

ADA Transition Plan Workshop

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Hosted By



ADA Transition Plan Workshop

Presenters:

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Handouts:

#1: ADA/504 Technical Assistance Tool

#2: ADA Transition Plans: A Guide to Best Management Practices

#3: Pedestrian Checklist and Considerations for Temporary Traffic Control Zones

#4: ADA Compliance at Transportation Agencies: A Review of Practices

#5: ADA Transition Planning Emphasis Area Guidance: Milestones

Handout #1: ADA/504 Technical Assistance Tool

TECHNICAL ASSISTANCE TOOL

Subrecipients such as MPO's & Local Government Agency that receive FHWA funds (LPA)s Responsibilities

A. General Requirements (Subpart A and B): Yes No ?

1. Does the LPA have a 504/ADA coordinator? (28 CFR 35.107(a) & 49 CFR 27.13(a))			
2. Does the LPA have an internal grievance procedure that allows for quick and prompt solutions for any complaints based on alleged noncompliance with 504/ADA? (28 CFR 35.107(b) & 49 CFR 27.13(b))			
3. Does the LPA keep on file for at least one year all complaints of noncompliance with ADA and 504 received? (49 CFR 27.121(b))			
4. Has the LPA drafted and disseminated to participants, applicants, employees, unions, and contractors/consultants a non-discrimination policy statement that states that the LPA does not discriminate on the basis of disability in admission or access to, or treatment or employment in its programs or activities? (28 CFR 35.106 & 49 CFR 27.15)			
5. Does the non-discrimination policy statement also identify the name, title, office address and office telephone number of the 504/ADA Coordinator? (28 CFR 35.107(a) & 49 CFR 27.15(a) and (b))			
6. Has the LPA conducted a self-evaluation of its current services, policies, and practices, and the effects thereof, to determine necessary modifications to achieve program accessibility? (28 CFR 35.105 & 49 CFR 27.11(c)(2)(i-v))			
7. If so, did the LPA provide an opportunity to interested persons, including individuals with disabilities or organizations representing individuals with disabilities, to participate in the self-evaluation process by submitting comments? (28 CFR 35.105(b) & 49 CFR 27.11(c)(2))			
8. Has the recipient established a system for periodically reviewing and updating the evaluation? (49 CFR 27.11 (c)(2)(v))			
9. Does the LPA maintain in operable working condition those features of facilities and equipment that are required to be readily accessible to and usable by persons with disabilities? (28 CFR 35.133)			
10. Does the LPA monitor sub-recipients who receive LPA assistance (local governments, contractors, consultants) to ensure compliance with Title II ADA and 504 with respect to state transportation agency (STA) funded (both Federal and State \$\$) projects and programs that the sub-recipients implement? (28 CFR 35.130 (b)(1)(v) & 49 CFR 27.7 (V))			
11. Does the LPA provide a written assurance to the STA that it will not discriminate on the basis of disability in the provision of its programs, services, activities, and facilities, and that it will be in compliance with Section 504 and all of its requirements? (49 CFR 27.9)			

B. Program and Facility Accessibility (Subpart D)

<i>Title II ADA Transition Plan requirements</i>			
1. Has the LPA developed and implemented a transition plan that outlines which structural modifications must be made to those programs and services that are not accessible? (28 CFR 35.150(d) & 49 CFR 27.11)			
2. Has the LPA also developed a curb ramp installation schedule as part of the transition plan for pedestrian facilities it owns, operates and/or maintains? (28 CFR 35.150(d)(2))			
3. If so, did the LPA provide an opportunity to interested persons, including individuals with disabilities or organizations representing individuals with disabilities, to participate in the transition plan process by submitting comments? (28 CFR 35.150(d)(1) & 49 CFR 27.11(c)(2))			

B. Program & Facility Accessibility (Subpart D) Cont'd	Yes	No	?
4. Is the transition plan available for public inspection? (28 CFR 35.150(d)(1) & 49 CFR 27.11)			
5. Has the LPA modified any policies or practices that do not meet Section 504 according to a schedule or sequence that includes milestones or measures of achievement? (49 CFR 27.11 (c)(2)(iii))			
6. Has the LPA taken appropriate remedial steps to eliminate the effects of any discrimination that resulted from previous policies and practices? (49 CFR 27.11 (c)(2)(iv))			
7. Does the LPA have a process to analyze a project, program, service or benefit for determinations of "undue" financial or administrative burdens, or fundamental alteration to the program, service or benefit that comports with the criteria for making such determinations in 28 CFR 35.150 (a)(3) and 28 CFR 35.164?			
8. Does the LPA build new facilities and alter existing ones (both pedestrian ROW and STA buildings) in accordance with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and Appendix A of 49 CFR 37? (28 CFR 35.151 (c) and 49 CFR 27.3 (b))			
9. Does the LPA have a process and procedure for the installation of accessible features on the pedestrian rights-of-way (curb ramps, accessible pedestrian signals, etc.)?			
10. Does the LPA provide accessible highway rest areas and pedestrian underpasses, overpasses and ramps that are newly constructed or altered with Federal aid? (49 CFR 27.75)			
11. Does the LPA have a process for making technical infeasibility determinations for new construction and alterations that comports with the criteria in ADAAG 4.1.1 (5) and 4.1.6(J)?			
12. Does the LPA have a process to provide access to programs, services and benefits to those with disabilities that comports with 28 CFR 35 150 (b)(1)?			
13. Does the LPA install curb ramps or other sloped areas at any intersection having curbs or other barriers to entry from a street level pedestrian walkway, when streets, roads, highways or crosswalks are newly constructed or altered, or when the crosswalk is constructed with Federal aid? (28 CFR 35.151 (e)(1)(2) and 49 CFR 27.75 (a)(2))			
14. Is the LPA installing detectable warnings in the form of truncated domes in curb ramps when roadways with pedestrian facilities are altered? (ADAAG 4.29 and FHWA policy guidance (May 2002))			

