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An Analysis of the Limited Installation of Accessible Pedestrian Signals: A Collision of Special Interests or an Evolution of Support?

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AN ANALYSIS OF THE LIMITED INSTALLATION OF ACCESSIBLE PEDESTRIAN SIGNALS: A COLLISION OF SPECIAL INTERESTS OR AN EVOLUTION OF SUPPORT?

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ABSTRACT

Accessible pedestrian signals (APS), which provide blind individuals with auditory information about traffic signals, have been installed at very few intersections in the United States even though the original technology was available over twenty-five years ago. Many city and county governments have reportedly resisted APS installations because of their cost, addition of noise to the environment and a lack of unity within the blind community as to whether APS are a needed tool for safe, efficient travel (Bentzen & Tabor, 1998). San Francisco, usually one of the progressive municipalities on issues of access and civil rights, falls behind many cities in APS installations.

Observational research shows decreases in the time it takes blind/visually impaired travelers to assess an intersection, to begin the street crossing and the ability of the individual to cross in a straight line to the opposite curb (Bentzen & Tabor, 1998; Barlow & Franck, 2005; Noyce & Barlow, 2003). This paper investigates the reasons why APS installations have not become a standard part of controlled intersection equipment in San Francisco and other cities and explores potential recommendations for accelerating their installation.

I. INTRODUCTION

At the writing of this paper, the City and County of San Francisco is in structured negotiations with a group of consumer and service organizations regarding the city's failure to install accessible pedestrian signals in San Francisco. The complaint lodged by the California Council of the Blind, an affiliate of the American Council of the Blind; the LightHouse for the Blind and Visually Impaired, an organization providing services, information and advocacy to individuals who are visually impaired headquartered in San Francisco; and the Independent Living Resource Center, a San Francisco advocacy and systems change organization operated by and for people with disabilities; sought to compel the city to develop a plan for the installation of APS's throughout San Francisco. (Feingold, 2005) The complaint, filed in 2003, went largely unanswered until, in early 2005, an agreement was reached to pursue structured negotiations as a method to get the development of the installation plan on track. (Feingold, 2005)

What has caused delays in APS installation programs in San Francisco and across the United States is the topic of this paper. What can be done to encourage the movement toward accelerated APS installation programs is the outcome this paper seeks.

A. Background

Accessible pedestrian signals (APS), which provide blind individuals with auditory information about traffic signals, have been installed at very few intersections in the United States. The 2000 Edition of the Manual on Uniform Traffic Control Devices was the first to incorporate standards for accessible pedestrian signals (APS).

An APS is defined as "a device that communicates information about pedestrian timing in a non-visual format such as audible tones, verbal messages, and/or vibrating surfaces." (Noyce & Barlow, 2003) A significant amount of research has been conducted on the benefits of accessible pedestrian signals and yet there are very few installations in cities across the United States. However, some localities have many more than others. (National Cooperative Highway Research Program, 2003)

Why is this? Why do some cities and states have installation plans in place while others, like San Francisco, resist installing APS even as communities around them move forward.

In some cases, city and county governments have resisted APS installations because of their cost, addition of noise to the environment and a lack of unity within the blind community as to whether APS are a needed tool for safe, efficient travel. (Bentzen & Tabor, 1998). Observational research shows decreases in the time it takes blind/visually impaired travelers to assess an intersection, to begin the street crossing and the ability of the individual to cross in a straight line to the opposite curb. (Bentzen & Tabor, 1998; Barlow & Franck, 2005; Noyce & Barlow, 2003) Curb ramps, installed to make it possible for wheelchair users to travel freely on public streets have been part of the access code since the early 1980's even though they, too, were viewed as an expensive accommodation. Visual countdown signals have been installed in many cities so that sighted pedestrians will know exactly how many seconds they have remaining to cross intersections before the light changes. And yet, there have been only limited additions to Controlled intersections to assist blind individuals to cross even the most complicated intersections.

B. Hypothesis

Has there been a concerted effort by the consumer groups representing individuals who are blind and visually impaired to convince lawmakers that Accessible Pedestrian Signals should be a part of every municipality's access plan? Has the technology been developed to address the situation? Do the resources exist to implement the installation plans if they were developed? Is there a clear federal mandate or legal basis requiring APS installation at controlled intersections? And, is there any evidence to suggest that the general public would not welcome the noise created by APS-equipped intersections?

My hypothesis is that the overwhelming reason why APS have been mostly absent from the accessibility toolbox for blind and visually impaired citizens is due to the lack of agreement between the major consumer groups in the blind community that APS would be a useful tool to independent travel. For the number of APS installations to increase substantially, the opposition posed by the National Federation of the Blind (NFB) will either need to change or a critical mass of other visually impaired individuals and professionals in the field will need to work around the NFB opposition.

To test this hypothesis, three questions will be explored:

1. What factors have contributed to the decisions to install APS in some communities?
2. Have these factors changed over time?
3. Is there a roadmap or best practice that can be developed to accelerate the implementation of APS installation programs?

II. LITERATURE REVIEW

A. Triggering Mechanisms

The question of whether APS should be a standard addition to controlled intersections can first be explored by understanding the "windows of opportunity" that open and close for individual or group problems to become policy issues as discussed by Larry Gerston (2004) in his text, Public Policy Making: Process and Principles. Gerston's discussion of triggering mechanisms as "a critical event (or set of events) that converts a routine problem into a widely shared, negative public response" underscores the factors that compose the "core ingredients of the demands for political change." These factors are scope, intensity, time and resources. (Gerston, 2004) The triggering mechanisms that can be associated with understanding the lack of attention or lack of significant outcomes to the APS issue by government can be analyzed as follows:

1. Scope

Scope has to do with the number of people affected by the need for change. The greater number of people who believe change is needed and voice their desires/demands for change, the more likely attention will be given to the issue. Individuals who are blind or visually impaired are referred to as a low-incidence disability group and are estimated to make up between one and two percent of the population. (AFB, 2006) Also, blind people are spread throughout society, in cities, towns and rural areas. So, there's no "critical mass" population to bring the APS issue to the forefront in each community.

There are two major consumer groups organized to bring issues important to their memberships to the national stage. Historically, these two organizations—the National Federation of the Blind and the American Council of the Blind—have differing philosophies on issues such as public accommodations. This division within an extremely small special interest group diminishes the potential for scope as a prevailing factor on its own.

2. Intensity.

The level of intensity often dictates the level of political action. The Americans with Disabilities Act, for example, was a grassroots effort that built up over time as smaller bits of legislation were passed until a large and vocal cross section of individuals with disabilities and their supporters united to demand its passage. Accessible pedestrian signals, which are, arguably, authorized under Title II of the ADA, have not reached a level of intensity in terms of a unified effort on the part of a majority of individuals or groups of blind and visually impaired consumers.

3. Time

Some issues reach critical mass sooner than others. There have been several opportunities for APS to come to the forefront of public policy, i.e., the development of regulations related to the Architectural Barriers Act (ABA) of 1968, the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990 include "scoping and technical provisions for newly constructed and altered pedestrian walkways". (Institute of Transportation Engineers, 2005) Each of these junctures posed an opportunity for those in support of accessible pedestrian signals to re-emphasize their belief that APS are a critical tool in safe and efficient travel for individuals who are

blind and visually impaired. It also gave those who oppose APS the same opportunity to show their opposition. Figure 1 shows the movement toward national policy regarding APS and related actions of the major consumer groups.

4. Resources

According to a report issued by Donna Smith and Susan Clark (2004), APS are considered a reasonable addition to a visual pedestrian signal and can be paid for from the same funding sources. Since 1991, various pieces of legislation addressing pedestrian safety and access have included references to considering disability access issues when pedestrian patterns and walkways are considered.

The Institute of Transportation Engineers (ITE, 2005) notes that there are several mechanisms for securing funding for APS installation programs. Pedestrian projects and programs fall within the eligibility guidelines for funding in almost every major Federal-aid surface transportation category. The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and the Transportation Equity Act for the 21st Century (TEA-21) of 1998 "call for mainstreaming pedestrian (and bicycle) projects into planning, design, and operation of our Nation's transportation system."

To further understand why none of the potential triggering mechanisms has been sufficient enough thus far to propel APS into the policy arena and result in either a federal mandate or a larger number of local ordinances to dictate their installation, Four other areas have been reviewed—user benefits, technology, federal and state actions and stakeholder involvement.

B. APS Technology: Is It Beneficial?

Since the passage of the ADA in 1990, several studies have been conducted on

the topic of blind independent travelers and how they manage street crossings safely. For example, Barlow and Franck (2005) explored the nature of today's controlled intersections with their separate traffic and pedestrian signals and how visually impaired and blind individuals can benefit from accessible pedestrian signals to give them information only available to sighted people. It includes general and technical information for blind/visually impaired travelers and blindness professionals on APS, their installation and how to use them when crossing the street.

The article notes that even though the ADA requires government facilities, programs and services to be accessible to individuals with disabilities, most information provided by computer-controlled intersections is not accessible to blind people. Specifically, blind people had difficulty knowing when to cross, determining whether there was a push-button to use in order to engage the walk signal and how to locate the push-button if it was present. (Barlow & Franck, 2005) Studies have shown that between 48% and 66% of blind individuals tested did not begin crossing the street until the initial walk phase was over and that nearly one quarter of them did not complete the crossing until the perpendicular traffic had begun to cross into the intersection.

