LOCATIONS OF UTILITIES IN PUBLIC RIGHTS-OF-WAY Examples from various Cities
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** Introduction **

Ever since the first underground utilities were conceived the designers and planners of these facilities struggled with thought of where should we put these things. The simplest solution was the most direct route between point A and point B, a straight line. Our forefathers in utility planning had no idea what demands would be placed on public streets by growth underground utility industry as illustrated in this famous APWA photo.

![APWA photo](image)

In every city from Main to California planners and engineers is still struggling with the issue of where to put all these pipes and cables. What is the best Location of Utilities in Public Rights-of-Way?

The American Public Works Association formed the Utilities and Public Right-of-Way (UPROW) Committee to address a number of utility and right-of-way related issues. This committee put together a group of individuals that represent each area of the utility industry, from public agencies to gas, electric, telephone companies, etc. The task for this group is to come up with solutions of recommendations to the utility and right-of-way issues that concerns you the reader.

There are many documents available from various groups including the Federal Government, cities, utility associations and others. All of these documents have good examples of what works for their area of expertise. In some cases good examples that work for one area of the country may not work so well in others. This may be due to climate or terrain. The UPROW subcommittee has reviewed many documents and has prepared this report to bring forward the examples of what works in various regions and cities across the United States.
** Research Analysis **

During our research on *Location of Utilities in Public Rights-of-Way*, we learned that many communities have established and successfully used location guidelines for utilities in their streets. This report will overview the writers research material and highlight some examples of those guidelines and, hopefully, provide you with some ideas for your community.

“STANDARD UTILITY LOCATIONS” FOR THE CITY OF PHOENIX”

A study committee formed in 1970 by the City Engineer of Phoenix prepared this document. The committee included representatives from all utilities, the County and State Highway Departments, all affected city departments and the Home Builders’ Association of Central Arizona. The committee agreed that adjustments or deviations from the standards for individual special cases should be made through mutual agreement among utilities concerned with the approval of the city engineer. They provided for ongoing review by an advisory committee to the city engineer to make recommendations on adjustments or changes. Over the years there have been minor adjustments or deviations in special conditions. However, the first major change since 1970 is in review now by the advisory committee.

Obviously, the standards apply primarily to new streets in new developments. However, in those cases where replacement or new construction is needed in the older parts of the city within existing rights-of-way, the standards have been adhered to wherever practical.

This report will provide you four examples out of 18 standards:

- Major street – 100’ R/W, 16’ median, 2-34’ roadways
- Collector street – 60’ R/W, 40’ paved roadway
- Local street – 50’ R/W, 36’ paved roadway
- Twelve-foot easement

“MODEL STANDARD LOCATIONS FOR UTILITIES IN PUBLIC RIGHTS-OF-WAY”

The document “Model Standard Locations for Utilities in Public Rights-of-Way” was prepared by the Uniform Practices Committee of the Southern California Chapter of APWA. This document was originally published in 1968 after more than a year of study and then updated in 1976 to include new concepts and abutting easements. Input in developing this document was provided through a committee that included all major utilities, city, county, and state agencies. This document was developed with the intent to cover new construction of or within public street and alley rights-of-way and for local distribution facilities only.

However, it does include comments on four special cases:
Frontage roads on major streets
- Expanded industrial access alleys
- Side hill street locations with improved property on one side
- Abutting public rights-of-way for bicycle or equestrian use or transportation corridors

The document “Model Standard Locations for Utilities in Public Rights-of-Way” has been widely distributed to chapter members and was offered nationally several years ago. A few examples are:

- Case III – 60’ maximum right-of-way
- Case IV, 20’ alley
- Concept for a common utility structure

“TYPICAL RIGHT-OF-WAY AND FRONT LOT UTILITY ASSIGNMENTS” – CITY OF AUSTIN

Seven standards adopted in 1989 by the City of Austin Department of Public Works and Transportation. This document was last updated and approved in July 1997, and is now undergoing revision. These drawings include:

- Typical locations and depths for all distribution utilities and city facilities
- Modified APWA standard color codes
- TV, water and wastewater locations
- Rear lot easement utility locations and depths

TYPICAL UTILITY LOCATIONS – CITY OF CINCINNATI

These drawings and details were prepared jointly between the City of Cincinnati and the local utility companies. They were originally prepared in 1992 and made generic in 1997. These drawings include:

- Typical and alternate locations and minimum depths for utilities, sanitary and storm sewers
Public streets and utility easements

Details for a 4-way joint trench or crossover conduit for gas, electric, telephone and TV

Joint trench detail outside PROW

These standards are still being used in new developments and reconstructed streets.

