communication line which extends from the main or primary utility facility into an adjacent property and which is used to serve that property.

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

Slope Limit or Toe of Slope
The intersection of the fore slope, and natural ground or ditch bottom.

State
State of Iowa.

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

Trenched
Installed in a narrow open excavation.

Untrenched
Installed without breaking ground or pavement surface, such as by jacking or boring.

Urban Type Roadway
A roadway which has as its outside extremities a curb and gutter section.

Use and Occupancy Agreement
The document by which the highway authority regulates and/or gives approval of the use and occupancy of highway rights of way by utility facilities.

Utility
The term "utility" shall include all privately, publicly, municipally or co-operatively owned systems for supplying water, sewer, electric lights, street lights and traffic lights, gas, power, telegraph, telephone, cable TV, transit, pipeline, heating plants, railroads and bridges, or the like service to the public or any part thereof if such system be authorized by law to use the streets or highways for the location of its facilities.

Vent
Appurtenance to provide ventilation of or to discharge gaseous contaminants from casings.

SECTION 2. APPLICABLE STANDARDS

2-1 This policy shall become effective on the date of issuance and shall supersede all previously published Iowa Department of Transportation standards and policies concerning the accommodation of utility facilities on the Primary Highway System.

2-2 It is the intent of this policy to effectuate and incorporate all of the provisions of Federal Highway Administration F.H.P.M. 6-6-3-2.

2-3 Where it is clear that the application of a standard established herein will in any particular case be unnecessarily stringent, consideration may be given to more appropriate requirements for the particular case. Where a variation is proposed Department approval and, where required, Federal Highway Administration concurrence must be obtained.

2-4 The owner of the utility facility shall assure itself and be responsible that the proposed utility projects meet the applicable requirements of this policy, applicable local, municipal, and county codes, applicable franchise rules and regulations and all applicable laws, regulations and directives promulgated by the Iowa Department of Commerce, regulations of the Iowa Department of Natural Resources or any other laws, regulations or standards applicable. These requirements shall include, but not be necessarily limited to, the following:

A. Electric power and communication facilities should conform with the currently applicable National Electrical Safety Code.

B. Water lines should conform with the currently applicable specifications of the American Water Works Association.

C. Pressure pipelines should conform with the currently applicable Federal and industry design, construction, and safety codes, including:

1. Chapter 49, Code of Federal Regulations Part 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards.

2. Chapter 49, Code of Federal Regulations Part 195, "Transportation of Hazardous Liquids by Pipeline."

3. American National Standards Institute B31 Codes:

a. Power Piping, ANSI B31.1.

b. Petroleum Refinery Piping, ANSI B31.3.

c. Liquid Petroleum Transportation Piping Systems, ANSI B31.4.

d. Gas Transmission and Distribution System Piping, ANSI B31.8.

D. Natural gas mains within municipalities together with mains extending out of municipalities shall be constructed to Class 4 standards as defined by the U.S. Department of Transportation, Transportation of Natural Gas and Other Gas by Pipeline; Minimum Safety Standards.

E. Section 306A of the Code of Iowa.

F. The applicable policy, code, rule, regulation, law or whatever, which provides the highest degree of protection to the highway and to the public shall supersede all others.

SECTION 3. GENERAL PROVISIONS FOR OCCUPANCY OF RIGHT OF WAY

3-1 General

A. All utility facilities permitted within the right of way of highways under the jurisdiction or concurrent jurisdiction of the Iowa Department of Transportation shall be in accordance with the following rules:

1. No utility facility shall be constructed so as to adversely affect the design, construction, operation, maintenance or stability of a highway or any proposed or existing highway facility.

2. There shall be a minimum disruption of traffic; and other hazards to the highway user are to be minimized.

3. A planted or landscaped area which is disturbed shall be restored as nearly as practical to its original condition. Specific authorization must be obtained from the engineer prior to trimming of trees or spraying within the right of way.

4. The Department shall give the utility company at least 48 hours notice of any proposed construction or maintenance work that is likely to conflict with existing installations belonging to a utility company.

3-2 Design

A. The utility company shall be responsible for the design of the utility facility to be installed within the highway rights of way or attached to a highway structure. The Department is responsible for review and concurrence of the utility's proposal. Design plans shall have been prepared by a person knowledgeable in highway design and in work zone traffic control and shall include the measures to be taken to preserve the safe and free flow of traffic, structural integrity of the roadway or highway structures, ease of highway maintenance, appearance of the highway, and the integrity of the utility facility.

B. All utility installations on, over, or under highway rights of way and attachments to highway structures shall be of durable materials designed for long service life expectancy and relatively free from routine servicing and maintenance.

C. Ground-mounted utility facilities shall be of a design compatible with the visual quality of the specific highway section being traversed. (See Section 3.5 of this policy).

3-3 Access Requirements (Construction & Maintenance)

A. Access for servicing utility facilities located within the freeway right of way will, except in time of disaster, be limited to:

1. Frontage roads where provided.

2. Intersecting, adjacent or nearby public roads and streets.

3. Trails or auxiliary roads adjacent to or near the highway right of way which are connected to intersecting roads only.

4. Private property.

5. Fence removal and replacement shall be subject to limitations and compliance imposed by the permit.

6. No gates or ladders shall be allowed to be placed in or upon the right of way fence.

B. Access from the right of way is permitted on non-freeway highways, subject to any limitations imposed by the permit, for maintenance of those lines occupying highway right of way.

3-4 Clear Zone (Construction & Maintenance)

A. On freeways open to traffic, no personnel or equipment will be permitted within 30' of the edge of pavement or in the normal median during utility facility construction and maintenance operations, except for stringing of overhead conductors. In the interest of safety, temporary poles in the median may be allowed during cable or conductor stringing operations if considered advisable by the Engineer.

B. On non-freeway highways in rural areas, permanent, above-ground obstructions will be restricted to an area outside the area established from the clear zone requirement as listed in Table 1 or the roadway foreslope, whichever is greater. If sufficient right of way is not available to accommodate this distance, the Department reserves the right to require the installation to consist of a breakaway design, require regrading of the right of way, or authorize the installation to be placed near the right of way line.

Table 1 should be used to determine the appropriate clear-zone distance in rural areas based on present day traffic and the existing foreslope adjacent to and preceding the utility appurtenance. Table 1 values are based on a 60 mph design speed. Should the Department

decide another design speed is more appropriate, such as freeways where the posted speed limit is greater than 55 mph, the clear zone shall be determined by reference to Table 3.1 of the 1989 AASHTO Roadside Design Guide.

The clear zone shall be measured from the edge of the traveled way. In Table 1, the lower value represents a minimum acceptable limit, while the higher value represents a desirable clear zone to be achieved whenever practical.

Table 1 - CLEAR ZONE (in feet)
Traffic Volume, ADT

Foreslope	Under 750	750-1500	1500-6000	Over 6000
3:1 or steeper	*16'-18' beyond the toe of foreslope or 20'-24' from edge of traveled way whichever is greater	*20'-24' beyond the toe of foreslope or 26'-32' from edge of traveled way whichever is greater	*26'-30' beyond the toe of foreslope or 32'-40' from edge of traveled way whichever is greater	*30'-32' beyond the toe of foreslope or 36'-44' from edge of traveled way whichever is greater
4:1	20'-24'	26'-32'	32'-40'	36'-44'
6:1 or flatter	16'-18'	20'-24'	26'-30'	30'-32'

* Since recovery is less likely on the 3:1 foreslopes, fixed objects should not be present in the vicinity of the toe of these slopes. Recovery of errant vehicles may be expected to occur beyond the toe of the slope. Determination of the width of the recovery area at the toe of the 3:1 slope should take into consideration right of way availability, environmental concerns, economic factors, safety needs, and accident histories. The distance as noted beyond the toe of foreslope in the table above may be reduced by the width of the existing shoulder.

C. In urban areas where curbed sections exist, utility poles should be located as far as possible from the traveled way. Optimum pole placement should be either at the right of way line or at a minimum clear zone distance of 10 feet.