When APS were installed at the same intersections, 99%-100% of blind individuals tested began to cross during the first phase of the walk cycle. APS also eliminated the time blind persons spent waiting at an intersection to understand when it was safe to cross; two complete walk-signal cycles were averaged without APS while APS-equipped intersections required less than half a cycle. (Barlow & Franck, 2003; Carroll & Bentzen, 2000)

Both Orientation & Mobility Instructors and some consumer advocates have believed good training and practice was enough to navigate most intersections. However, with the onset of vision loss among older adults, quieter cars and the number of blind people living in automobile-centered suburbs has made the use of APS up for reinvestigation. (Barlow & Franck, 2005)

However, while the American Council of the Blind (ACB) was lobbying at both the national and local levels for APS installations (See Appendix A –ACB Resolutions) and professional Orientation & Mobility Instructors were also becoming strong advocates for APS (See Appendix C—AER Resolutions), the National Federation of the Blind was opposing APS installations and adopting resolutions at their annual national conventions to lobby for an end to quieter automobiles. (See Appendix B—NFB Resolutions)

C. APS Technology: Does It Work?

Early APS, known as audible pedestrian or traffic signals, were buzzers, usually found at crossings near schools for the blind or organizations known to employ and/or serve blind people. In the 1970s, APS were developed that mimicked bird sounds and were referred to as "coo coos" and "tweeters". These previous versions of APS were loud, covered the sound of the traffic flow, which is the method most blind people use to judge when it is safe to cross, and drew attention in a stereotypical manner to individuals who are blind/visually impaired. New APS technology along with far more complex, self-actuated intersections have given both blind travelers and Orientation and Mobility Instructors more confidence in the use of APS. APS are now quieter and respond more efficiently to ambient noise. They also include a vibrating arrow

component which indicates the direction of the crossing and substitutes for the former loud, non-directional APS. (Barlow & Franck, 2005)

D. Federal Mandates: Do They Exist?

The passage of the Americans with Disabilities Act (ADA) was both a culmination of many years of civil rights actions and the beginning of policy development in the areas of regulations and mandates authorized by the Act. As Gerston notes in his text, , the ADA served as a triggering mechanism for many civil rights policies that had not been able to gain traction prior to its passage. As mentioned above, the ADA requires access to the public right-of-way for persons with disabilities which includes access to traffic signal information necessary for blind travelers. (Bentzen & Tabor, 1998)

In 1994, the Access Board proposed more specific rights-of-way guidelines as part of an interim final rule containing special application sections for certain State and local government facilities. Section 14 of the interim rule adapted basic ADA Accessibility Guidelines (ADAAG) 1-10 provisions for application to public rights-of-way, but was not adopted as part of the Department Of Justice's Standard for Accessible Design. In November 1999, the Board established a Federal advisory committee to develop final rights-of-way provisions from section 14 proposals. DOJ action to include rights-of-way Standards in the title II regulation was expected in 2001. (Institute of Transportation Engineers, 2000) The U.S. Access Board has developed draft guidelines (2002, 2005) which have not yet been approved. These guidelines will further recommend and define the use of APS in the U.S. The draft guidelines require the use of "push-button integrated signals that provide audible and vibrotactile

indicators" during the walk cycle. (Barlow & Franck, 2005, p. 5) The Access Board draft guidelines also comment on location of the APS and how to address APS that must be mounted too close together to differentiate one crossing from another.

Title II of the ADA requires state and local government programs and properties to be accessible to persons with disabilities. As previously stated, guidelines implementing the Americans with Disabilities Act were published in 1991. However a section on Public Rights-of-Way has still not been issued as a Final Rule. Access to pedestrian travel on public rights-of-way is considered to be a program provided by state and local governments, and therefore must be accessible under Title II of the ADA. The fact that there are not specific guidelines does not absolve jurisdictions—cities, counties and states--from the responsibility to provide street crossings that are accessible to people with disabilities, including visual impairments. (www.walkinginfo.org, 2005)

So, why the delay in publishing guidelines for APS installation which, as of 2006, are still in draft form; and, why are there no stricter regulations regarding APS installations ?

E. Stakeholder Involvement: Who Supports And Who Opposes APS?

The intensity and timing of the APS issue (Gerston, ch. 2) has revolved around consumer advocacy efforts which were often met with negative blocking (Kingdon, 1995) by NFB members. Concord, California reports that in 1988 answering citizen requests for accessible pedestrian signals was met with testimony at city council meetings from NFB members who opposed their installation. A 1986 resolution

passed by the American Council of the Blind at its annual convention commends Oakland, California for installing APS in spite of "ill conceived" opposition.

Proponents of APS began working at both the local and federal level to encourage communities to install APS. Locally, individuals and groups of consumers worked with elected officials to gain attention to the APS issue. At the federal level, consumer groups gained appointments to the government institutions designated to promulgate the regulations addressing APS. (Beatie, 2006; Strong, 2006) However, as previously stated, not all blind people and their organized representatives supported the installation of APS. (See Appendix B—NFB Resolutions)

The well-known, if not well-documented, disagreements between the two major consumer groups—the National Federation of the Blind and the American Council of the Blind—has often caused confusion within and outside of the blind community as to the appropriate course of action to take on public policies effecting people who are blind. Historically, the NFB has opposed accommodations that they believed were unnecessary and that would cause the general public to draw negative conclusions about blind people based on the belief that those accommodations were needed for the blind person to participate in society. For example, NFB opposed the passage of the Americans with Disabilities Act (ADA) while the ACB lobbied for its passage. (See Figure 1) When the NFB understood that the ADA would become law, they lobbied for a provision in the ADA that allows a person to refuse an accommodation provided for by the ADA.

The ACB tends to view access as a civil rights matter and advocates for equal access as demonstrated by their support of the ADA. (Harding, 2001)

A similar process appears to have occurred with the APS issue.

The literature contains numerous references to objections from the NFB on APS installations and much commentary like the following from Michael Freeman, NFB, Washington State: "I, like most blind people, travel in most situations with perfect ease and safety without special environmental adaptations." (The Braille Monitor, 2003)

In December 2000, the NFB filed a minority report based on the majority report published by the Public Rights of Way Access Advisory Committee, a committee of the Access Board to clarify the areas in the majority report that NFB found objectionable. The language in the Minority Report indicates a move from strong opposition of APS to consideration of APS in certain circumstances; if the standard of having the right to refuse the accommodation is upheld. An excerpt follows:

> "The primary technique that people who are blind or visually impaired use to cross streets at signalized locations is to initiate their crossing when they hear the traffic alongside them begin to move, corresponding to the onset of the green light. This technique is effective in the vast majority of situations, since the built environment provides sufficient non-visual cues to permit proficient use of the technique. The effectiveness of this technique can be reduced by several factors including increasingly quiet cars, right turn on red (which masks the beginning of the through phase), complex signal operations, and wide streets. Further, low traffic volumes may make it difficult for pedestrians who are blind or visually impaired to discern signal changes."

This admission was followed by a recommendation that when APS are deemed appropriate for an intersection based on review by traffic engineers, mobility specialists and blind users, that the following steps should be considered:

1. APS be considered intersection by intersection and not as a mass installation program;

2. each intersection recommended for APS be evaluated first for safety of all pedestrians and then for blind users; and,
3. when APS are installed, only the vibratactile component mounted at the location of the push button should be installed so that no sound will be omitted. (Elliot & LaBarre, 2000)

Conversely, the ACB, in the second edition of the Pedestrian Safety Handbook wrote:

> "On a per-mile basis, walking is more dangerous than driving, flying, or riding a bus or train. In 1996, 5,157 pedestrians were killed on U.S. streets. On average, just 1 percent of funds spent in states on safety projects were directed at pedestrian safety despite the fact that nationwide approximately 12 percent of traffic deaths and serious injuries were to pedestrians. People who are blind or visually impaired are disproportionately represented in the pedestrian population. Pedestrian signs can and should be made accessible for pedestrians who are blind or visually impaired." (Grubb, 2000)

The ACB passed the first recorded resolution at its annual national convention in support of APS in 1978. In contrast, the NFB passed a resolution in 1992 reaffirming its opposition to APS and, in 1999, another that stated only APS with user-controlled push button APS would be acceptable. (See Appendix A—ACB Resolutions; Appendix B—NFB Resolutions)

Figure 1. History of Support and Opposition of Accessible Pedestrian Signals shown chronologically with issuance of major laws and regulations

Year	Event
1973	Rehabilitation Act (1973) Section 504 requires nondiscrimination in all federal programs, meaning they are to be available to people with disabilities
1978	ACB passes first resolution in support of accessible (audible) pedestrian signals
1980	ACB passes resolution commending Salt Lake City, UT, on APS installations
1983	ACB passes resolution encouraging its members to actively pursue installation of APS in local communities
1986	ACB commends Oakland, CA for allocating funds to install APS in spite of "ill conceived" opposition
1990	Americans with Disabilities Act (ADA) passed; NFB passes resolution restating their position that any ADA-based accommodation can be refused
1991	Accessibility guidelines related to public rights of way initially introduced by Access Board but not adopted by DOJ
1992	NFB passes resolution restating opposition to accessible pedestrian signals and demanding to be included in decisions made by municipalities on where, when or if to install APS; ACB passes resolution demanding prompt development and implementation of a national policy and guidelines for the installation of APS
1993	ACB passes resolution commending the host cities of their annual convention for the temporary installation of APS in and around the convention area
1994	Accessibility guidelines related to public rights of way reintroduced but not adopted by DOJ. Board determined should further coordinate with industry & local governments before continuing Rulemaking
1998	Transportation Equity Act (T-21) states APS should be installed "where warranted;" ACB entreats Access Board and DOT to promulgate regulations on APS based on ADA and T-21; AER passes resolutions urging U. S. Federal Highway Administration to develop policies regarding APS and to include push button integrated signal requirements
1999	NFB passes resolution stating that APS should be pedestrian-activated and should not be assumed as necessary
2000	ACB publishes second edition of Pedestrian Safety, a handbook on rationale and need for APS and detectible warnings; NFB passes resolution instructing Access Board to recommend tactile APS only and only where unusual circumstances exist that cannot be remedied in any other manner; PROWAC Subcommittee issues its report to the U. S. Access Board recommending verbal or tone indications rather than vibrotactile only; recommends new construction and not retrofitting
2002	PROWAC recommendations adopted by Access Board; NFB passes resolution demanding that Access Board adopt NFB minority report on APS vibrotactile only installations at unusual intersections determined on case by case basis
2003	NFB passes resolution asking Federal Highway Administration to investigate alternatives to quiet cars, saying APS will not solve quiet car problems; NFB passes resolution asking Congress to remove language from Transportation Equity Act (T-21) which falsely represents APS installation as a federal mandate
2005	Draft guidelines re-issued requiring when APS are installed they should include locator tone, verbal or tone walk indication, used with push button activation only