C. Communications (Subpart E)	Yes	No	?
1. Does the LPA provide auxiliary aids (sign language interpreters, readers, Braille, large print text) upon request, to STA program participants with disabilities? (28 CFR 35.160 (b)(1) and 49 CFR 27.7(c))			
2. Does the LPA notify the public and other interested parties that auxiliary aids will be provided, upon request (e.g., via public meeting announcement)? (28 CFR 35.160 (a), 28 CFR 35.163 (a), and 49 CFR 27.7(c))			
3. Is the LPA website and all of its contents accessible to individuals with hearing or visual impairments? (28 CFR 35.160 (a), 28 CFR 35.163 (a), and 49 CFR 27.7(c))			
4. Are LPA hotlines and other telephone services (511, traffic information) accessible by TTD/ TTY phone services? Can hearing impaired individuals contact the STA via TTD/TTY phone line? (28 CFR 35.161 and 49 CFR 27.7(c))			

Handout #2: ADA Transition Plans: A Guide to Best Management Practices

THE NATIONAL ACADEMIES
National Academy of Sciences
National Cooperative Highway Research Program

NCHRP PROJECT NUMBER 20-7 (232)

ADA Transition Plans:
A Guide to Best Management Practices

May 2009

Jacobs Engineering Group
Baltimore, MD

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I INTRODUCTION

BACKGROUND

The Americans with Disabilities Act (ADA) of 1990 is a civil rights statute (hereinafter referred to as the Act) that prohibits discrimination against people who have disabilities. There are five separate Titles (sections) of the Act relating to different aspects of potential discrimination. Title II of the Act specifically addresses the subject of making public services and public transportation accessible to those with disabilities. With the advent of the Act, designing and constructing facilities for public use that are not accessible by people with disabilities constitutes discrimination.

The Act applies to all facilities, including both facilities built before and after 1990. As a necessary step to a program access plan to provide accessibility under the ADA, state and local government, public entities or agencies are required to perform self-evaluations of their current facilities, relative the accessibility requirements of the ADA. The agencies are then required to develop a Program Access Plan, which can be called a Transition Plan, to address any deficiencies. The Plan is intended to achieve the following:

- (1) identify physical obstacles that limit the accessibility of facilities to individuals with disabilities,
- (2) describe the methods to be used to make the facilities accessible,
- (3) provide a schedule for making the access modifications, and
- (4) identify the public officials responsible for implementation of the Transition Plan.

The Plan is required to be updated periodically until all accessibility barriers are removed.

APPLICABILITY TO STATE DEPARTMENTS OF TRANSPORTATION

The requirements of the ADA apply to all public entities or agencies, no matter the size. The transition plan formal procedures as outlined in 28 C.F.R. section 35.150 only govern those public entities with more than 50 employees. The obligation to have some planning method to make facilities ADA-accessible is required for all public entities. This includes State Departments of Transportation (hereinafter referred to as Departments) and the extensive public transportation systems that they manage. The development or updating of a Transition Plan is now an ongoing activity or a goal at many Departments. A principal challenge of this activity to the Departments, as opposed to other government agencies that manage public facilities, is the need to cope with the overall size and geographic extent of the public facilities that a Department of Transportation manages. These public facilities can involve thousands of miles of public rights-of-way.

PURPOSE OF THIS GUIDE

The purpose of this guidance document is to ensure that good ideas, helpful information, and successful practices concerning the development and updating of Transition Plans are recognized, recorded, and shared among Departments of Transportation.