3-5 SCENIC ENHANCEMENT

A. General

The type and size of utility facilities and the manner and extent to which they are permitted along or within highway rights of way can materially alter the scenic quality, appearance, and view of highway roadsides and adjacent areas. For these reasons additional controls

are applicable in certain areas that have been acquired or set aside for their scenic quality. Such areas include scenic strips, overlooks, rest areas, recreation areas, the rights of way of highways adjacent thereto, and the rights of way sections of highways which pass through public parks and historic sites.

B. Underground Installations

New underground utility installations may be permitted within such land where they do not require extensive removal or alteration of trees or other natural features visible to the highway user or do not impair the visual quality of the lands being traversed.

C. Overhead Installations

New aerial installations shall be avoided at such locations where there is a feasible and prudent alterative to the use of such lands by the aerial facility. Where this is not the case, they may be considered by the engineer only where:

1. Other locations are unusually difficult and unreasonably costly, or are more undesirable from the standpoint of visual quality.

2. Underground is not technically feasible or is unreasonably costly.

3. The proposed installation can be made at a location and will employ suitable designs and materials which give adequate attention to the visual qualities of the area being transversed.

3-6 LIABILITY

A. Where a relocation is to be made by the owner of a utility facility, the Department shall not be liable for the cost of any change, alteration, or betterment of such utility except as may be provided by law.

B. Where the Department is liable for costs of relocation required for highway work, the Department will not pay for any betterment that result in an increase in capacity of such related facilities, or other utility adjustments not required by highway construction. The Department is entitled to receive credit for accrued depreciation on replaced facilities and the salvage value of any material or parts salvaged and retained or sold by the owner.

C. The owner of the utility facility shall indemnify and save harmless the Department from any and all causes of action, suits at law or in equity, or losses, damages, claims, or demands, and from any and all liability and expense of whatsoever nature (including reasonable attorney fees) arising out of or in connection with its (or their) use or occupancy of the public highway under a permit or agreement.

3-7 APPLICATION AND PERMIT PROCEDURES

A. Where a utility facility, not covered by an agreement with the Department, is to be placed, adjusted, improved, relocated or replaced across or along an existing highway or a highway under construction, the owner of the utility facility shall initiate arrangements by submitting a permit application for installation and maintenance of the utility facility to the appropriate Resident Maintenance Engineer, excepting service connections within corporated municipalities. Cities shall be responsible for approving occupancy of highway rights of way for service connection. All service connection installations shall meet, as a minimum, the requirements as established by this Policy.

B. Each permit application shall be accompanied by a plan showing the following:

1. Location of the utility by section, township, range and milepost where such exist.

2. Location by distance to the nearest foot at each break point as measured from:

   a. Centerline of highway on non-freeway installations.
   b. Right of way fence on freeway installations.

3. All construction details including:

   a. Depth of bury.
   b. Types of material used in installation.
   c. Operating pressures and voltages.
   d. Vertical and horizontal clearances.
   e. Traffic control plan prepared by a knowledgeable person in work zone traffic control or reference to a standard traffic control plan of the Department.

Failure on the part of the applicant to provide this information may cause a delay in the Department taking final action.

C. Applications for placing utility facilities, in, on, above or below the National System of Interstate and Defense Highways may require the approval of the Federal Highway Administration. Applications for placing utility facilities which will discharge material into the Nation's waters must be accompanied by satisfactory evidence of compliance with all applicable requirements of Federal, State or local environmental protection agencies prior to their approval.

D. The owner of the utility facility or its contractor shall have a copy of the approved permit or agreement on the job site at all times for examination by highway officials.

E. The permit is subject to all the applicable rules and regulations of the Department, other State departments, and the Code of Iowa.

F. A new permit is required at any time there is a change in the class of transmittant, an increase in the maximum design pressure shown on the permit, or any other physical change in the utility facility.

a. Replacing existing copper communication lines with fiber optic cable is considered a physical change and shall require a new permit.

G. A properly executed agreement shall be considered to be a permit.

H. Any permit required for a utility facility which is to be located within the corporation limits of municipality will require the approval of both the municipality and the State.

I. Permits covering gas or water mains outside the corporate limits of a municipality shall expire after 20 years.

3-8 NON-COMPLIANCE

Non-compliance with any of the terms of the Department's policy, permit, or agreement, may be considered cause for shut-down of operations or withholding of relocation reimbursement until compliance is assured, or revocation of the permit. The cost of the work caused to be performed by the Department in removal of non-complying construction will be assessed against the owner of the utility facility.

3-9 PRIVATELY OWNED FACILITIES

A. Privately owned utility facilities shall be accommodated in accordance with the provisions of this policy with the following possible exceptions.

1. The cover requirement of Section 9 may be waived for tile lines and sewer lines where necessary, and at the discretion of the Engineer.

2. The original placement and removal of signs required in Section 4 may be accomplished by Department personnel, at the discretion of the Engineer.

SECTION 4. TRAFFIC PROTECTION

4-1 Owner's Responsibility

The utility facility owner or its contractor shall be responsible for installing warning signs, protective devices and flagmen, when necessary, meeting the Department's requirements for protection of the traveling public and the utilities' workers when performing any work on the right of way.

4-2 Signs Furnished

The Department will furnish all signs for work on Primary Roads and Freeways necessary to conduct traffic through the construction or repair area unless the owner of utility facility elects to use its own signs

conforming to the Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways. Department owned signs will be made available to the utility facility owner or its contractor at one of the major Department maintenance facilities. The owner of the utility facility is responsible for the original placing of the signs, removal after the work has been completed, and return of the Department owned signs to the Department maintenance facility from which obtained. The utility facility owner or its contractor shall be responsible for correctly using signs as needed while work is in progress. Signs lost, damaged or destroyed shall be replaced or paid for by the owner of the utility facility.

4-3 Utility Classification

A. General

Utility work may be divided into three classifications; emergency, maintenance, and new construction. The guidelines for traffic control listed here are for normal situations and additional protection should be provided when special complexities and hazards exists.

B. Emergency Work

1. Can occur at any time of day or night.

2. May be caused by storm damage.

3. May involve customers disruptions of utility service.

4. Work operation usually involves a small crew and a work vehicle for a short period of time.

5. The work vehicle should be equipped with an amber revolving light or amber strobe light, portable signs and channelizing devices in good condition, and necessary equipment for flaggers.

6. The extent of traffic control may be less than longer term construction or maintenance, yet the safety of pedestrians, motorists, and workers should be provided.

C. Maintenance and New Construction for Utilities

1. The public will not easily make a distinction between maintenance and new construction so the type of traffic control used should be adequate for the nature, location, and duration of work, type of roadway, traffic volume and speed, and potential hazard. New construction and some maintenance activities are planned (as opposed to emergency activities), therefore, these guidelines should be followed.

    a. In urban areas where high traffic volumes cause frequent congestion, routine scheduled maintenance and construction should be avoided during hours of peak traffic.

b. Maintain street and road work areas for only as long as is necessary to safely move in, finish the work, remove all utility work signs and move out.

c. Take special care to clearly mark suitable boundaries for the work space with channelizing devices so pedestrians and drivers can see the work space. If any of the traveled lanes are closed, tapers shall be used as required by the MUTCD.

d. Pedestrians should not be expected to walk on a path which is inferior to the previous path. Loose dirt, mud, broken concrete, or steep slopes may force pedestrians to walk on the roadway rather than the sidewalk. Repairs (temporary or permanent) to damaged sidewalks should be made quickly. This may include bridging with steel plates or good quality wood supports.

e. Any work which cannot be completed during the day and impedes traffic or presents a hazard overnight may need additional attention. Reflectorized signs and channelizing devices are required by the MUTCD. Warning lights are optional but should be considered.

f. Any member of the crew who serves as a flagger should be equipped with a red flag or a STOP-SLOW paddle, a reflective vest, and be trained for proper flagging procedures as required in the Department's Flagger's Handbook.

g. Work areas involving excavations on the roadway generally should not exceed the width of one traffic lane at a time. The work should be staged and, if needed, approved bridging should be utilized. This type of activity should be fully coordinated with the traffic or public works department having jurisdiction over the street or highway.