(Excerpted from www.acb.org; www.nfb.org; www.aer.org; Elliot and LaBarre)

Along with other studies aimed at showing the benefit of APS installations, a pilot study conducted by this researcher in 2005 in San Francisco focused on the perception of increased safety by APS users. For several years, a coalition of consumer groups has been working to convince the City and County of San Francisco (the City) to install accessible pedestrian signals at all intersections that are equipped with inaccessible walk signals. Two years ago, the coalition entered into structured negotiations with the City to arrive at an agreement on how to proceed with an APS installation plan. Progress has been slow with the first five test intersections partially completed in the fall of 2005. This phase of the project was established as a test phase where different APS options were installed at each of the five intersections, and a pilot study was to be conducted to determine which type of APS installation was most helpful to blind travelers. (Feingold, 2005)

A research project was designed to glean additional information from the visually impaired individuals who evaluated the five APS-equipped intersections (Myers, 2005) in order to provide information to the planning process resulting from the passage of Proposition K which reauthorized the one-half cent sales tax to fund transportation improvements in San Francisco. APS are included in the list of programs to be reviewed and prioritized in the "pedestrian circulation and safety" category but the development of the accompanying Pedestrian Master Plan has not yet been completed. In addition to access to additional funding sources and the presence of an implementation plan, the two criteria most likely to influence the priority of candidate projects that may raise the APS ranking on the list are "safety" and "federal mandate." (Making San Francisco More Walkable, 2005)

The research project consisted of a pilot study to examine the relationship of safety to the installation of accessible pedestrian signals by hypothesizing that when accessible pedestrian signals are installed at street crossings, blind and visually impaired individuals believe they will be safer when crossing the street. Results indicated that 100% of the respondents (7 of 7) found APS to be helpful at some or all intersections. Fifty-seven percent (4 of 7) found APS to be safer at least some intersections with two individuals stating they did not feel safer and one individual not addressing safety. (Aaron, 2005)

With no federal mandate but with technology advancing and professionals in the blindness field joining consumers including the ACB membership, what were local communities doing to address APS programs?

F. Portland Oregon: A Case Study

Portland has installed accessible pedestrian signals for over twenty years upon request. Three buzzer-type APS were installed in the late 1970s, seven more APS—of a later technology—were installed during the next fifteen-twenty years, and, as of 2003, an additional forty-six installations had been completed. (www.walkinginfo.org/casestudies) In 1996, Portland decided a formal policy and implementation procedure was needed. A stakeholders group which included community representatives from Oregon Council of the Blind (an ACB chapter), the NFB, the Oregon Commission for the Blind, the local independent living center and representation from other visually impaired consumers and Orientation & Mobility Instructors was formed. Over three meetings, this group agreed upon an APS installation plan which included three major components:

- APS are installed only upon request;
- the intersection must be unique or have a characteristic warranting an APS;
- the requester must agree to meet with an O&M professional in case individual training would eliminate the need for the APS. (www.walkinginfo.org/content/case_studies/signals_or/)

Funding limitations called for the adoption of a prioritizing plan to rank the order in which requested APS will be installed. Portland has a variety of different types of APS based primarily on the technology in place at the time of each installation. However, due to opposition from the NFB on APS which omit sound, the most recent APS have been vibrotactile only. The general public voiced a few complaints about the early buzzer-style APS but there have been no complaints about the chimes or indicator tones now being used.

G. San Jose California: A Case Study

San Jose has installed 124 APS at its 865 controlled intersections as of December, 2004. Approximately seven APS-equipped intersections are completed each year with a program budget of $35,000—about five percent of the budget for curb ramps. Decisions about which intersections to equip are based on consumer request and pedestrian volume. (Department of Transportation, 2006)

H. Sacramento-Comparison Of City And County APS Programs

The City of Sacramento and the County of Sacramento have taken two distinctly different paths regarding APS installations. These two contiguous

jurisdictions were selected for analysis because of their overlapping populations and separate transportation, public works and disability access programs.

The City of Sacramento had no formal, or informal, APS installation plan. In 2004, a settlement agreement based on a successful complaint filed against the City by Joan Barden, et al. resulted in an a requirement that Sacramento spend twenty percent of its annual Transportation Fund to make the City's Pedestrian Rights of Way accessible to individuals with vision and/or mobility disabilities. (Disability Rights Advocates, 2005)

The County of Sacramento has an APS policy which includes installing APS at all new and renovated controlled intersections. The technology currently in use is push button activated signals.

Based on the literature review, most of the major factors to bring APS front and center in our communities are in place except for the concerted effort of a united blind community to emphasize and reinforce the scope of the issue. To test whether the division between the two major consumer groups is, in fact, at the core of the sluggish implementation of an APS policy—both at the local and federal levels—the following methodologies will be used.

III. METHODOLOGY

A. Definitions

For the purpose of this research project, an accessible pedestrian signal (APS) is defined as a device(s) that "communicates information about pedestrian timing in non-visual format such as audible tones, verbal messages, and/or vibrating surfaces." (Federal Highway Administration, 2003; Section 4A.01) There are four types of

accessible pedestrian signals currently in limited use in the United States. Two types of APS are recommended in the draft guidelines on APS by the U.S. Access Board (2002) including a locator tone or "tick" which can be heard 6-12 feet away from where the APS is mounted, a vibrating arrow which can be used as both a directional indicator and in place of or as an additional tool for hearing, and a rapid tick indicator tone that is audible when the walk interval is in progress. (Barlow & Franck, 2005)

Controlled intersections are intersections which have some type of traffic signal installation.

Push button activated is the term used to refer to traffic signals where a button is pushed to activate the walk signal.

APS-equipped intersections are intersections with accessible pedestrian signals installed along with standard traffic or walk-don't walk signals.

Blind and visually impaired individuals are defined as those individuals with visual impairments who are unable to see crosswalk lines, poles, and/or pedestrian Signals. (Barlow, Bentzen & Bond, 2005) This is a subset of the more expansive definition of visual impairment which includes terms such as partial sight or partial blindness, low vision, legally blind and totally blind. Visual impairment refers to any eye condition, from no sight to partial vision where some assistive measures are necessary to accommodate for lack of vision. (www.afb.org)

Orientation and Mobility Instructors are a trained group of professionals who teach travel training and orientation to the environment to individuals with visual impairments.

B. Case Studies And Key Informant Interviews

To gain an understanding of the forces behind the failure of APS to be installed expansively in the U. S., a combination of case studies and key informant interviews have been utilized. Contacts in local government programs such as departments of transportation, departments of public works and offices on disability access have been contrasted with interviews of members of consumer groups, disability rights advocates and blindness professionals in the local area. Interviews with key informants with a national perspective have been interfaced with responses from local entities.

Interviews and email exchanges were held with a variety of national and local experts on accessible pedestrian signals including:

- Eugene Lozano, Chair of the Transportation Committee, California Council of the Blind-a chapter of the American Council of the Blind and a citizen instrumental in the development of the APS plan for Sacramento County. Mr. Lozano is blind.
- Carol Bradley is the ADA Coordinator for the City of Sacramento. Ms. Bradley is visually impaired.
- Chris Grey is the President of the American Council of the Blind, a long time resident of the San Francisco Bay Area and is also blind. Mr. Grey was instrumental in the development of the APS program in San Jose, CA.
- Barbara Rhodes is an active member of the American Council of the Blind Silicon Valley chapter. Ms. Rhodes is blind and was also instrumental in the San Jose APS plan.

- Brian Bashin is former Executive Director of the Society for the Blind, Sacramento, California and is an active National Federation of the Blind member. Brian currently works as a consultant to national blindness organizations on issues related to employment. Mr. Bashin is also blind.
- David Chan is the current President of the NFB chapter in San Francisco. Mr. Chan is blind and works as a computer programmer.
- Billie Louise Bentzen, Ph D, an Orientation & Mobility Instructor and researcher in many aspects of blindness as it relates to public rights-of-way accessibility. She is a professor at Boston College, a sponsored researcher in detectible warnings and accessible pedestrian signals and an active member of several subcommittees of the U.S. Access Board.
- Patricia Beatie, a public policy specialist with the National Industries for the Blind, has over thirty-five years experience as a member advocate for the American Council of the Blind. She currently serves as the chair of the environmental issues subcommittee of the American Council of the Blind Washington, D. C. chapter.
- Lois Thibeult is staff to the U. S. Architecture and Technology Barriers Compliance Board (ATBCB) also known as the Access Board. Lois works with the committees who review proposals on APSs and other rights-of-way issues.