Focus

ADA Transition Plans are required from all Departments to cover all facilities under their control. This includes rights-of-way, but also the buildings that may be owned by the Department such as district offices, welcome centers, rest stops, airport terminals, and other types of buildings associated with transportation activities. The focus of this report is solely on Department managed pedestrian facilities in public rights-of-way. This typically includes sidewalks, pedestrian paths, curb ramps, street crossings, driveway crossings, crosswalks, median crossings, public transit stops, and pedestrian activated signal systems. The accessibility of pedestrian facilities in the public right-of-way is only one aspect for providing equal access to state government programs, services, and activities – but it is an aspect that affects many citizens in their daily activities.

METHODOLOGY

The material in this report is based on information obtained through Department websites, questionnaires filled out by some Departments, and telephone interviews with the ADA coordinator or other contacts at some Departments as well as input from guidance documents from the Federal Highway Administration (FHWA), the Department of Justice (DOJ), and the US Access Board. All contacts were made with the understanding that individual state status, progress, or data would not be reported or compared, but that any information obtained would be used in an effort to help other Departments comply with the development and updating of their own Transition Plans.

CONTENTS OF THIS GUIDE

This report presents the issues that Departments have to deal with in the development and updating of their ADA Transition Plans. It then describes, using anecdotal information, the roadblocks encountered in dealing with these issues and the methods that Departments across the country have developed to make progress.

II STEPS TO COMPLIANCE

OVERVIEW

The ideal scenario for meeting the requirements of the Act with regard to the accessibility of facilities in the public right-of-way would involve the following steps:

- (1) designating an ADA Coordinator,
- (2) providing notice to the public about ADA requirements,
- (3) establishing a grievance procedure,
- (4) developing internal design standards, specifications, and details,
- (5) assigning personnel for the development of a Transition Plan and completing it,
- (6) approving a schedule and budget for the Transition Plan, and
- (7) monitoring the progress on the implementation of the Transition Plan.

The following is an expansion on each of the requirements for this ideal scenario.

STEP 1 - DESIGNATING AN ADA COORDINATOR

Each Department must designate at least one responsible employee to coordinate ADA compliance. The benefits of having an ADA Coordinator are that:

- It makes it easier for members of the public to identify someone to help them with questions and concerns about disability discrimination,
- It provides a single source of information so questions by the Department staff and from outside the Department can be answered quickly and consistently, and
- It provides an individual who can focus on and who can be instrumental in moving compliance plans forward.

The person who is appointed to this position must be familiar with the Department's operation, trained in the requirements of the ADA and other laws pertaining to discrimination, and able to deal effectively with local governments, advocacy groups, and the public. It is assumed that the coordinator is given sufficient time free of other responsibilities to carryout the Coordinator's functions. Possible locations for the position within a Department are the Office of the Commissioner, the Civil Rights Office, the Legal Department, the Planning Department, or the Public Involvement Department.

STEP 2 - PROVIDING NOTICE ABOUT THE ADA REQUIREMENTS

A Department must provide public notice about the rights of the public under the ADA and the responsibility of the Department under the ADA. Providing notice is not a one time requirement, but a continuing responsibility. The audience of those who may have an interest in accessibility on Department facilities might include a large number of individual citizens that would be not be readily identifiable. Groups that are likely to include the target audience include public transit users and advocacy groups. A Department has the responsibility to determine the most effective way to provide notice. A notice on a Department website lends itself to both the requirement for wide notice and the requirement for continuing notice. The website must in itself be accessible. The Department of Justice has provided a model that could be followed by Departments on their website. See "Notice under the Americans with Disabilities Act" on their web page, <http://www.ada.gov/pccatoolkit/chap2toolkit.htm>, for more information.

Public Outreach Programs The opportunity for the disabled community and other interested parties to participate in developing the Transition Plan is an integral part of the process. The dissemination of information and requests for comments can take place through awareness days, newsletters, and websites. The ability to comment must be linked with public access to information databases. Possible sources of input to the Transition Plan are activists, advocacy groups, general citizens, organizations that support the rights of the disabled, elected officials, other agencies, a Governor's Committee on People with Disabilities or other such body, or a state ombudsman. Comments can be obtained through comment forms at meetings, transcriptions of meetings, a dedicated hotline, an e-mail address, or a postal address.

STEP 3 - ESTABLISHING A GRIEVANCE PROCEDURE

A Department is required to adopt and publish procedures for resolving grievances arising under Title II of the ADA. The procedures are intended to set out a system for resolving complaints of disability discrimination in a

prompt and fair manner. Complaints would typically be directed to the Department's Office of Civil Rights. It is generally thought that filing a complaint with a Department is an appropriate first step, in that it provides an opportunity to resolve a local issue at the local level. However, the exhaustion of a Department's grievance procedure is not a prerequisite to filing a complaint with either a federal agency or a court. The Department of Justice has provided a model for Departments to follow. See "Grievance Procedure under the Americans with Disabilities Act" at <http://www.ada.gov/pcatoolkit/noticetoolkit.pdf> for more information.