D. Traffic Control (Emergency, Maintenance, and New Construction)

1. Despite the shortness of "short-term" operations, certain traffic controls are necessary and should be used.

2. In urban areas, the work vehicle may be used to supplement the normal signing if it is equipped with an amber revolving light or amber strobe light.

3. The placement of signs, barricades, and channelizing devices shall be in accordance with MUTCD and current Department specifications for traffic control for street and highway construction and maintenance operations.

4. Flaggers shall be provided at work sites to stop traffic intermittently as necessitated by work progress or to maintain continuous traffic past a work site at reduced speeds to help protect the work crew. For both of these functions the flagger must, at all times, be clearly visible to approaching traffic for a distance sufficient to permit proper response by the motorist to the flagging instructions, and to permit traffic to reduce

speed before entering the work site. In positioning flaggers consideration must be given to maintaining color contrast between the work area background and the flagger's protective garments. Flagging shall be conducted in accordance with the MUTCD and procedures as required in the Department's Flagger's Handbook.

SECTION 5. CONSTRUCTION AND MAINTENANCE PROCEDURES

5-1 General

A. All work within the right of way shall be executed in a satisfactory and workmen-like manner in accordance with good construction practices.

B. All work shall be accomplished in such a manner as to cause a minimum of disturbance to any other contractor working in the right of way.

C. No person, corporation, or utility, shall spray, trim, cut down, root up, remove, cut or mutilate in any manner, any tree, shrub, bush or vine situated upon any portion of the right of way of any highway on the primary road system, without specific written authorization by the Department.

D. In the performance of the agreement or permit the owner of the utility facility shall comply with the Manual on Uniform Traffic Control Devices and all applicable federal, state and local laws and regulations governing safety, health and sanitation. The owner or its contractor shall furnish such additional safeguards, safety devices and protective equipment and shall take such actions as is reasonably necessary to protect the life and health of the public.

E. Vehicles, equipment and material when not in use in connection with the actual installation of the utility, shall not be parked or stored within the clear zone area as determined in Section 3-4 A, Table 1.

F. Underground transverse crossings of existing roadways shall be made by untrenched construction whenever possible. Any variance must be specifically authorized by the engineer and noted in the permit.

On freeways, jacking pits shall not be permitted within the normal median or closer than 30' from the edge of pavement, or no closer than the toe of foreslope, whichever is greater.

Non-freeway highways, rural type, jacking pits shall not be permitted within the normal median or shall normally be no closer than the toe of foreslope or 30' from the edge of the pavement, whichever is less; however, jacking pits allowed within the foreslope shall be specifically authorized by the engineer and noted in the permit.

On urban type non-freeway highways, jacking pits shall generally be no closer than 2' back of curb.

G. Owners of utility facilities shall give the Engineer at least 48 hours notice, of intention to start construction within the highway right of way.

5-2 RESPONSIBILITY FOR CONSTRUCTION

A. Where utility facilities occupying the rights of way require relocation or protection because of highway improvements or construction, said relocation shall be performed without cost to the state by the owners in advance of the highway work whenever possible.

B. The engineer shall have authority to decide any questions that arise in reference to the intent of the agreement or permit documents and the compliance therewith, relative to the condition of the highway.

C. The Engineer shall have the right to approve minor alterations in plans or character of the work, as related to the highway, which may be considered necessary or desirable during the progress of the work to complete satisfactorily the proposed construction. Such alterations shall not be considered as a waiver of any of the conditions of the agreement or permit nor invalidate any of the provisions thereof.

D. The Department may appoint inspectors to represent the Engineer in the inspection of all construction, as related to the highway, done within the right of way as part of the agreement or permit. The inspector(s) will not be permitted to modify in any way the provisions of the agreement or permit nor to delay the work by failing to inspect the work with reasonable promptness. An inspector is placed on the job to keep the Engineer informed as to the progress and manner in which it is being done; also to call the utility company's attention to any infringements of the agreements or permit documents. The inspector will not act as a foreman nor perform other duties for the utility company or their contractor nor improperly interfere with the management of the work. He will not be authorized to approve or accept any portion of the work. The utility company or their contractor shall furnish the Engineer with every reasonable facility for ascertaining whether the work is being performed in accordance with the agreement or permit documents.

E. The utility owner of the facility and its contractor shall be responsible for the care and maintenance of their partially completed work on the right of way.

F. If, prior to final inspection, any repairs to the right of way are made necessary by the construction or maintenance of a utility facility, the owner shall upon notification immediately make the necessary repairs.

G. Before final inspection of the condition of the highway, the utility facility owner shall be responsible to remove all unused material or rubbish, resulting from the operation, from the site of the work, and leave the right of way in a clean, presentable condition.

H. Upon notification by the utility facility owner or its authorized representative that the work is completed, the Engineer shall make a prompt inspection of each item of work included in the agreement or permit related to the condition of the highway. If the work is found to be not in accordance with the agreement or permit documents, the utility company will be required to remedy the particular defects

found. When the condition of the highway is found acceptable, the utility facility owner shall be so notified by the Engineer. All notices required in this paragraph shall be in writing.

5-3 CONSTRUCTION PROCEDURES

A. Backfilling Trenched Construction

1. Where a carrier, pipe, conduit, duct, or cable is placed by trenched construction beneath a roadway or a driveway or within five feet of the edge of an existing or proposed pavement or base course, the backfill within the roadway shall be placed and compacted in no more than 6" lifts, from the top of the installation to the ground line. The backfill shall be of suitable material free from boulders, frozen clods or roots or excessive sod or other vegetation. The fill shall be carefully hand tamped under and around the installation in lifts not to exceed 4" in loose thickness.

2. In areas inaccessible to tamping type rollers where compaction is required, a mechanical tamper of a size suitable for the work involved shall be used.

3. Pneumatic tampers shall be operated at pressures no less than those recommended by the manufacturer.

4. Compaction of backfill shall be to the satisfaction of the Engineer, and consistent with good highway construction methods.

B. Untrenched Construction Methods

When untrenched construction techniques are utilized the bore shall be as small as possible and in no case more that 4 inches larger than the facility or casing inserted. Grout or sand backfill is required for unused holes, and for abandoned pipes over 3" in diameter. Backfill is also required for bore holes in excess of 2" oversize in diameter of the facility or casing inserted.

C. Pavement Removal

1. When the existing pavement must be cut to accommodate utility installation, the cut shall be made with a concrete saw to a minimum depth of 1 1/2 inches.

2. The width of cut shall be determined by the width of required trench plus 12 inches on each side of the trench. In the event the distance of any adjacent longitudinal or transverse joint or crack is less than 4 feet from the recommended width of cut, the pavement shall be removed to that joint or crack.

3. Final determination of depth and width of cut shall be made by the Department's Engineer.

D. Pavement Replacement

1. Restoration of pavement shall be accomplished in accordance with Department Standards and Specifications.

2. Temporary repair with bituminous material may be authorized by the Department's Engineer.

3. A permanent patch shall be placed as soon as conditions will permit.

5-4 Maintenance Procedures

A. Owners responsibility shall include:

1. Maintenance of the utility installation.

a. Installations shall be maintained in a good state of repair in accordance with the requirements of Federal, State, and local laws and regulatory standards.

b. On non-freeway highways, owners of utility facilities shall at all times give the Department's Resident Maintenance Engineer notice of intention to perform predictable routine maintenance within the highway right of way. Telephone notification is sufficient notice. Notice will not be required to perform predictable routine maintenance on service connections.

Maintenance for other than predictable routine, shall require the utility owner to notify the Department's Resident Maintenance Engineer as soon as possible of their activity on the highway right of way.

c. On freeway highways, owners of utility facilities shall contact the Department's Resident Maintenance Engineer and apply for authorization to complete work within the freeway rights of way. No work shall be completed nor shall anyone enter upon the freeway rights of way until an approved permit has been received. Exceptions will be allowed in cases of a disaster where notification would be required as stated in 5-4B.1.