“ACCOMMODATION OF UTILITY PLANT WITHIN THE RIGHTS-OF-WAY OF URBAN STREETS AND HIGHWAYS”, Manual of Improved Practice

This document was a joint publication of APWA and ASCE published in 1974 and based upon a companion report, APWA Special Report No. 44 completed in 1973. It replaced the Manual of Practice No. 14 of the ASCE Urban Planning and Development Division. It was a product of on-site studies by six field investigators of practices and standards in 40 communities in the United States and Canada, and a mail survey of 500 local agencies of which 222 submitted replies.

FHWA, 39 local agencies, seven states, and 15 utility companies sponsored the study and the manual. The American Right-of-Way Association, several utility associations, and the Associated General Contractors also provided cooperation and assistance.

The manual includes location standards of eight cities in the United States and Canada, including 25 typical layouts.

There is a very complete discussion (39 pages) of location considerations, constraints, and economic analyses of location alternates.

In its time this document was the most comprehensive publication that addresses urban street utility usage of public right-of-way.

Some highlights of this publication that are worth considering:

- CHAPTER 2 – Planning and Records
- CHAPTER 10 – Location Considerations and Constraints
- TABLE 1 – General Location Considerations for Placing Utilities in Streets and Rights-of-way.
- FIGURE 2 through 15 – All of these detailed drawings are worth looking consideration.
**Common Factors of Location Assignments**

During the course of analyzing the research material the committee noticed several common factors that appear to be used in the decisions to set the location standards in the different communities that are represented in this report. They are as follows:

- Mainline sewers were generally located in the center of the right-of-way.
- High maintenance utilities such as gas mains and water mains were generally located outside the roadway pavements. If they need to be in the roadway area they are located in the curb lane. This is probably to limit the impact on vehicular traffic.
- Transmission facilities that are not usually tapped and require a higher degree of protection and are therefore designed to be deeper than distribution facilities.
- Street drainage intake structures are located in the roadway immediately adjoin the curb.
- Street lighting and traffic control facilities are generally located in the sidewalk area immediately behind the road curb of improved streets. In unimproved streets they are generally further away from the road pavement.
- Underground telephone, electric, and cable are generally located near the right-of-way line. If they need to be in the roadway area they are located in the curb lane. This is probably to limit the impact on vehicular traffic.
** Challenges to Regulatory Agencies and Right-of-Way Users **

ISSUES THAT CHALLENGE THE CONCEPT OF ASSIGNED LOCATIONS FOR UTILITIES IN PUBLIC RIGHTS-OF-WAY

- Existing older streets where utilities were installed prior to adoption of planned guidelines. Also presence of encroachments such as basements, building vaults, sidewalk elevators, etc.
- Limitation of non-roadway (parkway) areas because of roadway widening requirements and heavy build out to the right-of-way line.
- New commercial or industrial development requiring more or enlarged utility facilities.
- Space requirements for drainage structures, streetlights, traffic signals, fire hydrants, and other city facilities.
- Need for physical and safe access for maintenance, repair, or enlargement of existing facilities.
- Public or customer demand for new or expanded utility facilities to cope with high-tech growth.
- Public demand for street trees, consequent size and root growth, and bus shelters.
- Maintaining replacement space for the future. Pipeline replacements are difficult to accomplish while trying to maintain services. A new pipeline generally must be built before the old line can be taken out of service.
- Possibly the most significant challenge to right-of-way location assignments has been the effect of utility deregulation. How much right-of-way space can be devoted to support a single industry group?
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** Resource List for Location of Utilities In Public Rights-of-Way **

Standard Utility Locations for the City of Phoenix

- Steve Rivas, Utility Coordinator, City of Phoenix, 602-262-4971
  200 West Washington Street, 7th Floor, Phoenix, AZ 85003-1611

Model Standard Locations for Utilities in Prow

- Jerry Ellison, City of Los Angeles, Engineering, 213-847-2018
  650 South Spring Street, Room 400, Los Angeles, CA 90014 - OR –
- Hal Harris, Principal Consultant, Boyle Engineering Corporation, 949-476-3343
  1501 Quail Street, Newport Beach, CA 92660-2726

Typical Right-of-Way and Front Lot Utility Assignments for City of Austin, Texas

- Henry Casas, City of Austin, 512-505-5611
  Department of Public Works and Transportation, P.O. Box 1088
  Austin, TX 78767-8839

Typical Utility Locations for the City of Cincinnati, Ohio

- Walt Pegram, Engineering/Construction Management, 513-352-3480
  City Hall, Room 410, 801 Plum Street, Cincinnati, OH 45202-1927

Accommodation of Utility Plant Within the Rights-of-Way of Urban Streets and Highways, Manual of Improved Practice

- (ASCE Manual No. 14) 1974
  ASCE Linda Hall Library, 800-662-1545
  1801 Alexander Bell Drive, Reston, VA 20191-4400 – OR –
  APWA Publications, 816-472-6100 or 800-595-APWA
  2345 Grand Boulevard, Suite 500, Kansas City, MO 64108