- Philip Strong is the Transportation Advocacy Specialist for the American Council of the Blind. He is visually impaired.

Qualitative interviews or email exchanges were held with each key informant and documents including articles, reports and other materials written by the key informants were reviewed.

The three communities selected for case study research are San Jose, California, Sacramento, California (both city and county) and Portland, Oregon. These three localities were selected because:

1. there was evidence that they have some sort of APS installation program;
2. they are all located in the western United States in reasonable proximity to San Francisco; and
3. they appear to have varying degrees of involvement from ACB and NFB groups.

An additional twenty jurisdictions were contacted for basic information on their APS installations. They were each asked how many APS-equipped intersections were in their community, what was the total number of intersections with traffic signals and what were the major limitations and motivators to establishing their APS programs.

IV. FINDINGS

A. Comparison Of Case Study Locations, U. S. Access Board Draft Guidelines And NFB Recommendations

Access Board Recommended Installation Plan	NFB Recommended Installation Plan	San Jose Installation Plan	Portland Installation Plan	City of Sacramento Installation Plan	Sacramento County Installation Plan
APS where warranted (T-21)	Not in mass; Location by Llocation	Request only	Request only	No policy	All new or renovated construction
Address only new or renovated intersections	Evaluate safety of all; then blind users	New or renovated intersections only	Unique intersections; meet with O&M prof.	No plan	All new or renovated intersections
Locator tone, verbal or tone walk indication, vibrotactile component, push-button activation	Install only vibrotactile component	Push-button activated, no outside review of installation process, uses overhead tweeters and coo coos	Install vibrotactile only	Few installed; pedhead tweeters & coo coos	Tweeters with locator tone

(Excerpted from www.walkinginfo.org; www.access-board.gov/PROWAC/draft.htm; Elliot & LaBarre, 2000)

By comparing the draft guidelines from the U. S. Access Board and the NFB recommendations two major differences can be cited:

1. the Access Board does not prescribe installation choices except to say that only new or renovated intersections will fall under the guidelines when (if) the guidelines are signed into law by the Bush Administration;
2. when APS are installed a verbal or tone message indicating the beginning of the walk cycle must be used.

The NFB recommends:

1. no mass installations and that intersections be evaluated as to their need for APS and training be offered to individuals requesting the APS to determine if installation can be avoided;
2) only vibrotactile component be used so that no sound is omitted and any person can refuse the accommodation.

Portland is the most closely aligned with the NFB recommendation by responding to only individual requests, sending the request to a committee to determine priority, involving an Orientation & Mobility professional in the assessment of need for the APS and installing only vibratactile components. Portland has a strong and influential NFB chapter. (Bashin Interview, 2006)

San Jose responds to individual requests by allocating about 5%-7% of the amount of resources they assign to curb ramp installation to APS installation. They use an older technology than recommended in the draft guidelines but do follow the draft guidelines by installing only at push-button activated intersections and automatically install at newly constructed intersections. There is a strong ACB presence in the area but no NFB presence. (Grey and Rhodes Interviews, 2006)

Sacramento County installs APS at all new and renovated intersections but does not respond to individual requests for existing intersections. They use an older technology but install only push-button activated signals.

The City of Sacramento has installed only a very few APS and only after a settlement agreement compelling them to do so. Sacramento has both a strong NFB and ACB presence. (Lozano Interview, Bashin Interview; 2006)

B. Jurisdictions With APS Installations

The following chart shows the cities and states that responded to inquiries about their APS programs. Jurisdictions were identified through key informant interviews. The initial contact in each jurisdiction was a representative from the areas department of transportation, public works or the office on disability or ADA compliance. When possible, consumer advocates or blindness professionals familiar with that jurisdiction were interviewed.

The following chart shows the jurisdictions that responded when contacted, the number of APS installations and the total number of controlled intersections.

Chart 4.2 – Frequency of APS Installations in Surveyed Municipalities

Berkeley	16	126
San Jose	125	864
Sacramento (city)		
Silver Sps.	30	750
Portland	53	1000
W Virginia	6	
Dunidon, FL	4	200
Charlotte	12	
San Diego	250	1450
Maryland	40	

Representatives from surveyed jurisdictions listed the following as reasons for APS installation programs:

1. Individual consumer Requests
2. Advocacy from disability rights organizations
3. Fear of lawsuits
4. Education by professional organizations such as International Traffic Engineers Association, etc.

5. Growing agreement among consumer groups and blind services professionals that changing traffic patterns, quieter cars, computerized intersections, etc. were making the case for APS more compelling.

Almost all respondents listed resource limitations as major reason for low number of installations.

Oakland may boast the largest percentage of APS to total number of controlled intersections at over 20%. However, the total number of intersections reported and the total of APS installations were estimates and an exact count was not received. 14.5% of San Jose's controlled intersections are equipped with APS and over 16% of San Diego's controlled intersections are APS equipped.

C. Issues With Available Technology

According to several key informants, the new technologies have eased concerns over noise pollution, maintenance and usability. Comments about technology ranged from Billie Louise Bentzen, "Some of the newer devices do not have a long history in the field, and the early models have been prone to quite a number of problems. However, the major manufacturers are very responsive both to feedback from jurisdictions having installation and maintenance issues, and from pedestrians who are blind. Improvements in the technology are taking place rapidly."

From the U. S. Access Board regarding comments from blind and visually impaired individuals who provided testimony at a public hearing in Portland regarding

the draft guidelines on public rights of way as it relates to accessibility of street crossings:

> "...Some commentators, expressing concerns about the noise output of APS, were apparently unfamiliar with the quiet, pedbutton-integrated devices now available in the United States (these devices are installed at the departure curb, near the listening user, rather than overhead)."

D. Funding and Cost Issues

Costs for APS installations vary with the type of APS used, the complexity of the intersection and whether the APS is an add-on to the built environment or a component of new construction. Costs for equipping all legs of an intersection, which can range from three to six legs, range from $1200 to $14,000. Smith and Clark, in an article prepared for the U. S. Access Board in August 2004, estimated that a regular 4-leg intersection costs between $8,000-$12,000. The San Francisco Bay Area Metropolitan Transportation Commission (MTC) estimated the cost of APS installation to be $400-$600 per push button signal or $3200-$4800 per 4-leg intersection. to equip with APS.

Frank Marcowitz, San Francisco Metropolitan Transit Authority (SFMTA) reported that the average cost of the five pilot intersections installed with APS in 2005 was between $10,000-$14,000. According to Marcowitz, there are approximately 850 controlled intersections in San Francisco. If each intersection averaged $12,000 to equip all legs with APS, the total cost would exceed $17,000,000.

However, Susan Mizner, Executive Director of the San Francisco Mayor's Office on Disability, reports that San Francisco's ADA Transition Plan indicated that to install curb ramps at all intersections that currently do not have ramps or where the ramps are unsafe would cost $70 million and would take ten years to complete. This

figure comes after a curb ramp program that has been in operation since 1973 when the Rehabilitation Act of 1973 became law. (ADA Transition Plan, 2005)

Both curb ramps and APS are considered by the Metropolitan Transportation Commission (MTC) to be low cost bicyclist and pedestrian safety improvements. (MTC, 2006)

Eugene Lozano believes that cost will be an issue until a federal mandate makes APS a requirement and not an optional access element.

E. Noise Pollution

Billie Louise Bentzen said, "My impression is that objections to noise of APS occur primarily because they are set too loud. The older ped-head type of APS has always been set quite loud, and many of the older APS do not respond to ambient sound. The default settings of some of the newer APS are also quite loud. They almost always need to be turned down. However, installers, who are trained to work with wires and switches, are most likely to leave volume at the default level because they just aren't used to having anything to do with sound."

Eugene Lozano also reported that the early APS installations drew many complaints about noise from both neighbors and blind users. "Salt Lake City installed several APS in the 1970s and then halted the program due to complaints about noise." However, Lozano believes that members of the NFB used the noise issue to convince Salt Lake traffic engineers that APS were unnecessary.

Lozano also pointed out what many others noted; that a push button integrated accessible pedestrian signal enables the noise to be minimized and the APS to only be used when the button is pushed. This has had somewhat of a neutralizing effect on

the NFB opposition and has caused traffic engineers to have to rethink their noise veto.

F. Disagreement Within Special Interest Group (Blind Community And Blind Services Professionals) As To Effectiveness Or Necessity Of Equipment

Since the passage of the ADA, the NFB has dropped its absolute opposition of APS and has adopted an "in certain circumstances with certain options" stance. ACB has accepted, without objection, movement on the part of the Access Board to promulgate regulations that address local jurisdictions and NFB's concerns about extreme cost—covers only new construction and not retrofit—and NFB's concerns about noise and forced use of an accommodation by requiring pushbutton integrated APS with the tone or message emanating from the pushbutton housing and not from overhead.

At the federal level, the NFB is still pushing for vibrotactile only while the ACB wants wide installation and verbal messages with each installation.

G. Lack Of Federal Mandate

The majority of key informants who support APS installations found the lack of a federal mandate to be the major hindrance to extensive APS installations. According to an interview with Lois Thibeult, staff to the U.S. Architectural and Transportation Barriers Compliance Board (Access Board), "the NFB opposition worked to persuade US engineers (who had first considered APS in 1975) that they needn't make APS a part of their pedestrian toolbox." (Thibeult, 2006)

She also said that the failure of the Department of Justice to adopt the recommended regulations in 1991 and, again, in 1994 had its underpinnings in the

NFB opposition. "The NFB opposition allowed the DOJ and DOT to give over to objections by local governments on resource and technology issues that would never have occurred if the blind community had been united."

