
Fiber Optics and Interstate Freeways—The Federal Perspective

■ JAMES A. CARNEY

The recent changes in Federal Highway Administration (FHWA) utility accommodation policy and the possibility that the Interstate Highway System may be used for fiber-optic communication networks have certainly increased interest in utility-highway accommodation issues. These changes have resulted in some misunderstandings. In this report, I will discuss some of the issues and concerns dealing with utility-highway joint use. Perhaps this will lead to a better understanding of our utility accommodation practices and the policy changes.

Three general areas will be covered:

- General road characteristics and why we have utility accommodation policies
- The history of utility accommodation policy development and implementation
- Current utility accommodation issues and future directions.

Why Have An Accommodation Policy?

There are approximately 3.9 million miles of public roads and streets in the United States. In 1986, there were 176.2 million registered motor vehicles and 159.5 million licensed drivers. It is common prac-

tice for public utilities to locate their facilities on public road right of way. How many miles of utility lines are located on roads and streets is anyone's guess. Some estimate that 88 million or more utility poles are located on highway right of way.

Not all roads or their uses are the same. This enables us to classify roads using a functional classification. All roads are now classified as principal arterials, minor arterials, collectors, or local roads. These can also be broken down by urban or rural and by various highway systems. To one degree or another each of these breakdowns are also indicative of differing types of usage and impacts. For example, interstate highways fall under the principal arterial classification, while in all likelihood the residential street you live on would be listed as under the local classification.

Federal-aid systems represent only 21.8% of all road mileage. However, they carry 80.7% of all traffic. A further refinement would show that the Interstate Highway System represents only 1.1% of the nation's road mileage but carries 21.3% of the traffic. Therefore, the safety and efficiency of most highway travel in this country can be determined by how we design and operate a relatively few miles of the nation's roads and streets. For the most part these major roads are on a federal-aid highway system. We therefore approach major policy decisions affecting the nation's federal-aid systems with caution.

There are many ways to analyze road use statistics. What I want to do is compare freeway characteristics with other roads and streets. First, let's define the term "freeway" as follows:

A fully controlled access divided arterial highway for through traffic with no at-grade intersecting roads or direct private driveway connections from abutting property. Access connections to the through traffic lanes are provided at selected public road interchanges.

Nonhighway uses of freeway right of way are also limited and permitted only when they will not interfere with the highway and its safe use. Generally, the travel ways of freeways are sufficiently removed from the distracting effects of abutting property uses. Consequently, freeways are generally unencumbered by conflicts resulting from non-highway-related activities. The modern freeway may be viewed as a self-contained system, within a protective envelope, whose principal or sole function is the safe, efficient, and rapid movement of large volumes of traffic between major traffic generators and distribution points.

On the other hand, nonfreeway roads and streets serve the general public in a much broader sense. For the most part these facilities are land service roads.

The design standards for nonfreeway roads are for the most part much lower than for high speed freeways. Nonhighway uses, such as public utilities, often are located on and serviced from the limited right of way. Often, underground utilities must be serviced from manholes located within the paved surface of streets. Adjacent land uses can often result in distractions to the traveling public. Road intersections are generally at grade. In short, nonfreeway roads and streets provide more opportunity for vehicular conflicts of all kinds.

Certainly, the Interstate Highway System must be maintained and upgraded where necessary. This system should be viewed as a national resource of the first order. Its function and integrity should be preserved if it is to effectively serve the nation's transportation needs safely and efficiently into the 21st century. Many of the nation's non-freeway road facilities clearly must be upgraded to higher standards and improved to enable them to better handle the increasing demands on these systems and improve highway safety.

Also, since highway safety can be affected by how nonhighway uses of road right of way are permitted, policies and procedures for controlling such uses are necessary in addition to road improvements. For example, utility poles are second only to trees

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In general, utilities are permitted to cross freeway right of way provided they can be installed and serviced from other than the freeway main lanes and ramps.

as the most frequently struck roadside obstacle in fatal accidents.

Also, the servicing and maintenance of utility facilities on highways is hazardous. Utility crews working on road and street right of way face the same dangers as road construction and maintenance crews. Construction and maintenance zone safety is a major problem.

Utility/highway safety problems are principally a concern on nonfreeway facilities where utility use of road and street right of way is more common. The nation's freeways are relatively free of utility related accidents because utilities are generally permitted thereon only under very carefully controlled conditions.

History of Utility Accommodation Policy Development and Implementation

It has been common practice for public utilities to routinely use and occupy road and street right of way. The purpose and function of most roads is to provide a means for transportation access to abutting properties. Utility facilities located on such land service roads provide adjacent property owners necessary utility services. The FHWA has long held that the use of public road and street right of way by essential public utilities is in the public interest when it can be done safely and in a manner that does not impair the road or its use.

Highway/utility accommodation policies and practices have evolved over the years. For example, national uniformity in utility accommodation policy for freeways occurred as a result of the interstate highway program enacted by the 1956 Highway Act. At the very beginning of this program, the nation's road officials had to make

major decisions on how the interstate system would be developed and designed. One of the first decisions was that it must be fully access controlled. Once this decision was made, others followed. The American Association of State Highway Officials (AASHO) (now the American Association of State Highway and Transportation Officials [AASHTO]) issued a policy statement on August 7, 1959, entitled, "A Policy on the Accommodation of Utilities on The National System of Interstate and Defense Highways." This was adopted by the U.S. Bureau of Public Roads (now the FHWA) on September 30, 1959, as an interstate design standard. This policy developed by state highway officials has been periodically reviewed and reaffirmed. The FHWA accepted the latest version of this AASHTO policy on May 7, 1985. The policy covers a number of items, but its principal features deal with conditions controlling public utilities' use of freeway right of way within the control of access lines. In general utilities are permitted to cross freeway right of way provided they can be installed and serviced from other than the freeway main lanes

and ramps. Utilities existing at the time of construction of the freeway are permitted to remain on the right of way only if they meet this access test. New longitudinal utility installations within the control of access lines are permitted only under special circumstances as extreme case exceptions and then only where they can be installed and serviced from other than the main lanes and ramps. The net affect of this policy, which has controlled the development of the interstate system to this day, has been to discourage utility installations on freeways within the control of access limits. Considerable amounts of highways funds have been spent relocating utility facilities and other nonessential facilities outside of the control of access lines. Consequently, freeway rights of way are relatively uncluttered and free of nonhighway uses of any kind.

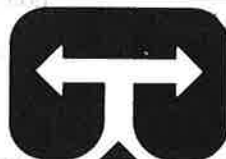
With development of the modern highway systems after World War II and the growing use of automobiles, many problems of the nation's road systems became evident. In the mid-1960s, AASHO conducted a study on highway safety issues. It

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