2. Replacing and stabilizing all earth cover and vegetation where it has eroded over an underground utility facility when such erosion is due to or caused by the placement or existence of the utility.

B. Emergency Maintenance Activities

1. Emergency maintenance of utilities located on highway rights of way, including Freeway rights of way, is permissible without first contacting the Department if an emergency exists that threatens the life, safety or welfare of the public and requires immediate repair.

a. The utility owner shall take all necessary and reasonable safety measures to protect the traveling public and cooperate fully with the State Highway Patrol and the Department in completing repairs as may be necessary.

2. In the event of an emergency, the utility owner shall as soon as possible notify the Department of the emergency informing of what steps have been taken for protection of the traveling public, extent of the emergency and what steps are required to make the necessary repairs.

   a. If the nature of the emergency is such as to cause interference with the free movement of traffic, the State Highway Patrol and the Department shall be notified immediately.

SECTION 6. TRANSVERSE UTILITY FACILITY OCCUPANCY

6-1 General

A. Public utility facilities shall be granted permission to cross any state highway. Private utility facilities may be permitted to cross state highways. All such utility occupancy shall be subject to the provisions of Section 3 (General Provisions for Occupancy) and other requirements as stated herein.

B. The number of crossings of such utility facilities shall be kept to a minimum. The Department may require distribution facilities to be installed on each side of the highway to minimize numerous crossings and service connections. In individual cases, the Department may require several facilities to cross in a single conduit or structure. Crossings should be perpendicular to the highway alignment.

C. On both cased or uncased installations, particularly on crossing of the highway, consideration shall be given for placing spare conduit or duct to accommodate known or planned expansion of underground lines.

6-2 Freeways

A. Overhead or underground utility facility installations will not be permitted within directional interchanges (intersecting freeway) unless highway related.

B. At interchanges, where it is determined that utility facilities, either underground or overhead, cannot be reasonably placed and maintained from the intersecting road, the utility facilities shall be constructed around the interchange on private property to a point of crossing.

C. Underground Installations shall be located and encased as provided in Sections 9, 10 and 11.

D. Overhead Installations

   1. In general, poles, guys and other supporting structures and related ground utility facilities shall be located outside the freeway right of way. A single span shall be used to cross the freeway where the width of freeway right of way permits.

2. Overhead utility facility occupancy of the right of way at freeway interchanges or locations of grade separations may be considered if in compliance with the following conditions:

   a. Access to the utility facility shall be obtained from other than the freeway, its ramps or loops.

   b. Single pole construction shall be used with the number of poles kept to a minimum.

   c. Overhead lines will be constructed on tangent, parallel to the intersecting road, without guys or anchors placed in the areas between the ramps and main roadways of the freeway. Guy poles shall be located as near the freeway right of way line as possible.

   d. Poles shall be located as close to the slope limits of the intersecting road as possible, but shall remain outside the clear roadside recovery area.

   e. Poles shall be located as far from the main roadways and ramps of the freeway as possible. No poles will be permitted within the median, or within the clear roadside recovery area along the ramp pavement and the freeway pavement.

   f. Where crossing of overhead (aerial) utility facilities are allowed, self-supporting poles or towers, double arming and insulators, and/or dead-end construction should be considered.

6-3 Non-Freeway Access Highway

A. Underground Installations

1. Transverse underground utility facilities are to be located and encased as provided in Sections 9, 10, and 11.

2. Waterlines 2" or less inside diameter shall be copper, ABS plastic ASTM 1527, or PVC pipe ASTM 1785, or equal.

B. Overhead Installations

1. In rural areas, overhead utility facilities are to be located with poles, guys or other supporting structures and related ground mounted facilities as near as possible to the right of way line, but in no event shall they be placed within the clear roadside recovery area or the roadway slope limits, whichever is greater, right of way widths permitting.

   a. Where crossing of overhead (aerial) utility facilities are allowed, self-supporting poles or towers, double arming and insulators, and/or dead-end construction should be considered.

2. In suburban areas, with rural type highways and speeds 45 MPH or lower, utility poles shall be located at least fifteen (15) feet from the edge of the paved traveled way or beyond the roadway slope limits, whichever is greater, with the preferred location being near the right of way line.

3. In urban areas with curbed pavement, utility poles shall be placed at the right of way line but no closer than 10 feet from the edge of traveled way. Exceptions to this placement policy will be considered on an individual basis.

   a. In general, ground anchors or stub poles shall not be placed between a pole and the pavement.

4. Poles, guys, anchors, or other appurtenances shall not be located in ditches, at drainage structure openings, or on roadway shoulders. All poles, guys or other appurtenances shall be located to minimize interference with maintenance operations of the Department.

5. Consideration will be given to adjusting minimum setback distances for poles or other appurtenances meeting minimum AASHTO breakaway criteria if approved by the Engineer.

SECTION 7 -- LONGITUDINAL UTILITY FACILITY OCCUPANCY

7-1 General

Where permitted, longitudinal installations should be located on uniform alignment as near as practicable to the right of way line so as to provide a safe environment for traffic operation and preserve space for future highway improvements or other utility installations.

7-2 Freeway

A. Underground utilities may be installed longitudinally within the Freeway rights of way provided they are installed in accord with this Policy and the utility owner has received an approved permit or agreement from the Department. No above ground appurtenances shall be allowed within the freeway rights of way.

   Occupancy shall be subject to the following conditions:

   1. The accommodation will not affect the safety, design, construction, operation, maintenance, stability or interfere with or impair the present use or future expansion of the freeway.

   2. The accommodation would not be used for transmitting gases or liquids or for the transmission of products which are flammable, corrosive, expansive, highly energized or unstable.

   3. The accommodation shall present no hazard to life, health or property, if it fails to function properly, is severed, or otherwise damaged.

4. The accommodation, once installed, will require minimal maintenance.

5. Installation shall be accomplished on uniform alignment, preferably within 8 feet of the freeway right of way line or at a location determined by the Department and shall be installed at a minimum depth of 36 inches.

    a. The Department reserves the right to waive the minimum depth of installation where rocky terrain makes it difficult to obtain the desired depth. The Department will determine the minimum depth of the installation; however, no installation shall be authorized with less than 24 inches cover.

    b. Except as noted in 7-2 (B1), cable installations shall be accomplished by the plowing method only. Borings, as necessitated at public road, stream crossings, or railroads shall be in compliance with Section 11-5 of this Policy.

    c. Manholes and/or splice boxes may be placed below existing ground line. Location and number of installations shall be subject to approval of the Department.

6. Installation, service and maintenance shall be accomplished without entering or leaving the through traffic roadway or ramps. No vehicles, equipment or materials shall be parked or stored upon any portion of the median, through traffic roadway and ramps or shoulders thereof or within the clear zone as defined in Section 3-4. Violation of any conditions as herein stated may be cause for the Department to revoke the permit or agreement.

7. No direct service connection to adjacent properties shall be allowed.

8. No utility facilities will be permitted in or on a structure carrying a freeway roadway or ramp, except as noted in 7-2E.

9. Sign markers shall be placed by the owner within the right of way fence line, at line of sight, along the entire occupancy route. Signs shall have a maximum size of 200 square inches, be composed of an ultra-violet resistant material and shall identify the owner/operator's name, telephone number and type of buried utility.

    a. Signs shall be placed and maintained by the owner at a maximum of 1/4 mile interval in rural areas and 500 feet in urban areas.

    b. Signs shall also be required on each side of all transversing public roads or streets at a point where the freeway right of way line intersects the transversing public road or street right of way line.

10. Metallic warning tape shall be installed a minimum of 12 inches below the existing grade and above the utility installed to facilitate future locating.