H. Use Of APS For General Public

Philip Strong, Transportation/Advocacy Specialist for the American Council of the Blind, and Eugene Lozano, California Council of the Blind Transportation Committee Chair, both commented on the need to draw parallels between the blind traveler and the sighted traveler in relation to APS assistance at street crossings. They noted several studies including those conducted in New Zealand and England that show sighted people crossed more often during the walk cycle, left the curb more promptly and completed the cross more often within the walk cycle when APS were present.

I. Legal Remedies

Peitrolungo v. Maryland State Highway Administration

As reported in the literature review, a complaint against the Maryland Highway Administration resulted in a decision by the Federal Highway Administration that MSHA was not in compliance with Title II of the ADA for refusal to install APS at intersections along Maryland state highways. Mr. Peitrolungo provided the following excerpt from the decision letter he received from the Federal Highway Administration's Maryland Division:

> "The ADA regulations at 28 Code of Federal Regulations Part 35.130(b)(1)(iii) requires that the aids, benefits, or services provided to individuals with disabilities must be as effective in affording equal opportunity to obtain the same result, to gain the same benefit, or to reach the same level of achievement as those provided to others. The FHWA finds that the lack of accessibility for blind pedestrians is a

violation of the ADA. Therefore, the MSHA is not in compliance with the ADA. The FHWA Division office in Maryland will work with the MSHA and provide necessary guidance to bring the MSHA into compliance with the ADA."

Barden v. City of Sacramento

Carol Bradley, City of Sacramento ADA Coordinator, reported that the settlement agreement reached as a result of the Barden lawsuit against the City of Sacramento for violations of Section 504 of the Rehabilitation Act of 1973 and Title II of the ADA has prompted the City of Sacramento to begin working on a policy regarding APS installations. The settlement agreement included the following language:

> "On January 22, 2004, the court granted final approval of the settlement in Barden v. Sacramento. This case set a nationwide precedent requiring cities and other public entities to make all public sidewalks accessible. As a result of the court's ruling in this case, public entities must address barriers such as missing or unsafe curb cuts throughout the public sidewalk system, as well as barriers that block access along the length of the sidewalks.
>
> Following the court victory, the parties reached a settlement addressing all sidewalk barrier issues City-wide. The settlement provides that for up to 30 years, the City of Sacramento will allocate 20% of its annual Transportation Fund to make the City's Pedestrian Rights of Way accessible to individuals with vision and/or mobility disabilities. This will include installation of compliant curb ramps at intersections, removal of barriers that obstruct the sidewalk, including narrow pathways, abrupt changes in level, excessive cross slopes, and overhanging obstructions, and improvements in crosswalk access."

V. CONCLUSION AND RECOMMENDATIONS

A. Conclusion

It appears that the NFB opposition to APS installations was the initial stumbling block to development of a federal policy on APS. By the late 1990s, APS technology had improved so that many of the complaints and concerns about early APS

installations were neutralized. The Access Board was hearing, through public hearings and written comments, that the majority of those providing testimony found APS as useful at least at some street crossings. Whether the identified need and changing technology led to NFB's modified stance or whether NFB saw that the tide was turning and modified their position as a result, the outcome has been a bending of extremes toward a middle ground.

When the Access Board recommendations for accessibility of public rights of way were ignored in both 1991 and 1994 by the Department of Justice, the Access Board determined that studies were needed to reinforce the usefulness of APS en light of the NFB opposition. Since 1994, a number of studies have been funded by and for the Access Board as well as funded through other related organizations.

It appears that the Access Board was aware that to achieve a federal requirement for APS installations, they would have to develop a compelling body of research to counteract the organized outcry of the opposing consumer group. The research is mostly complete and it shows an overwhelming advantage for blind travelers when crossing streets equipped with APS.

As stated earlier, in a recent round of public hearings and written testimony, nine hundred of the fourteen hundred testimonies received were from blind and visually impaired citizens and blindness professionals. The overwhelming majority were in support of APS at at least some intersections.

Improved technology, favorable research outcomes, changing traffic patterns, quieter cars, the increasing numbers of people aging with vision loss and education of blind people and the general public as to the role of APS have all worked to turn the

tide of support toward APS installations. However, without a federal mandate, local municipalities will continue to oppose extensive installations, if any, due to lack of resources.

What began as a disagreement between consumer groups has become an initiative waiting for a window of opportunity, that is, for a federal administration which will take action and approve the Access Board recommendations.

Traffic engineers and local departments of transportation and public works, who had been able to use the NFB opposition as a vehicle to avoiding APS installations in most cases, have begun to find themselves without cover when they are confronted with consumer requests for APS installations. The lack of federal mandate—now the result of a disinterested administration which has not reviewed or approved any access policies (Theibult, 2006)-is now evident on the local level as lack of resources is used as rationale for limited APS installations.

Although there have been only two actual complaints filed (Pietrolungo V. Maryland State Highway Administration and Barden V. City of Sacramento) there are undocumented reports of numerous examples of individuals requesting APS on the grounds of program inaccessibility under Title II of the ADA. The lopsidedness of one APS request at a time may lead to more examples of structured negotiations as is currently underway in San Francisco or more lawsuits as the number of successful complaints becomes more widely known.

B. Policy Recommendations

On the local level, there are some best practices that can be utilized. For Blind and Visually Impaired Individuals:

1. Make requests to local or state officials regarding where an APS should be installed to make travel safer and more efficient.
2. Be cooperative when traffic engineers or others ask you to be present at the intersection to demonstrate your concerns about the crossing. (Smith & Clark, 2004)
3. Find out if your municipality has an APS installation plan and how it works.
4. Make as many individual requests as you believe are necessary to provide to you the same information in travel as your sighted peers are provided.

For Advocacy Groups:

1. Continue and accelerate work on federal level to have APS recognized and legislated as ADA accommodation under Title II
2. National organizations in support of APS should look for ways to team with groups interested in general pedestrian safety
3. Determine whether your community or state has an APS policy and implementation plan.
4. Find out if there is a local Office or Council on Disability which addresses ADA or, in California, Title XXIV complaints.
5. Get involved in the committees, councils, etc. which may address APS on the policy level.

6. Find out who has the real decision making authority on access issues related to streets and traffic signals and how those decisions are reached.
7. Develop a policy paper on what your organization or group believes are the components of an appropriate APS installation plan
8. Work with your governing body, government ADA staff and departmental heads to gain acceptance for the policy
9. Consider whether filing a complaint or entering into structured negotiations with city or state representatives would assist in pressing the APS program

For Local Government:

1. Develop an installation plan that includes installation of APS at all new and renovated intersections. This will be the federal requirement when the Access Board regulations are ultimately approved.
2. Develop a plan for addressing all individual requests for APS installations. Title II of the Americans with Disabilities Act covers access to government programs and services. Sidewalks and rights of way for pedestrians are viewed as programs and services of the city or state.
3. Adopt a proactive plan that builds a percentage of APS installations into each year's pedestrian safety plan

While the above recommendations address the letter of the law, this approach addresses the spirit of the law and makes APS an inclusive part of making our

communities more livable and walkable. It may also be the best practice to defend against potential administrative complaints and lawsuits.

C. Suggested Future Research

A final email message from the current President of the American Council of the Blind stating his conviction that accessible pedestrian signals should be pervasive and should include both verbal and tone messages appeared to be a distancing from the middle ground established over the past ten years between the consumer groups, the blindness professionals and the federal Access Board. Further investigation into these two special interest groups within a larger interest group might allow for a better understanding of future policy issues.

Also, investigation into how the larger disability community viewed the disagreement between the two blind consumer groups might provide information that both groups could benefit from in the future.

Finally,I found neither an exhaustive list of what communities have installed APS nor how many they have installed. There is also no one person or place with information on legal activity related to APS and Title II of the ADA. This forces each jurisdiction to conduct its own research

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Appendix A

American Council of the Blind resolutions regarding APS
1978
RESOLUTION 78-07

AMERICAN COUNCIL OF THE BLIND
RESOLUTION 78-07

WHEREAS, the regulations implementing Section 504 of the Rehabilitation Act of 1973 now being promulgated by Federal agencies which provide financial assistance require program accessibility as a part of non-discrimination; and

WHEREAS, Federal agencies often seem insufficiently aware that program accessibility means both physical and informational accessibility; and

WHEREAS, informational accessibility is critically important to us, as blind people participating in Federal programs,

NOW, THEREFORE, BE IT RESOLVED, by the American Council of the Blind, in convention assembled this 28th day of July, 1978, in Salt Lake City, Utah, that the Officers and Directors and Staff of this organization be directed to monitor the promulgation and implementation of Section 504 regulations of all agencies providing Federal financial assistance, bringing to their attention informational issues which otherwise might not be addressed; which shall include, but not be limited to, auditory traffic signals, access to information on routes and schedules of public transit systems, auditory as well as visual information of arrivals and departures at airports and other transportation terminals, complete auditory information for blind passengers relative to location of emergency exits and other emergency procedures, and access to planning documents to be discussed at public hearings in fields such as Title XX, community development block grants, etc.

Submitted by Janiece and Roger Petersen Washington, D. C.

Adopted Unanimously.