STEP 4 - DEVELOPMENT OF INTERNAL STANDARDS, SPECIFICATIONS, AND DESIGN DETAILS

The Architectural and Transportation Barrier Compliance Board (alternatively called the Access Board) has developed accessibility guidelines for pedestrian facilities in the public right-of-way. The Federal Highway Administration has recognized these as its currently recommended best practices. A Department can adopt these accessibility guidelines into their own system of standards, specifications, and design details with modifications to meet local conditions. Development of design standards and design details within the Department allows for consistency in the application of ADA requirements for new facilities. See <http://www.access-board.gov/provac/guide/PROWGuide.htm> for more information

STEP 5 - THE ADA TRANSITION PLAN

The Transition Plan (hereinafter referred to as the Plan) should consist of the following elements:

1. A List of Physical Barriers in the Department's Facilities that Limit Accessibility of Individuals with Disabilities (the Self-Evaluation),
2. A Detailed Description of the Methods to Remove these Barriers and Make the Facilities Accessible,
3. A Schedule for Taking the Necessary Steps,
4. The Name of the Official Responsible for Implementation,
5. A Schedule for Providing Curb Ramps, and
6. A Record of the Opportunity Given to the Disability Community and Other Interested Parties to Participate in the Development of the Plan.

Periodic updates to the Transition Plan are required in order to ensure on-going compliance. Some of these key steps are described further below.

The Self-Evaluation The first task involved in preparing an ADA Transition Plan is conducting an inventory of existing physical barriers in the facilities operated by the Department and listing all the barriers that limit accessibility. This is often referred to as the self-evaluation process. Possible inventory approaches are on-ground surveys, windshield surveys, aerial photo studies, or drawing reviews. Deficiencies very likely to be found in an inventory of facilities are:

SELF-EVALUATION CHECKLIST	
ISSUE	POSSIBLE BARRIERS
Sidewalk and Pathway Clear Width	Narrow, Below Guidelines
Sidewalk and Pathway Cross Slope	Steepness, Irregularity, Variability, Warping
Landings Along Sidewalks and Pathways	Less Than 4 feet by 4 feet
Sidewalk and Pathway Grade	Steepness, Angle Points
Materials and Finishes	Deterioration of Surfaces, Deterioration of Markings, Appropriateness of material (ex. Cobblestones)
Gratings	Grating Type, Grate Opening Orientation
Discontinuities	Missing Sections, Gaps, Drops, Steps
Detectable Warning System	Missing, Inappropriate Materials, Inadequate Size, Wrong Location
Obstructions	Signs, Mail Boxes, Fire Hydrants, Benches, Telephones, Traffic Signal Poles, Traffic Signal Controller Boxes, Newspaper Boxes, Drainage Structures, Tree Grates, Pole Mounted Objects, Standing Water, Snow or Ice
Traffic Signal Systems	Lack of Provision for the Visually Impaired such as APS, Inadequate Time Allowed, Inoperable Buttons, Inaccessible Buttons
Curb Ramp	Missing, Doesn't Fall within Marked Crosswalk, Doesn't Conform to Guidelines
Curb Ramp Flares	Missing Where Required, Too Steep

Standards set for each of these issues can be found in the US Architectural and Transportation Barriers Compliance Board's *Accessible Rights-of-Way: A Design Guide*, Chapter 3 "Best Practices in Accessible Rights-of-Way Design and Construction". Refer to their website at <http://www.access-board.gov/prowac/guide/PROWGuide.htm> for more information.

The information developed through the inventory process has to be quantified and presented as a baseline so that progress can be monitored and measured. The inventory information can be presented in a variety of ways including Aerial Photos, a Database or Spreadsheet, Marked Up Drawings, or a Geographic Information System (GIS).

Self-evaluation also takes place after the Transition Plan is complete. Periodic reviews and updates to the Plan must be conducted to ensure ongoing compliance with ADA requirements. Self-evaluation activities would then consist of reviewing the Plan to determine the level of compliance, and determine if any additional areas of upgrade are needed. If deficiencies are found, these are catalogued and the Transition Plan updated to detail how and when the barriers to pedestrian access would be removed.

STEP 6 - SCHEDULE AND BUDGET FOR IMPROVEMENTS

The Transition Plan should include a schedule of improvements to upgrade accessibility in each year following the Transition Plan. Remediation work can be presented for an independent remediation program or as an integral part of regularly scheduled maintenance and improvements project such as Resurfacing Projects, Roadway Rehabilitation and Reconstruction Projects, and Signal System Installation Projects. All new projects, regardless of funding sources, would include pedestrian elements that are consistent with the ADA guidelines.

Funding Sources The most immediate source of funds for remediation efforts is the incorporation of improvements into existing programmed remediation projects, incorporation into programmed signalization projects, and incorporation into programmed maintenance work. An accessibility improvement program could be developed as a stand alone project through the Transportation Improvement Program. Potential sources of funding for accessibility improvements also include the following:

- Congestion Mitigation/Air Quality Program,
- Highway Safety Improvement Program,
- National Highway System Improvements Program,
- Railway – Highway Crossing Program,
- Recreational Trail Program,
- Safe Routes to School Program,
- State and Community Traffic Safety Program,
- Surface Transportation Program,
- Transportation Enhancement Activities Program.