11. Applicant/owner shall retain the services of an outside knowledgeable engineering firm who shall be responsible for overseeing continuous on-site inspection of the installation including all provisions pertaining to access to the work site and traffic control. Upon completion of the project, a registered engineer of the outside engineering firm shall certify to the Department on appropriate forms that the installation, traffic control, and access to the work site was accomplished in accordance with the approved permit or agreement. Any changes in the original alignment as approved by the Department shall require prior approval of the Department and shall require the submittal of as-built plans.

12. Applicant/owner shall be responsible for traffic control in accordance with MUTCD Standards and Sections 4 and 7.2 of the Utility Accommodation Policy.

B. Multi-Duct System

1. The Department reserves the right to require installations to be accomplished within a multi-duct system, consisting of two or more ducts as determined by the Department and to be shared with others. Details of the installation shall be subject to the approval of the Department.

   a. A multi-duct system shall be required for all occupancies located in the following designated areas. Occupancy fees for installations within these areas shall be as listed under urban fees in Section 7-2 (C.2).

ROUTE	DESCRIPTION
I-29	I-80 to 16th Avenue in Council Bluffs
I-29	Big Sioux River to Sergeant Bluff/Airport Interchange in Sioux City
I-80	Missouri River to Madison Avenue in Council Bluffs
I-35/80	W. Jct. of I-235 to E. Jct. of I-235
I-235	Entire Route in and near Des Moines
I-80	I-280 Interchange to Mississippi River Bridge in Scott County
I-80	Iowa 965 to Iowa 1 in Iowa City
I-74	Entire Route in Scott County
I-280	Entire Route in Scott County

I-380	Gilbertville Interchange Westerly to End of Route
I-380	U.S. 30 to Boysen Road in Cedar Rapids
U.S. 30	Fairfax Road to "C" Street in Cedar Rapids
U.S. 20	Iowa 58 to I-380 in Waterloo/Cedar Falls area
U.S. 20	I-29 to Iowa 12 Interchange in Sioux City
U.S. 61	Locust Street Connection to City Island Bridge in Dubuque
U.S. 218	11th Street to Airport Interchange in Waterloo

2. The Department will designate the first company requesting occupancy as the "lead company." The lead company will be responsible for:

   a. Design and construction of the multi-duct system.

   b. Carrying out and coordinating maintenance of multi-duct system.

   c. Providing all capital required to construct the multi-duct system unless other firms agree to participate in the capital investment at the time of construction.

3. The Department may enter into an agreement with the lead company and may discount the right of way occupancy fee. The discount fee shall equal the interest cost of the additional capital investment required for the multi-duct system compared to a single occupancy conduit system.

4. The accrued occupancy fee discount will be charged to subsequent utilities that purchase shares of the multi-duct system. The amount charged to any one utility shall not exceed the difference between the cost of a single occupancy conduit facility and the cost of the utility's share of the multi-duct system.

5. When the share of capital costs for each occupant becomes less than the capital cost of a single occupancy system, the discounting of fees to the lead company will end.

6. Subsequent occupants will purchase their share of the conduit system by distributing payment for their share of the multi-duct system equally to the other owners. In all cases, the occupants will equally share the entire capital costs of the facility.

7. If no other occupants should share the facility, the occupancy fee discounts to the lead company will end upon termination of the contract period as negotiated.

8. All subsequent occupants of the multi-duct system will pay the full occupancy fee.

9. All future requests received by the Department for longitudinal occupancy shall require the installation to be accomplished within the established multi-duct system.

C. Prior to commencing any work within the freeway rights of way, the owner/applicant shall have:

1. Filed, with the Department, a performance bond in the amount of $100,000 guaranteeing prompt restoration of any damage caused during the installation of the utility.

   a. Upon completion of the project and upon receipt of the Certificate of Completion as required in 7-2 (A.11) and acceptance of the project by the Department, the performance bond shall be released.

2. Submitted the fee payment to the Department.

   a. Annual fees shall be assigned based on the higher occupancy fee computed as follows:

      Rural area: (all areas not defined in 7-2(B.1a)

      Flat fee of $7,500 per cable installation, or $1,500 per cable mile of occupancy, whichever is greater.

      Urban designated area as listed in 7-2(B.1a):

      Flat fee of $9,000 per cable installation, or $4,500 per cable mile of occupancy, whichever is greater.

   b. The Department reserves the right to negotiate an agreement for fee payment when the Department requires the Utility to install a multi-duct system. Future users of the installed multi-duct system shall pay the Department a fee based on the annual fee established in 2a above.

   c. The Department reserves the right to negotiate an annual fee for requests received for occupancy within the freeway rights of way from State Agencies when the occupancy is dedicated solely to governmental use.

      When these requests are received and a multi-duct system has been previously established, the State Agency shall be required to install its communication cable within the multi-duct system.

   d. Fees as established in this section shall be reviewed by the Department for possible adjustments every 5th year from the effective date of this Policy.

      Any change in the fee structure shall be reflected upon all existing permits or agreements when the next permit or agreement annual fee is payable.

3. Agreed to maintain the following insurance for bodily injury, death or property damage arising out of or in connection with the construction, maintenance and operation of the installation as follows: (Coverage may be provided by blanket policies of insurance covering other property or risks. The Department shall be named as an additional insured in the general public liability and excess liability insurance policies.)

    a. General public liability insurance with limits of not less than $500,000 for injury or death of a single person, or not less than $1,000,000 for any one accident and not less than $250,000 per accident for property damage.

    b. Comprehensive automobile liability insurance with limits of not less than $500,000 for injury or death of a single person, or not less than $1,000,000 for any one accident, and not less than $250,000 per accident for property damage.

    c. Excess liability coverage with limits of not less than $5,000,000.

    d. Statutory Workers' Compensation coverage.

4. Agreed to waive all future rights of the utility, if any, to relocation costs incurred should maintenance or construction of the freeway system require relocation of the utility.

    a. The Department makes no assurance nor assumes any liability to the utility that relocation will again be allowed within the freeway rights of way.

5. Agreed that liability of the owner/applicant shall be subject to the following statement:

    a. The owner of the utility facility shall indemnify and save harmless the Department from any and all causes of action, suits at law or in equity, or losses, damages, claims, or demands, and from any and all liability and expense of whatsoever nature (including reasonable attorney fees) arising out of or in connection with its (or their) use or occupancy of the public highway under a permit or agreement.

    b. The State of Iowa, its agencies or employees, will be liable for expense incurred by the permit holder in its use and occupancy of the freeway right of way only when negligence of the State, its agencies or employees, is the sole proximate cause of such expense. Whether in contract, tort or otherwise, the liability of the State, its agencies, and employees, is limited to the reasonable, direct expenses to repair damaged utilities, and in no event will such liability extend to loss of profits or business, indirect, special, consequential or incidental damages.

6. Received an approved permit or agreement from the Department.

    a. Permits and/or agreements shall be negotiated for a period not to exceed 20 years in length at which time they may be extended in writing or renegotiated. Annual fees shall be subject to the provisions as outlined in Section 7-2 (C.2).

D. Occupancy may be allowed to other utilities required to service highway related facilities upon such terms and conditions as determined by the Department.

E. Occupany may be allowed for utility attachments to existing or planned border bridges when the adjoining state's highway agency requests the Department to approve the request.

Approval shall be subject to the following:

1. The accommodation shall not be used for transmitting gases or products which are flammable, corrosive, expansive or highly energized or unstable nor present a hazard to life, health or property, if it fails to function properly, is severed, or otherwise damaged.

2. Department approval of the attachment proposal and receipt of the attachment fee as stated in Section 12.

3. Utility shall exit the freeway right of way as soon as physically possible after crossing the state line.

4. Longitudinal occupancy of the freeway right of way shall be subject to receipt of the fee payment as noted in Section 7-2C.

5. All other applicable areas of this Policy shall be strictly adhered to.

F. Where a utility already exists within the proposed right of way of a freeway and it can be serviced, maintained and operated without access from the through traffic roadway or ramps, it may remain as long as it does not adversely affect the safety, design, construction operation, maintenance or stability of the freeway.

1. If the existing utility is determined by the Department to affect the freeway as stated in the above, the utility shall be relocated.