1980
Resolution 80-24

American Council of the Blind
Resolution 80-24

WHEREAS, the Utah Council of the Blind has promoted the installation of audible traffic signals to assist visually impaired pedestrians at several intersections in Salt Lake City; and

WHEREAS, the Utah Council reports that such pedestrians have found such audible signals to be practical, convenient, and a positive safety factor affording the blind and visually impaired pedestrian the same information that the seeing pedestrian derives from visible signs; and

WHEREAS, the utilization of such audible signals effectively reduces a serious barrier to mobility for blind and visually impaired pedestrians,

BE IT RESOLVED, by the American Council of the Blind in convention assembled in Louisville, Kentucky, on this 19th day of July, 1980, that the ACB, through its President, commend the Mayor and City Council of Salt Lake City for their progressive and innovative leadership in the establishment of such audible traffic signals, and that the Mayor and City Council of Salt Lake City be encouraged to make such installations permanent and to extend them to other busy intersections in Salt Lake City.

Submitted by Utah Council of the Blind

Resolution Adopted.

1983
RESOLUTION 83-20

WHEREAS, independent travel by blind and visually impaired persons is presently discouraged by the absence of audible traffic signals; and

WHEREAS, such signals are particularly needed at multiple intersections and in areas where there is heavy traffic; and

WHEREAS, audible traffic signals where they have been installed have significantly increased the safety of blind and visually impaired travellers.

NOW, THEREFORE, BE IT RESOLVED by the American Council of the Blind in convention assembled on this 8th day of July, 1983 in Phoenix, Arizona, that this organization strongly urges its state and local affiliates to work actively to expand the number of audible traffic signals in their areas.

1986Resolution 86-24
Commendation for Oakland, California for Allocating Funds to make Travel by Blind Persons Easier

WHEREAS, the City of Oakland, California is deeply committed to maximum accessibility for all handicapped people; and

WHEREAS, in furtherance of this commitment, the City of Oakland has allocated seventy-five thousand dollars for the installation of audible pedestrian traffic signals at appropriate intersections; and

WHEREAS, the City of Oakland intends to implement this project, despite ill-considered opposition;

NOW, THEREFORE, BE IT RESOLVED, by the American Council of the Blind, in convention assembled, in July 1986, in Knoxville, Tennessee that the American Council of the Blind commends the City of Oakland, California for its wisdom, understanding and determination to make itself more accessible to blind pedestrians.

This resolution passed without amendment July 5; 1986.

1991
Resolution 91-12
Develop Uniform Standards for Audible Traffic Signals

WHEREAS, the American Council of the Blind has long recognized the effectiveness of audible traffic signals in contributing to the safe, independent travel of blind and visually impaired persons; and

WHEREAS, although audible traffic signals have been installed at a number of busy intersections, many communities throughout the country have failed to provide these safety devices; and

WHEREAS, these communities would be far more likely to install audible traffic signals if national standards pertaining to their design and use were developed and published;

NOW, THEREFORE, BE IT RESOLVED, by the American Council of the Blind in convention assembled at Tampa, Florida, this 6th day of July, 1991, that this organization call upon the Architectural and Transportation Barriers Compliance Board (known as the Access Board) and other appropriate federal agencies to develop and disseminate uniform national standards regarding the design, placement, operation and maintenance of audible traffic signals; and

BE IT FURTHER RESOLVED, that the Access Board consult with ACB's Environmental Access Committee in the development of such standards; and

BE IT FURTHER RESOLVED, that this resolution be transmitted to the Access Board and other appropriate federal agencies with a cover letter urging prompt action on this matter.

Passed.

1993

RESOLUTION 93-25

Appreciation to Those Involved in Providing Audible Signals and Talking Signage at the 1993 ACB Convention

WHEREAS, audible traffic signals significantly increase the safety of blind and visually impaired individuals as well as sighted individuals; and

WHEREAS, the Departments of Public Works of the Cities of Burlingame and Millbrae temporarily installed audible traffic signals at crosswalks on Old Bayshore Highway between the Marriott and Westin Hotels for the 1993 Convention of the American Council of the Blind; and

WHEREAS, IDC Traconex-Multisonics donated the audible traffic signals; and

WHEREAS, Verbal Landmarks and Talking Signs provided the equipment necessary for convention attendees to examine and test audible signage technology; and

WHEREAS, Dr. Billie Louise Bentzen, through her assistance with the audible signage research at this convention and her previous years of high quality research has demonstrated an exceptional commitment to independent travel by blind and visually impaired persons;

NOW, THEREFORE, BE IT RESOLVED, by the American Council of the Blind in convention assembled at San Francisco, California, this 10th day of July, 1993, that this organization express its gratitude to IDC Traconex-Multisonics, the Millbrae and Burlingame Departments of Public Works, Verbal Landmarks, Talking Signs and Dr. Billie Louise Bentzen for their commitment to furthering the interests of blind and visually impaired individuals; and

BE IT FURTHER RESOLVED, that this organization forward this resolution to all appropriate parties.

Adopted,

1998

AMERICAN COUNCIL OF THE BLIND RESOLUTION 98-13

Entreats the Architectural and Transportation Barriers Compliance Board (the Access Board) and the United States Department of Transportation to promulgate and implement guidelines pursuant to the Americans with Disabilities Act (ADA), and the Transportation Equity Act for the 21st Century (TEA-21), and expresses the expectation that such guidelines shall contain specific scoping for detectable warnings, audible crossing signals, and signals with other safety and wayfinding features, accessible features on signage, and other means of providing an accessible environment

WHEREAS, the American Council of the Blind (ACB) has, since the passage of the Americans with Disabilities Act (ADA) consistently supported accessibility features to accommodate persons who are blind and visually impaired as a requirement for public rights of way; and

WHEREAS, current regulations do not exist for making public rights of way accessible for individuals who are blind or visually impaired; and

WHEREAS, both the Americans with Disabilities Act (ADA) and the Transportation Equity Act for the 21st Century (TEA-21) necessitate the promulgation of guidelines insuring access for persons who are blind and visually impaired for rights of way;

NOW THEREFORE, BE IT RESOLVED by the American Council of the Blind in convention assembled this 11th day of July, 1998 at the Clarion Plaza Hotel, Orlando, Florida, that this organization urgently entreats the Architectural and Transportation Barriers Compliance Board (the Access Board) and the United States Department of Transportation to promulgate and implement guidelines pursuant to the above-cited statutes, providing for access to public rights of way for persons who are blind or visually impaired including: lines of demarkation between pedestrian ways and streets, particularly those featuring level or blended curbs, signals, traffic islands, crosswalks and street signs; and

BE IT FURTHER resolved that this organization expect that these guidelines shall contain specific scoping for detectable warnings, audible crossing signals, and signals with other safety and wayfinding features, accessible features on signage, and other means of providing an accessible environment.

Adopted.

1999
The purpose of this article is to provide advocates at the state and local levels with the information and references to use in local advocacy efforts. It is up to local advocates to make accessibility projects a priority with local planners.

Pedestrian access

Section 1202 of TEA-21 requires that bicyclists and pedestrians, including pedestrians with disabilities, be given due consideration in the comprehensive transportation plans developed by each metropolitan planning organization and state. This section further provides that "Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities, except where bicycle and pedestrian use are not permitted." Additionally, TEA-21 provides that transportation plans and projects must provide due consideration for safety and contiguous routes for bicyclists and pedestrians. Safety considerations must include the installation, where appropriate, and maintenance of audible traffic signals and audible signs at street crossings. While this

section does not specify where audible street crossing technology must be installed, its inclusion in this section of the legislation means that projects to install such technologies are eligible for federal matching funds of at least 80 percent.

ACB is serving on an advisory committee of the Institute of Transportation Engineers to establish guidelines for the installation of accessible pedestrian technologies. Advocates will have to work at the local level to ensure that funds are applied to making street crossings accessible. The Access Board has recently completed a report summarizing the accessible pedestrian technologies currently available. To obtain a copy, call: 1-800-USA-ABLE (873-2253).

Section 1202 of TEA-21 calls for design guidelines to be developed by the Secretary of Transportation, in cooperation with the American Association of State Highway and Transportation Officials, the Institute of Transportation Engineers, and other interested organizations, on the various approaches to accommodating bicycles and pedestrian travel. The guidance must include recommendations on amending and updating the policies of the American Association of State Highway and Transportation Officials relating to highway and street design standards to accommodate bicyclists and pedestrians. ACB will work to ensure that the new design guidelines consider the access needs of blind and visually impaired pedestrians.

Advocates must remember that TEA-21 is authorizing legislation. Most of the access provisions are not mandates, they are merely authorizations for federal matching funds. Local planners will determine which projects will have federal funds applied to them. To learn how you can get involved in seeing that TEA-21 funds are used to make pedestrian and public transportation access a reality in your area, contact your metropolitan planning organization (MPO) or your state Department of Transportation. You can also contact your regional office of the Federal Transit Administration to learn how to get involved in the TEA-21 planning in your area. Contact information for FTA regional offices can be found on the FTA web site, http://www.fta.dot.gov. For more information and updates, visit the following web sites: http://www.dot.gov, http://www.transact.org, http://www.istea.org.

RESOLUTIONS FROM ACB, AER AND OLD DOMINION COUNCIL OF THE BLIND

ACB RESOLUTION 99-02

Takes the position that whenever an accessible pedestrian signal is installed at a signalized intersection, such a signal be installed at all legs of the intersection at which a pedestrian signal is provided, except to the extent that doing so would be inconsistent with safety and access.