Additional federal funding sources for different elements of pedestrian projects and programs can be found at http://www.fhwa.dot.gov/civilrights/ada_qa.htm#q30.

Prioritization The prioritization of improvements that may not be included in an existing programmed project can be based on a number of factors. Generally, priority should be given to transportation facilities, public places, and places of employment. Other factors to consider when prioritizing improvements may include:

- Citizen requests or complaints regarding inaccessible locations,
- Pedestrian level of service,
- Population density,
- Presence of a disabled population,
- Cost

STEP 7 – MONITORING THE PROGRESS

In order to be effective, the Transition Plan needs to be utilized in yearly planning of projects and funding decisions, and also needs to be periodically reviewed for compliance and validity. The Transition Plan should be viewed as a “living document” and updated regularly to reflect changes in real world conditions and to address any possible new areas of noncompliance. Changes to a sidewalk such as the installation of a newspaper vending machine, or the relocation of a light pole, can create new access problems that were not evident when the plan was drafted. Regular updates to the plan will also result in monitoring compliance and the effectiveness of priorities set in the Plan itself.

CONCLUSION TO THE PROCESS

The ideal conclusion to the Transition Plan process is the elimination of the barriers listed in the Transition Plan and the acceptance of the requirements of the Act as an everyday reality in all future work going forward. Due to the magnitude of the task and the other priorities that a Department faces, the ideal scenario has not universally played out. Although the majority of Departments contacted had some form of inventory or Transition Plan completed, many of the Departments reported that they were either just beginning the process or didn't have firm plans for preparing a Transition Plan.

The following sections of this Guide discuss best practices and decisions that Departments have utilized in dealing with implementation issues and the methods that they have used to make progress. In addition to presenting anecdotal evidence from the states in Best Practices, the following sections present “keys to success”. These are called out to help Departments as they are undertaking the ADA tasks associated with drafting and updating a Transition Plan.

III FINDINGS AND BEST PRACTICES OF STATE DOTs

OVERVIEW

Each of the fifty state Departments of Transportation as well as those in Puerto Rico and the District of Columbia were included in this study to gather information on Best Practices used among the states for completing tasks associated with ADA requirements. All Departments have web sites available for review. A questionnaire was developed to facilitate the information gathering process from the Departments. This questionnaire was e-mailed to each of the Departments. The questionnaire was followed up with a telephone survey to aid in the information exchange. Of the 52 Departments contacted, 20% completed the questionnaire, 44% were contacted by phone for discussion but with no formal survey completed, and 13% were not successfully contacted. The remaining 23% of the Departments have indicated that the questionnaire will be forthcoming, but as of the date of this report, their completed questionnaires have not been received. The questionnaire is included as an attachment.

ADMINISTRATIVE TASKS

Departments were found to vary greatly in their responsibilities, their structure, and the nature of the facilities that they manage. Nevertheless, they all have the responsibility of establishing a basic program to meet the administrative requirements of the ADA. The basic administrative requirements of this program are:

- (1) Designating an ADA Coordinator,
- (2) Giving notice about the ADA requirements, and
- (3) Establishing a grievance procedure.

The Coordinator: Section 504 of the Rehabilitation Act of 1973 presented many similar requirements to those found in the ADA and has been around longer than the ADA. If there was an individual who had responsibility for carrying out the requirements of Section 504, this individual provided a logical selection for the duties of ADA Coordinator. In many states, an ADA coordinator has been appointed as a part-time or in some cases a full-time position. In a few states, an ADA coordinator has only been appointed within the past two years. The background of these staff members varies greatly. Many of the staff members in these positions have backgrounds that do not match the technical requirements that are needed to successfully complete the activities required to comply with ADA. This presents a roadblock for the agencies at the outset of the process and can lead to delays in compliance.

The Coordinator may report to the Human Resources Department or to a Civil Rights Department. The direction to the process provided by an ADA coordinator generally correlates with the successful drafting and implementation of the Transition Plan.



KEY TO SUCCESS

Providing dedicated, trained staff within the Department for ADA compliance has a high correlation with successful drafting and implementation of Transition Plans, Self-evaluations, and Transition Plan updates.

Whether there is a staff of one or an entire ADA task force, training was also cited by various Departments as an important tool for ensuring compliance with ADA requirements and completion of ADA Transition Plans. Many Departments have staff that has participated in some form of ADA training from the Federal Highway Administration, the US Access Board, or other agencies. Several other Departments are requiring that *all* personnel within the DOT receive training. Educating Department staff in the requirements of Title II of the ADA results in better flow of information regarding non-compliant rights-of-way and can create a “buy-in” to the process by all staff.