7-3 Non-Freeway Access Highway

A. Underground Installations

1. With the exception of natural gas distribution systems, the carriers of transmittants which are flammable, corrosive, expansive or unstable, particularly if carried at high pressure, may not be placed longitudinally with the highway within the right of way limits.

2. In rural areas, underground utility facilities are to be placed not nearer the roadway than the slope limits, right of way width permitting, except at locations where this is not acceptable, such as deep ravines or ditches. A decision as to what is acceptable shall be determined by the Engineer.

3. In urban type areas, longitudinal occupancy for proposed utility facilities are to be as near the highway right of way line as possible and preferably not to be located within the traveled way. Manholes placed within the right of way shall not protrude above the surrounding surface.

4. In general, utility facilities will not be permitted in the median except for underground transverse crossings. Consideration may be given in special cases; however the decision shall be determined by the Engineer.

B. Overhead Installations

1. In rural areas, overhead utility facilities are to be located with poles, guys or other supporting structures and related ground mounted facilities as near as possible to the right of way line, but in no event shall they be placed within the clear roadside recovery area or the roadway slope limits, whichever is greater, right of way widths permitting.

    a. In individual cases, where crossings of overhead (aerial) utility facilities are allowed, the Department reserves the rights to require self-supporting poles or towers, double arming and insulators, and/or dead-end construction.

2. In suburban areas, with rural type highways and speeds 45 MPH or lower, utility poles shall be located at least fifteen (15) feet from the edge of the paved traveled way or beyond the roadway slope limits, whichever is greater, with the preferred location being near the right of way line.

3. In urban areas with curbed pavement, utility poles shall be placed at the right of way line or at a minimum clear zone distance of 10 feet from the edge of traveled way. Exceptions to this placement policy will be considered on an individual basis.

    a. In general, ground anchors or stub poles shall not be placed between a pole and the pavement.

4. Poles, guys, anchors, or other appurtenances shall not be located in ditches, at drainage structure openings, or on roadway shoulders. All poles, guys or other appurtenances shall be located to minimize interference with maintenance operations of the Department.

5. Consideration will be given to adjusting minimum setback distances for poles or other appurtenances meeting minimum AASHTO breakaway criteria if approved by the Engineer.

SECTION 8. VERTICAL OVERHEAD CLEARANCE

The vertical clearance for overhead utility facilities above all highways and the lateral and vertical clearances from bridges, shall conform with the National Electrical Safety Code, except where greater clearances are required by State law, regulation or policy. In no event shall such vertical clearance be less than 20' above the pavement, except for service connections where the minimum vertical clearance shall be 18' above the pavement.

SECTION 9. UNDERGROUND DEPTH REQUIREMENTS

9-1 Measurement

A. The cover is measured as follows:

1. From the ultimate pavement surface edge except that on a curve, is measured to the lowest pavement surface edge.

2. When there are curbs and gutters, from the gutter flow line, excluding the local depressions at inlets.

3. The top of curb where installation is to be behind the curb.

9-2 Minimum Cover

A. The minimum cover under a roadway shall be 48" or such greater depth as may be required to clear the pavement structure.

B. The minimum cover in other portions of the right of way shall be 48" for electric cables, 30" for communication cables except as noted in Section 7-2 (A.5), and 36" for all other underground facilities. In critical situations where the necessary cover cannot be obtained, other protective measures may be approved.

1. The Department reserves the right to waive the minimum depth of installation where rocky terrain makes it difficult to obtain the desired depth. The Department will determine the minimum depth of the installation; however, no installation shall be authorized with less than 24 inches cover.

SECTION 10. LOCATION OF APPURTENANCES

10-1 Freeways - Unless otherwise provided, all above-ground appurtenances shall be located outside the right of way.

10-2 Non-Freeway Access Highway (Rural Type) - In general, all appurtenances shall be located at or as near the right of way line as possible.

10-3 Non-Freeway Access Highway (Urban Type) - In general, appurtenances should be located outside the pavement as near the right of way line as possible. Manholes for existing facilities may be incorporated in the pavement where it is not practicable to relocate the existing utility facility.

SECTION 11. ENCASEMENT OF UTILITIES

11-1 General

A. Casings shall be an oversized load bearing conduit, duct or gallery through which a utility is inserted:

1. To protect the roadway from damages and to provide for repair, removal and replacement of utility without interference to highway traffic.

2. To protect the carrier pipe from external loads or shock, either during or after construction of the highway.

3. To convey leaking fluids or gases away from the area directly beneath the traveled way to a point of venting at or near the right of way line.

4. The casing shall include necessary appurtenances, such as vents, drains, and markers, Casing pipe shall be sealed at both ends with a suitable material to prevent water or debris from entering the annular space between the casing and the carrier, in accordance with Pipeline Industry Standards.

B. Utility lines crossing highway rights of way, in general, require casing from right of way line to right of way line. In certain instances, casing from toe of foreslope to toe of foreslope may be allowed.

C. Utility lines installed parallel to highway rights of way require casing at certain locations. Such locations include, but are not limited to, crossings of hard surfaced sideroads, streets, and entrances.

D. In no case shall an encasement extend less than 30 feet outside the roadway or 6 feet beyond the foreslope limits whichever is greater; right of way width permitting.

11-2 Encased Line Requirements for Transverse Crossing of Non-Freeway

A. Electrical

1. Underground electric service must be placed in conduit or ducts from right of way line to right of way line and shall be clearly marked by the owner at the outer limits of the right of way.

B. Pipelines

1. Lines carrying high pressure natural gas, liquid petroleum products, ammonia, chlorine, or other hazardous or corrosive products need not be encased nor consist of an oversized pipe provided they meet the following requirements:

a. Welded steel pipelines.

b. Cathodically protected.

c. Coated in accordance with accepted Industry Standards.

d. Meet the requirements of American National Standards Institute B31.4 (Liquid Petroleum Transportation Piping Systems) or 31.8 (Gas Transmission and Distribution piping System) with respect to wall thickness.

e. Designed for operating stress levels in accordance Federal Pipeline Safety Regulations.

f. Are marked at the outer right of way limits. Markers shall give the name of the owner, phone number to contact in case of an emergency, and type of product carried.

2. The utility company will provide, as a part of the permit, a statement of certification that the conditions and provisions contained in items (1a) through (1e) above will be complied with when requesting a waiver of casing.

3. Such lines not meeting conditions and provisions (1a) through (1e) above shall require the carrier pipe to be installed in plastic, must be encased within the right of way limits and shall be vented and marked at the outer right of way limits. The markers shall give the name and address of the owner, phone number to contact in case of an emergency, and type of product carried.

4. Plastic pipe shall not be authorized for use in an above-ground installation.

C. Telephone and Communication Cables

1. Telephone and communication cables shall be encased from toe of slope to toe of slope.

D. Sanitary Sewer

1. Sanitary sewer lines must be encased from right of way line to right of way line

a. Exceptions will be granted for gravity flow lines, placed prior to highway construction and properly embedded provided heavy duty cast or ductile iron pipe is used within the highway construction limits and suitable mechanical joints and seals are used.

E. Water Lines

1. Water lines shall be encased as a minimum, from toe of foreslope to toe of foreslope. Venting and sealing of encasement is not required.

a. Water lines with inside diameter greater than two (2) inches must be encased from right of way line to right of

way line and meet minimum ASTM specifications and all applicable laws and codes.

2. Encasement is not required if:

    a. Line is placed prior to highway construction utilizing extra strength cast iron or ductile iron pipe with mechanical joints and seals from right of way line to right of way line and is properly bedded.

11-3 Unencased Lines for Transverse Crossing of Non-Freeway

A. Electrical

1. No exceptions in encasement requirements will be allowed for underground electrical installations.

B. Pipelines

1. Encasement of natural gas distribution and service lines with a maximum operating pressure of 60 pounds per square inch (PSI) of copper, steel or plastic and having an inside diameter of two (2) inches or less is not required, provided:

    a. They are protected and installed in accordance with industry requirements and standards.

    b. The utility company provides, as a part of the permit, a statement of certification that such standards will be met.