WHEREAS, the American Council of the Blind has long advocated for the fulfillment of the goal of insuring that people who are blind or visually impaired have full access to information provided by pedestrian signals; and

WHEREAS, it is not uncommon for public entities, for reasons which have nothing to do with safety or access concerns, to install accessible pedestrian signals at some, but not all, of the legs of an intersection at which pedestrian crossings are provided; and

WHEREAS, this practice can lead to confusion among blind and visually impaired pedestrians as to when and where to make a safe crossing; and

WHEREAS, this practice also has the potential for increasing public entity liability;

NOW, THEREFORE, BE IT RESOLVED by the American Council of the Blind in convention assembled this 8th day of July, 1999 at the Airport Westin Hotel, Los Angeles, California, that it is the position of this organization that whenever an accessible pedestrian signal is installed at a signalized intersection, such a signas be installed at all legs of the intersection at which a pedestrian signal is provided, except to the extent that doing so would be inconsistent with safety and access.

ACB RESOLUTION 99-25

Supports the accessible pedestrian signal language approved by the National Committee on Uniform Traffic Control Devices, calls for its usage in all future installations of accessible pedestrian signals, continues the support of the American Council of the Blind (ACB) for the installation of accessible pedestrian signals, and urges completion of the additional research needed to develop the necessary accessible pedestrian signal guidance and standards.

WHEREAS, the Americans with Disabilities Act guarantees the right of access to information to persons with disabilities; and

WHEREAS, the American Council of the Blind has at least 25,000 members who are blind or visually impaired; and

WHEREAS, the Transportation Equity Act for the 21st Century (TEA-21) provides that "Transportation plans and projects . . . shall include the installation, where appropriate, and maintenance of audible traffic signals and audible signs at street crossings"; and

WHEREAS, many signalized intersections provide information to pedestrians with sight that is not provided to pedestrians with visual impairments; and

WHEREAS, accessible pedestrian signals have been widely used for more than 15 years in countries including Austria, Australia, Canada, Czech Republic, Finland, Ireland, Japan, Sweden, and the United Kingdom and are considered by traffic engineers to be widely effective, not only in providing information to blind and visually impaired pedestrians, but also in decreasing general pedestrian delay and facilitating vehicular flow at signalized intersections; and

WHEREAS, increasing numbers of quiet, alternatively fueled vehicles, including electric vehicles, and increasing numbers of quieter internal combustion engines make acoustic information from traffic inconsistent, resulting in the inability of pedestrians who are blind to reliably detect the onset of the WALK interval by listening for a surge of traffic; and

WHEREAS, inexpensive technologies exist to make accessible pedestrian signals which are automatically responsive to ambient sound, being very quiet at night and in low traffic situations, while still loud enough to be heard above vehicular sound in high traffic situations; and

WHEREAS, the American Council of the Blind (ACB) has been actively involved with efforts to develop national guidance and standards for accessible pedestrian signals, streets and intersections, working with the U.S. Department of Transportation (U.S. DOT), U.S. Architectural and Transportation Barriers Compliance Board (Access Board), National Committee on Uniform Traffic Control Devices, Institute of Transportation Engineers, American Association of State Highway and Transportation Officials, Transportation Research Board, and Association for Education and Rehabilitation of the Blind and Visually Impaired, Blinded Veterans Association and accessible pedestrian signal manufacturers; and

WHEREAS, these efforts have resulted in the development of resources, such as the Access Board's Publication A-37 on Accessible Pedestrian Signals, the draft United States Department of Transportation/Access Board's "Accessible Rights of Way: A Design Manual", ACB's Pedestrian Handbook, ACB's "Recommended Street Design Guidelines for People Who Are Blind or Visually Impaired" and the National Committee on Uniform Traffic Control Devices Accessible Pedestrian Signal language (4E.6 - 4E.8); and

WHEREAS, these publications represent a laudable first step toward developing standards which will advance access of persons who are blind and visually impaired to traffic signal information, and thereby also increase the awareness of traffic engineers of the needs of blind and visually impaired pedestrians; and

WHEREAS, these efforts have identified specific areas where further research is needed prior to the development of additional guidance and standards; and

WHEREAS, the National Cooperative Highway Research Program is charged with assisting the U.S. DOT and other transportation organizations in meeting these research needs;

NOW, THEREFORE BE IT RESOLVED by the American Council of the Blind, in convention assembled this 7th day of July, 1999 at the Airport Westin Hotel, Los Angeles, California that ACB support the accessible pedestrian signal language approved by the National Committee on Uniform Traffic Control Devices in Orlando, Florida in June, 1999 and call for its usage in all future installations of accessible pedestrian signals; and

BE IT FURTHER RESOLVED that ACB continue to actively support the installation of accessible pedestrian signals and urges the U.S. Department of Transportation, National Cooperative Highway Research Program and other transportation organizations to support the additional research needed to develop the necessary accessible pedestrian signal guidance and standards.

2002
The American Council of the Blind (ACB) is pleased to submit the following comments on the Draft Guidelines for Accessible Public Rights-Of-Way, which were issued on June 17, 2002....

Section 1106 Accessible Pedestrian Signal Systems

ACB supports the requirement that each crosswalk with pedestrian signal indication shall have a signal device which gives audible and vibrotactile indications of the walk interval. We agree with the Board that care should be exercised in the location of pedestrian push buttons to insure that, to the maximum extent feasible, push buttons for accessible pedestrian signals will be positioned where they can be located and activated by the pedestrian while leaving sufficient opportunity for the pedestrian to reach the curb in time to respond to the walk interval indication.

As an aid to this process, the locator tone required by 1106.3.2 is essential. In addition to alerting the visually impaired pedestrian to the presence of the push button, it draws the attention of non-disabled pedestrians to the push button, as well, increasing the likelihood of safer street crossings overall. In addition, as the locator tone becomes consistently incorporated into accessible pedestrian signal systems, the visually impaired pedestrian will have the benefit of knowing that further accessible information is forthcoming as a result of his/her activation of the push button. Since these tones are only audible at close range, if the recommended guidelines are followed correctly, they will not be disruptive to the surrounding community. Therefore, we believe their benefits far outweigh the minimal impact they may have on the environment.

We thank the Access Board for including specifications for pedestrian push buttons in 1106.3.3 regarding size and contrast. These specifications are important to facilitate their use by people who have low vision.

We believe that sections 1106.3.4 through section 1106.4.3 should be incorporated into the Access Board's rule in their entirety. These sections contain well-reasoned guidelines regarding the manner in which visually impaired individuals should be able to effectively access information about signal phases, as well as street identification and intersection design. It is essential that accessible pedestrian signals convey this information in a manner that is unambiguous and we believe these guidelines will accomplish this.

Appendix B

National Federation of the Blind Resolutions Related To Accessible Pedestrian Signals
By Year Passed
(excerpts from convention reports)
1990 (references 1989)

90-06: Calls for clear and accurate regulations issued under the Americans with Disabilities Act.

Background: In Resolution 89-01 the Federation took the position that it would support passage of the Americans with Disabilities Act only if it were amended to make certain that the blind would not be forced to accept unneeded and unwanted accommodations. The Federation was successful in securing such an amendment. As soon as President Bush signs the bill into law, federal agencies will begin to develop rules and regulations.

Resolved: That the National Federation of the Blind work with the various federal agencies to make certain that the proposed rules and regulations include clear language about the right of every individual to accept or reject any accommodation.

1992
Resolution 92-06 is an updated statement of NFB policy regarding audible traffic signals.

Background: Audible traffic signals have been installed in some cities, purportedly to assist blind individuals at street crossings. The National Federation of the Blind is on record opposing audible traffic signals. For the most part this position has not changed. However, it is important, under the Americans with Disabilities Act, that representatives of the National Federation of the Blind be consulted by city and county governments considering the installation of audible traffic signals. Further, newly developed audible traffic signals which can be activated by pedestrians and used only when they choose to do so may require study and testing.

1999
Resolution 99-11, sponsored by Scott LaBarre, President of the National Association of Blind Lawyers, reaffirms this organization's position that audible traffic signals should be pedestrian-activated and should be considered on a case-by-case basis with input from consumer organizations, particularly the National Federation of the Blind. The resolution also states that highway officials should not assume that the provision of federal funds for audible traffic signals means that such signals are automatically necessary.

2000
Curtis Willoughby, a long time federation leader from Colorado, proposed resolution 2000-08 concerning accessible pedestrian signals. We urge the United States Access Board to adopt standards that provide for tactile accessible pedestrian signals only where unusual circumstances exist and where other methods of making the intersection

pedestrian-friendly are in use but are not sufficient. The resolution also resolves that: "This organization insist that traffic engineers and public officials employ all practical methods to make all intersections pedestrian-friendly and use tactile rather than audible signals where accessible pedestrian signals are installed."