Giving Notice of ADA Requirements: As described above, Departments are required to give notice to the public on information regarding public accessibility and compliance with ADA. A Department's web site is generally the first resource for the public to seek out information about pedestrian accessibility in the public right-of-way. There are a wide range of approaches to providing website



KEY TO SUCCESS

Provide a website with links to the various components of the ADA Transition Plan such as policies, compliance planning for construction and retrofits, opportunities for public participation, links to the ADA advisory committee, grievance procedures, and the schedule for implementation of the program.

information about ADA requirements among the Departments - varying from a webpage devoted exclusively to the subject, to a link on the main web page, to passive discussion of the issue submerged in other topics.

By providing this information on-line, the Department widens the accessibility of the information and allows for education of the general public and facilitates the exchange of information with the disabled community. Utilizing the Department's web page can provide a one stop portal for issues related to ADA compliance, including pedestrian accessibility on Department rights-of-way, Transition Plan status and methodologies for filing complaints. Many Departments home pages have links to the "ADA/Accessibility Program". Other websites mention the ADA only passively as part of other discussions. More commonly, the ADA is mentioned, but not highlighted, under statewide pedestrian and bicycle plans, policies, programs, and planning guidance.

The best practice for notification is to provide a clear and exclusive reference to the ADA requirements on the Department's webpage in order to best address the notification requirement.

Other forms of notice that Departments utilize include public meetings. Meetings should be targeted to the pedestrian community and specifically to the disabled pedestrian community. Mailings and information regarding meetings can be distributed to this targeted community with the help of advocacy groups for the disabled.



KEY TO SUCCESS

One state found that public meetings on the newly completed inventory were better attended when they were coupled with another meeting geared toward the disabled community – such as linking the meeting with a regularly scheduled meeting of the Statewide or Local Commission on Disabilities.

Grievance Procedure: As a regulatory requirement of ADA, the Department must adopt and publish a grievance procedure providing for prompt and equitable resolution of complaints alleging any action that would be prohibited under Title II. In addition to the regulatory requirement of including the grievance procedure in the Transition Plan, it is also good practice to include this detailed information on the Department's website. The grievance procedure should make methods clear for any member

of the public wishing to inform the Department of potential hindrances to public access along pedestrian rights-of-way. Exchange of this information is a critical step in addressing potential ADA noncompliance and preventing the escalation of the grievance to a formal civil complaint.

Department approaches to this responsibility vary from simply adopting the state grievance procedure, to developing unique approaches for the Department itself.



KEY TO SUCCESS

Making the grievance procedure as straightforward as possible for the public can facilitate information exchange regarding non-compliant sites, and can help the Department avoid escalation of grievance issues. By allowing the public to choose any method of filing a grievance, from writing a formal complaint to the ombudsman, filing a complaint electronically through the website, contacting any Department business office, or calling a toll free number, the Department ensures a better exchange of information.

SELF-EVALUATION PHASE

As the initial step in the Transition Plan, Departments are required to conduct an inventory of their facilities to determine if they are accessible by persons with disabilities. This stage is often referred to as the self-evaluation phase. This section discusses how agencies have undertaken or are planning to undertake this assignment.

The Inventory: Many Departments reported the completion of the inventory during the self-evaluation as being the biggest and most daunting task of the Transition Plan process. Lack of budget and (associated) lack of staffing often make this task extremely challenging to complete. Budgetary constraints as well as management decisions on staffing and support of ADA programs are a major factor in each Department's ability to complete the tasks associated with updating the Transition Plan. As a result, many states report being stalled in the inventory phase, either awaiting the completion of self-evaluation activities or unable to take the data collected and develop priorities for upgrades. Ideally, dedicated funding and staffing would be planned out through the completion of the Transition Plan prior to starting any self-evaluation activities.

Several states have adopted a two pronged approach to Transition Plan development due to the level of effort required to fully inventory state rights-of-way, by creating two separate plans; one for buildings and one for rights-of-way. This allows the compliance effort for buildings and other public facilities to proceed without being held up during completion of state wide inventory of rights-of-way. Other states have prioritized the inventory and are approaching the task in stages. These Departments have completed part of the inventory to include highly used areas such as urban areas with high pedestrian traffic, and areas near facilities that are commonly used by pedestrians with disabilities, such as a school for the blind. This allows for the Department to move forward with updating the Transition Plan

to address these high traffic areas, and the Department can then complete the inventory of remaining rights-of-way as time and resources allow.

Other states have utilized the organization of the Department into regions or districts as a logical way of dividing the inventory process, with each District responsible for self-evaluation activities and development of an individual Transition Plan covering their geographic area. Where the inventory process has been divided up, states continue to maintain a central location of inventory data to allow for access by the public and other offices within the state.