2. Welded steel lines which are coated and cathodically protected and meet other requirements as noted in Section 11-2, B.

C. Telephone and Communication Cables

1. Direct buried lines shall not require encasement.

D. Exceptions

1. Uncased utility installations, which by reason of shallow depth or location make them vulnerable to damage from highway construction or maintenance operations, shall be protected with a casing, suitable bridging, concrete slabs or other appropriate measures.

2. Where it is acceptable to both the utility company and the Department, underground utility installations not listed in this section may be installed without protective casing. These will be determined on an individual basis and limited to:

    a. Open trenched construction.

    b. Small bores.

11-4 Encased Lines Requirements for Transverse Crossing of Freeway

A. All Underground Utilities

1. An underground utility facility shall be entirely encased through any area which has access available only from a freeway, its ramps or loops.

   a. Exceptions will be granted for pipeline installations meeting requirements established in Section 11-2 B.

11-5 Boring Requirements

A. Pits for boring, tunneling or jacking will not be permitted in the highway median and will not be permitted closer to the roadway than toe of fill in fill sections or toe of foreslope in ditch sections when allowed on the right of way.
B. Casing and pipeline installations shall be accomplished by dry boring, tunneling, jacking, trenching, or other approved methods.

1. The use of water under pressure (jetting) or puddling will not be permitted to facilitate boring, pushing, or jacking operations. Some boring may require water to lubricate cutter and pipe and under such conditions, is considered dry boring.

11-6 Acceptable Casing Material

A. The following materials are acceptable for use in the casing of utility facilities:

1. Welded steel pipe, smooth wall, in sound condition with a minimum wall thickness as specified in American Petroleum Institute RP #1102 listed below:

Casing Diameter	Minimum Wall Thickness
6", 8", 10", 12", 14" & 16"	.188" - 3/16"
18", 20", 22"	.250" - 1/4"
24" & 26"	.281" - 9/32"
28", 30", 32" & 34"	.312" - 5/16"
36", 38", 40" & 48"	.344" - 11/32"
Casing Diameter Under 6"	Standard wall pipe or .188" wall, as preferred

2. Cast iron pipe or ductile iron of the same class as used for carrier pipe, providing it meets the minimum ASTM Specifications. A statement certifying that such specifications are met will be submitted as part of the permit.

3. Polyvinyl Chloride (PVC) and Chlorinated Polyvinyl Chloride (CPVC) providing it meets the minimum ASTM Specifications and all applicable laws and codes. PVC, Types PSP and PSM sewer pipe, ASTM specifications D 3033 and D 3034 respectively to be in accordance with the listing below:

TYPE PSP AND PSM PIPE DIMENSIONS

Casing Diameter	Minimum Wall Thickness PSP	PSM
4"	.120"	.120"
6"	.253"	.153"
8"	.199"	.205"
9"	.230"	.230"
10"	.249"	.256"
12"	.299"	.305"

The use of PVC pipe for casing is acceptable up to a maximum diameter of 12 inches.

4. Polyethylene (PE) providing it meets minimum ASTM Specifications in ASTM D-2513, is designated as high density type III or IV pipe in ASTM D-1248, and meets the minimum cell property value of PE 334434 in ASTM 3350 and is in accordance with the listing below:

Normal Pipe Size	Minimum Wall Thickness
3"	0.318"
4"	0.409"
6"	0.602"
8"	0.785"
10"	0.978"
12"	1.160"

The use of PE pipe for casing is acceptable up to a maximum diameter of 12 inches.

5. Electric conduits may be of non-metallic materials such as polyvinyl chloride, transite or vitrified clay.

6. Reinforced Concrete Pipe meeting the requirements of the Department's Standard Road Plan #RF-31.

    a. Material used with a diameter less than 18 inches shall use fill height table for 18 inch diameter pipe.

    b. If bell jointed material is used, the bell shall not exceed outside diameter pipe by 1 1/2 inches on pipes with an inside diameter of 12 inches or less or by two inches on pipes with an inside diameter greater than 12 inches.

    c. In lieu of bell jointed material, banded material may be used.

    d. Material use for encasement of liquid or gas transmission lines shall have joints sealed with all weather butyl rope type sealer.

SECTION 12. UTILITY FACILITY ATTACHMENTS TO BRIDGES

12-1 Electrical Power and Communication Cables Attachments:

A. Proposals for placing any electrical power or communication cable on or near bridges, whether existing or planned, or whether on rural or urban roadways, must be approved by the Department, prior to the issuance of a permit. The application shall include a detailed sketch showing method of attachment and weights of attachment. A separate permit shall be filed for each bridge.

B. All attachments shall be in conduits, pipes, or trays and shall be located beneath the structure's floor, above low steel or masonry of the structure and not attached to the structural steel. Expansion devices will be required. Cables in cell or casing shall be grounded wherever necessary. Carrier pipe shall be suitable insulated from electric power line attachments.

C. New structures may be designed to accommodate electrical power and communication lines if the attachment is determined to be in the best interest of the public. All cost attributed to the installation of the line shall be paid by the utility unless such attachments are made as a part of or in lieu of utility relocation costs.

D. Electrical power and communication lines may be attached to existing structures if it is determined by the Department to be in the best interest of the public.

1. Welding or drilling holes in or attaching to structural steel primary members shall be prohibited.

2. Utilities may be attached to non-critical concrete areas.

3. Holes generally shall not be cut in wing walls, abutments, or piers.

E. Fees charged for structure attachments shall be as follows:

1. Telephone open wire lines, cables, conduits, and multiple cell conduits may be allowed to be attached to bridges. The fee for such attachment shall be a permit fee of $50 plus 30¢ per pound weight per foot of utility facility for each foot of the bridge length.

2. Power lines may be allowed to be attached to a bridge structure. The fee for such attachment shall be the same as for telephone lines in (1) above.

3. $50.00 per bridge + ($0.30 x weight of attachment in pounds per foot x length of bridges in feet) = FEE.

12-2 Water Mains, Sewer and Steam Line Attachments:

A. Water mains, sewer and steam lines belonging to a municipality or a private company serving the municipality may, if the Department considers it desirable, be attached to the bridge structure, at no cost.

B. Attachments procedures shall be the same as outlined in Section 12-1.

12-3 Pipeline Attachments:

A. Pipelines shall include gas, petroleum products, chemicals, and water mains, sewer and steam lines not covered in section 12-2.

B. Pipelines may be attached to bridge structures when installation below ground is not feasible. All pipelines attached to structures shall be placed in a neat manner. When permitted, by space available and design of the bridge, pipes shall be placed beneath the structure's floor, inside of the outer girders or beams (or in cells specifically designed for the installation), and be above low steel or masonry of the structure. Piping shall be designed to withstand expected expansion or contraction forces and, if necessary, expansion devices such as expansion joints, offsets or loops shall be used. Pipelines in cell or casing shall be vented and grounded whenever necessary. Pipelines attached to structures having more than 75 PSI operating pressure or larger than two inches in diameter shall have shut offs not more than 300 feet from each end of the bridge. Casing requirements will be judged on an individual basis. In some instances, thicker walled or extra strength pipe may be considered in lieu of encasement.

1. Welding or drilling holes in structural steel primary members shall be prohibited.

2. Utilities may be attached to non-critical concrete areas.

3. Holes generally shall not be cut in wing walls, abutments, or piers.

C. A lump sum payment is made to the Department as compensation for attaching pipe lines to bridges consisting of a $50 permit fee per bridge in addition to the following:

2" gas main at $1.50 per foot length of bridge

3" gas main at $3.00 per foot length of bridge

4" gas main at $4.50 per foot length of bridge

5" gas main at $6.25 per foot length of bridge

6" gas main at $8.50 per foot length of bridge

7" gas main at $10.75 per foot length of bridge

8" gas main at $13.00 per foot length of bridge

For other sizes than given above the rate shall be based on 30¢ per pound foot of pipe for each foot of bridge length.