2001
Resolution 2001-13

WHEREAS, the Architectural and Transportation Barriers Compliance Board (ATBCB) established the Public Rights of Way Access Advisory Committee (PROWAAC) to consider and propose new regulations to define the building and re building of rights of way such as streets, sidewalks, and other outdoor public areas so that individuals with disabilities can access them; and

WHEREAS, PROWAAC has issued its recommendations to the ATBCB in a final report called "Building a True Community"; and

WHEREAS, this report addresses the issue of Accessible Pedestrian Signals (APS's), which are electronic devices that alert the blind pedestrian in an audible or vibro tactile manner when the traffic signal has changed so that it is safe to walk; and

WHEREAS, a majority of the PROWAAC recommended a standard which would, in effect, call for the installation of APS's at every intersection where a traffic-control device provides visual information when a pedestrian may safely cross; and

WHEREAS, according to the majority standard each APS will be placed on a separate pole and will have a locator tone; and

WHEREAS, at a standard four-way intersection eight new poles and eight electronic devices will emit a high pitched tone into the intersection; and

WHEREAS, the Federation filed a minority report urging that the ATBCB adopt a much narrower policy defining when APS's should be mandated; and

WHEREAS, the National Federation of the Blind has passed two recent resolutions addressing the question of when APS's should be mandated; and

WHEREAS, in summary Federation policy states that APS's should be installed only when the built environment does not provide sufficient nonvisual clues to allow a blind pedestrian to know when to cross safely and that APS's should be vibro tactile only so that extra, unneeded noise will not be introduced into the environment: and

WHEREAS, creation of a rule to require installation of these accessible pedestrian signals everywhere must rest on proof that such devices must be universally installed in order for blind people to use the public rights of way, rendering compelled installation a civil right for blind people; and

WHEREAS, the majority vote for universal installation of accessible pedestrian signals was cast in the belief that all public rights of way without such signals are unsafe for blind people and that taxpayer dollars must be devoted to universal installation of such devices; and

WHEREAS, blind Americans now use the public rights of way without difficulty most of the time, rendering the report's recommendation both wrong as unnecessary and grossly expensive ($4,000 for a standard intersection) as out of proportion to the need, which could bring the entire regulation, if enacted, under fire in the courts and city halls of America; and

WHEREAS, the PROWAAC final report is not an enforceable regulation and will never be one unless the ATBCB and the United States Department of Justice choose to enact it or parts of it as a regulation; and

WHEREAS, PROWAAC committee members are now drafting technical guidance documents as if the report had been adopted into final regulation: Now, therefore,

BE IT RESOLVED by the National Federation of the Blind in convention assembled this seventh day of July, 2001, in the City of Philadelphia, Pennsylvania, that this organization urge the Architectural and Transportation Barriers Compliance Board to adopt the minority report filed by the National Federation of the Blind as its regulation about when and how accessible pedestrian signals should be mandated; and

BE IT FURTHER RESOLVED that this organization call upon the ATBCB to order PROWAAC to cease and desist the drafting of any technical guidance until actual regulations have been adopted.

RESOLUTION 2003-05

Regarding: Quiet Cars

WHEREAS, blind people use the sound of traffic to travel independently and safely in the world; and

WHEREAS, in general sighted pedestrians also use the sound of traffic, in combination with other techniques, to travel safely as demonstrated by the use of a mandatory noise on large vehicles backing up; and

WHEREAS, vehicles have become increasingly quiet as greater emphasis has been placed on reducing air and noise pollution and as motor vehicle technology has evolved; and

WHEREAS, vehicles powered by batteries or fuel cells and vehicles powered by a combination of conventional gas engines and electricity, known as hybrid cars, are

frequently not detectable by the human ear until the vehicle is within inches of the listener; and

WHEREAS, federal and state requirements based on environmental concerns are leading manufacturers to develop lowered and zero emission vehicles such as electric and hybrid cars that will likely be marketed and bought in greater and greater numbers; and

WHEREAS, as quiet vehicles reach a critical mass on the streets of America and throughout the world, action must be taken to ensure that they emit a noise while in operation or that other solutions are found so that all pedestrians can continue to move safely among such cars and so that such cars are detectable by blind pedestrians to ensure their ability to move safely and independently using nonvisual techniques; and

WHEREAS, audible pedestrian signals at intersections with traffic signals do not solve the problem of quiet cars and pedestrian safety for several reasons, among them that drivers do not always obey traffic signals and that blind pedestrians travel everywhere, including intersections that are not signalized, parking lots, and points where driveways cross pedestrian paths: Now, therefore,

BE IT RESOLVED, by the National Federation of the Blind in Convention assembled this fourth day of July, 2003, in the City of Louisville, Kentucky, that this organization express its deep concern that the safe and free travel of blind pedestrians and all pedestrians may be significantly and increasingly impaired by quiet vehicles, a problem that will grow as such vehicles become more prevalent; and

BE IT FURTHER RESOLVED, that this organization call upon the National Highway Traffic Safety Administration within the Department of Transportation to initiate research to be performed with significant participation by the National Federation of the Blind to investigate the effect of quiet cars on blind pedestrians and all pedestrians, with the aim of proposing safety-based solutions to the problem.

RESOLUTION 2003-11

Regarding: Federal Funding of Audible Pedestrian Signals

WHEREAS, Section 1202 (G)(2) of the Transportation Equity Act for the Twenty-First Century (TEA-21) requires transportation planners to consider safety of bicyclists and pedestrians and further states that safety considerations "shall include the installation, where appropriate, of audible traffic signals and audible signs at street crossings"; and

WHEREAS, it is assumed, but unproven, that audible traffic signals and audible signs make crossing streets safer; and

WHEREAS, rather than demonstrating that safety is improved, proponents of these audible warnings rely upon the TEA-21 language as indicating a national mandate in favor of their use; and

WHEREAS, the TEA-21 language is not a mandate and is not even needed to authorize use of federal funds for the installation and maintenance of traffic signals, including audible signals; and

WHEREAS, decisions regarding use of audible traffic signals must be made by local transportation officials in consultation with representatives of blind people affected by such decisions; and

WHEREAS, the implication of a national mandate caused by the current TEA-21 language encourages inappropriate installation of audible traffic signals, resulting from the presumption that their use is favored by the federal government, which is not necessarily the case: Now, therefore,

BE IT RESOLVED by the National Federation of the Blind in Convention assembled this fourth day of July, 2003, in the City of Louisville, Kentucky, that this organization acknowledge the pending reauthorization of surface transportation legislation and call upon the Congress to eliminate the unnecessary and misleading reference to audible traffic signals and audible signs placed in the law with enactment of TEA-21, since elimination of this reference will not alter the authority to use federal funds, and safety determinations should properly be made at the local level based on facts and not a misapplication of the law.

Appendix C

PEDESTRIAN SAFETY

Pedestrian Access Resolutions passed by the membership of the Association for Education and Rehabilitation of the Blind and Visually Impaired (AER)

RESOLUTION 98-02

WHEREAS the Americans with Disabilities Act guarantees the right of access to information to persons with disabilities; and

WHEREAS many signalized intersections provide information to pedestrians with sight which is not provided to pedestrians with visual impairments; and

WHEREAS it has been demonstrated (Crandall, W., Bentzen, B.L., and Myers, L., 1998) that competent, independent, blind pedestrians at unfamiliar signalized intersections may initiate as many or more than 34% of crossings during the clearance or DON'T WALK intervals if those intersections are not equipped with accessible pedestrian signals; and

WHEREAS accessible pedestrian signals have been widely used for more than 10 years in countries including Australia, Japan, Sweden, and the United Kingdom and are considered by traffic engineers to be widely effective not only in providing information to blind pedestrians but also in decreasing general pedestrian delay and facilitating vehicular flow at signalized intersections; and

WHEREAS increasing numbers of quiet vehicles, including electric vehicles and those with quiet internal combustion engines, make acoustic information from vehicles inconsistent, resulting in the inability of pedestrians who are blind to reliably detect the onset of the WALK interval by listening for a surge of vehicles; and

WHEREAS inexpensive technologies exist to make Accessible Pedestrian Signals which are automatically responsive to ambient sound, being very quiet at night and in low traffic situations, while still loud enough to be heard above vehicular sound in high traffic situations; and

WHEREAS accessible vibrotactile and speech transmission signal systems exist which add no noise to the environment; and

WHEREAS the Transportation Equity Act for the 21st Century provides that "Transportation plans and projects. . .shall include the installation, where appropriate, and maintenance of audible traffic signals and audible signs at street crossings;"

NOW THEREFORE BE IT RESOLVED, this 12th day of July, 1998, in the city of Atlanta, Georgia, that the Association for Education and Rehabilitation of the Blind and

Visually Impaired (AER) urges the U.S. Federal Highway Administration and Transport Canada to develop recommended practices for installation of pedestrian signals which make information which is regularly provided to other pedestrians, accessible to pedestrians who are visually impaired, including but not limited to: information specifying WALK and DON'T WALK intervals; information indicating the presence and location of push-buttons; and information unambiguously indicating the street to which the signal applies.

Unanimously approved.

RESOLUTION 98-03

WHEREAS traffic engineers are increasingly utilizing signal systems in which the only safe time to cross signalized intersections is provided in response to pedestrian use of a push button; and

WHEREAS persons who are visually impaired consistently identify location of the push button as a major problem they experience at pedestrian actuated intersections (American Council of the Blind survey, 1998; Evaluation of Audible Pedestrian Traffic Signals, San Diego Association of Governments, 1988; Uslan, M., 1988; and Tauchi, M., Sawai, H., Takato, J., Yoshiura, T., and Takaeuchi, K., 1998); and

WHEREAS persons who are visually impaired often have insufficient time when pedestrian push buttons are far from associated crosswalks, to actuate push buttons and then prepare to cross before the onset of the WALK interval (American Council of the Blind survey, 1998; San Diego Association of Governments, 1998; Uslan, M., 1988); and

WHEREAS unobtrusive technologies exist for providing information in accessible format, specifying the presence and location of push buttons;

NOW THEREFORE BE IT RESOLVED on this 12th day of July, 1998, in the city of Atlanta, Georgia, that the Association for Education and Rehabilitation of the Blind and Visually Impaired (AER) urges the U.S. Federal Highway Administration and Transport Canada to develop standards for push button location technology such as quiet audible locator tones, and to require the placement of newly installed pedestrian push buttons in close proximity to the top landing of the curb ramp serving that crossing, within accessible reach range for use from a wheelchair, and near enough to the curb line that persons with visual impairments can actuate the push button and then align and prepare for crossing before the onset of the WALK interval.

Unanimously approved.