KEY TO SUCCESS

When staffing or funding for inventory efforts is a challenge, many Departments get creative – several states have reported using summer interns for self-evaluation activities on public rights-of-way. Others prioritize the inventory process by looking at high pedestrian areas first. In this way, even if a complete inventory cannot be undertaken, those areas that will be most utilized (such as urban intersections) are addressed.

Inventory also requires an assessment of who is responsible for the facilities' compliance. Many states reported that determining who was responsible for compliance was often difficult and can stall the inventory process, since it is unclear what should be included in the self-evaluation. Sidewalks on state roads within municipalities were cited as sometimes problematic, as were public transit facilities that were owned by the DOT but operated by others. Some Departments turn over ownership of sidewalks to municipalities upon completion of construction. In cases where responsibility for compliance is in question, it is critical that the municipality and the Department be in close contact to allow for resolution. Departments have reported grievances being filed with no clear idea of who is responsible for upgrading the facility, leading to delay in addressing the nonconformity.

Making the Information Available: The most common method of storing the data gathered during the inventory process is quickly becoming the utilization of GIS. Some states have held outreach meetings with data displays on which the public can view street level detail of public access issues along state rights-of-way. GIS enables linking real photos of the site with a general mapping tool and engineering data. Providing this type of street level information to the members of the public greatly enhances the readability of the information, and can create a more productive information exchange.

Establishing a Baseline: The main goal of the Self-evaluation phase is to provide a baseline of what facilities under the Department's responsibility are noncompliant with ADA standards. Comparisons to the initial self-evaluation will provide evidence of a Department's good faith in efforts to comply with ADA requirements.

IMPLEMENTATION

When the self-evaluation is completed and the Department has an inventory of where structural modifications are required to achieve accessibility, the Department must plan for the removal of these barriers. A Transition Plan must contain at a minimum:

- (1) a list of the physical barriers that limit the accessibility of services to individuals with disabilities (the inventory),
- (2) a detailed outline of the methods to be used to remove these barriers and make the facilities accessible,
- (3) a schedule for taking the necessary steps to achieve compliance, and
- (4) the name of the official responsible for the plan's implementation.

Curb Ramp Deficiencies: Curb Ramps are a small but vitally important part of making sidewalks, street crossings, and the other pedestrian routes that make the public right-of-way accessible to people with disabilities. They receive special consideration in the Transition Plan with a separate schedule for the remediation of curb ramp issues. The primary issue with curb ramps in many Departments is how to proceed with rectifying a large, long term problem in a logical manner.



KEY TO SUCCESS

A very detailed approach for setting priorities for dealing with curb ramps (or other non conformities) can help with successful implementation of the Plan. Criteria can include both physical characteristics and location considerations. Making use of such a specific criteria presupposes that sufficient detail has been gathered in the self-evaluation phase so that the curb ramps can be accurately characterized.

The following table provides an example from one Department of how to prioritize removal of accessibility barriers. The Table uses a ranking system (priority) based on variables (Situation) that include location, degree of utilization and degree of non compliance.

PRIORITY	SITUATION
Highest 1A	Existing Curb Ramp with Running Slope Greater than 12% and Location near a Hospital, School, Transit Stop, Government Building, or Similar Facility
1B	No Curb Ramp where Sidewalk or Pedestrian Path Exists and Location near a Hospital, School, Transit Stop, Government Building, or Similar Facility
2A	An Existing Curb Ramp with a Running Slope Greater than 12% (Not Located near a Hospital or Similar Facility)
2B	No curb ramp where a Sidewalk or Pedestrian Path Exists (Not Located near a Hospital or Similar Facility)
3	No Curb Ramp where a Striped Crosswalk exists
4	One Curb Ramp per Corner and Another is Needed to Serve the Other Crossing Direction
5A	An Existing Curb Ramp with either a Running Slope Greater than 1 to 12 or an Insufficient Landing
5B	An Existing Curb Ramp with Obstructions in the Ramp or the Landing
5C	An Existing Curb Ramp with any of the Following Conditions: <ul style="list-style-type: none"> ○ A Cross Slope Greater than 3% ○ A Width Less Than 36 Inches ○ No Flush Transition or a Median or Island Crossings that are Inaccessible
5D	An Existing Curb Ramp with Returned Curbs where Pedestrian Travel Across the Curb is not Permitted
5E	An Existing Diagonal Curb Ramp without the 48 Inch Extension in the Crosswalk
5F	An Existing Curb Ramp without Truncated Dome Texture Contrast or without Color Contrast
Lowest	The Pedestrian Push Button is not Accessible from the Sidewalk or from the Ramp



KEY TO SUCCESS

One state's approach to prioritization uses a GIS database that contains information regarding compliant and non-compliant elements. This GIS information is then displayed along with locations of pedestrian incidents, feedback from the community or local jurisdiction, locations of government facilities, locations of public facilities and mass transit stops. Each of these elements were assigned a value and ranked for priority.