D. The owner of the utility facility shall provide an indemnity bond to be executed either by itself or by a responsible bonding company, at the Department's option. The indemnitor under such bond shall, in the event of damage resulting from any cause whatsoever arising out of or from permission to attach a pipeline, indemnify the Department against all loss or damage to it or any third party therefrom, including but not limited to the expense of repairing or replacing the bridge and the cost of alternate highway facilities for traffic during the period of such bridge repair or replacement. Such indemnify bond shall be kept in full force and effect as long as the gas pipeline is attached to such highway bridge. The amount of bond may be reviewed by the Department and adjustments required as deemed necessary.

E. The method of attachment and the replacement of the pipeline must have the approval of the Department, and the applicant shall agree to all applicable conditions and stipulations.

12-4 Utility Facilities on Proposed New Structures

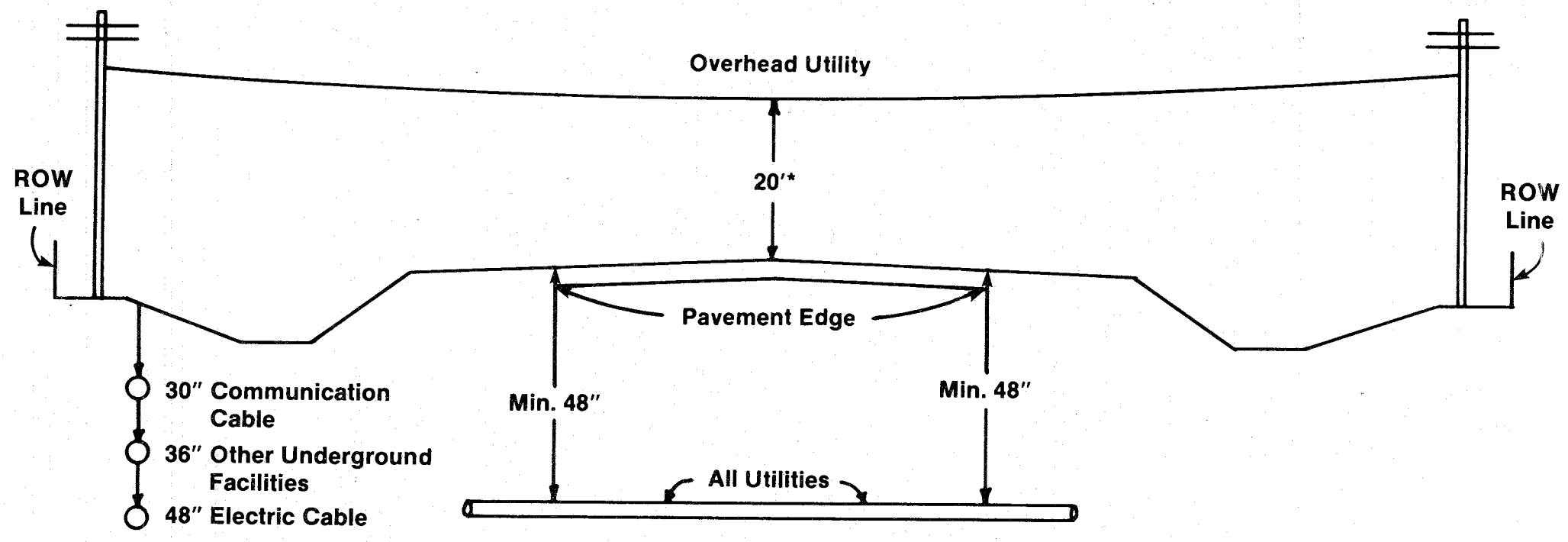
A. Owners of utility facilities proposing to place utility facilities on structures that are in the planning stage will pay in advance an installation fee (additional cost occasioned by the increased design time, inspection and strength of the bridge) and a permit fee (for the attachment weight) in accordance with the fees set out above in sections 12-1, 12-2 and 12-3.

B. The permit fee is to be paid in advance and the installation fee will be billed to the utility company involved when the work is completed.

THE FOLLOWING TWO PAGES CONTAIN
EXHIBITS TO BE USED AS GUIDELINES AND ASSISTANCE
IN OBTAINING COMPLIANCE WITH THE
UTILITY ACCOMMODATION POLICY.

THESE EXHIBITS ARE TO BE USED
FOR PURPOSES AS GUIDELINES OR AIDS
AND ARE NOT TO BE CONSIDERED AS
PART OF THE UTILITY ACCOMMODATION POLICY.

Utilities to be located as near the highway right of way line as physically possible.

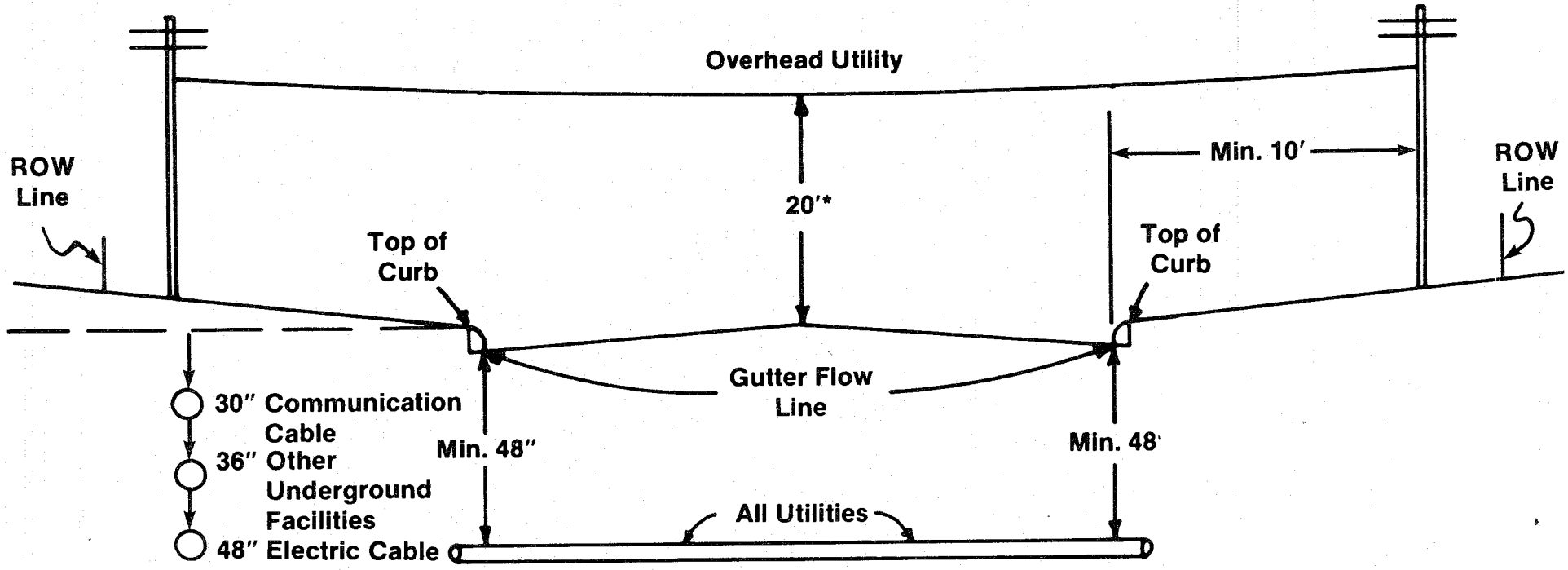


Minimum Policy Requirements
Rural Section
Non-Freeway Highway

Note: See Utility Policy, Section 9 for further details.

*Minimum vertical clearance for service connections shall be 18 feet.

Utilities to be located as near the highway right of way line as physically possible.
Minimum distances for utility poles shall be no closer than 10 feet back of curb.



Minimum Policy Requirements
Urban Section
Non-Freeway Highway

*Minimum vertical clearance for service connections shall be 18 feet.

Note: See Utility Policy, Section 9 for further details.

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