Schedule: Setting priorities for the implementation of upgrades is a requirement. Transition Plans should include a year by year schedule of upgrades. Many Departments will prioritize projects based on level of anticipated use rather than the degree of non-compliance. Curb ramps or intersections that may be near facilities for the disabled, are generally given priority for upgrade. However, oftentimes it is difficult for Departments to know themselves which intersections are most utilized by persons with disabilities.



KEY TO SUCCESS

Working closely with advocacy groups to set the schedule for implementation and prioritization can be extremely beneficial. These groups can help bring information from the public to the Departments so that money can be best spent on those areas that will serve to benefit the most people.

Funding: The funding for implementation of the Transition Plan can come from several sources, as discussed earlier in this report and in the FHWA guidance found at http://www.fhwa.dot.gov/civilrights/ada_qa.htm#q30. Lack of funding and staffing were cited as the most common roadblocks to completing the inventory and the Transition Plan. In Departments where dedicated funding and staffing is not in place, Transition Plans are generally not completed. In the longer term, this may lead to civil suits and expensive litigation for Departments. Establishing a well developed Transition Plan can be viewed as a capital planning tool and will allow for better Departmental control over the compliance process.

The funding of the upgrades found in the Transition Plan is also a consideration, since ADA compliance activities do not stop with the successful completion of the Transition Plan, or the update of a Transition Plan. The improvements therein must be funded and undertaken as well. Accessibility improvements are generally incorporated into existing improvement projects. In some cases Departments have provided special projects that specifically address pedestrian access requirements.

Lines of Responsibility: A management structure for the implementation of the Transition Plan is extremely important in order to fully complete all tasks that are associated with the Plan.



KEY TO SUCCESS

Beyond simply designating an ADA Coordinator, many Departments have a designated Transition Plan manager, as well. While the ADA Coordinator may be involved in public outreach and oversight of ADA compliance, the Transition Plan manager may be better equipped to handle the technical aspects related to the self-evaluation activities and Transition Plan updates.

SAMPLE TRANSITION PLAN OUTLINE

Among the states that have not yet completed a Transition Plan, staff members asked if a generic Transition Plan format is available. In many regions, FHWA provides a sample plan to help Departments facilitate the process. Although there are mandates for content, there are no requirements for format of the Transition Plan.



KEY TO SUCCESS

Length and level of detail of Transition Plans varies greatly among the states. For example, one state provides a succinct one and a half page of narrative on rights-of-way and the prioritization criteria, incorporating the inventory by reference. Other states have a Transition Plan that provides pages and pages of actual inventory with priorities and proposals for each individual site. At the outset of the process, a Department should make a determination as to what level of detail will be included in the Plan and the content that will be the most beneficial to them in implementing ADA

The following is a sample of one possible outline for Transition Plans.

SECTION	CONTENTS
I SELF-EVALUATION :	A list of physical barriers in the department's facilities that limit accessibility of individuals with disabilities. This may take the form of an Excel spreadsheet or GIS files incorporated by reference, or can be worked into a narrative list to be embedded in the text of the Transition Plan.
II CORRECTION PROGRAM:	A detailed description of the methods to remove these barriers and make the facilities accessible.
III IMPLEMENTATION SCHEDULE:	A schedule for taking the necessary steps.
IV PROGRAM RESPONSIBILITY:	The name of the official responsible for implementation. This should include the name of the department ADA coordinator, as well as a transition plan team (if there is one), or the regional coordinators, if the inventory and transition plans area is divided by region or district.
V CURB RAMP CORRECTION PROGRAM:	A schedule for providing curb ramps.
VI PUBLIC INVOLVEMENT RECORD:	Record of the opportunity given to the disability community and other interested parties to participate in the development of the Plan.
ATTACHMENTS	

PUBLIC INVOLVEMENT

The Department is required to provide an opportunity for people outside of the agency, people with disabilities, and other interested individuals and organizations to review and comment on the Transition Plan. This section presents some of the approaches agencies have used to provide this opportunity.

The Dissemination of Information: Although all Departments now have websites, very few have the Transition Plan available for public review. This represents a missed opportunity as an avenue for information dissemination. In addition to providing information for the public at large, the targeted distribution of information should also be undertaken. Advisory groups that may have worked with the Department during the development of the Plan and the prioritization of the upgrades would receive the information. Advocacy groups that work with the disabled community, as well as any individuals with disabilities that may have participated in Plan development in some way (ex. through grievance filings, through hotlines or through previous public meetings), would also be interested in reviewing the plan.



KEY TO SUCCESS

Seeking the involvement of Advocacy groups and the disabled public early in the process can lead to better success in dealing with non-compliance areas. This early coordination can provide valuable information to the Department from people who most use the pedestrian facilities and provides an opportunity for the concerns that are most important to the advocacy groups and the public to be addressed more effectively. These groups know best where problem areas are and their input can provide valuable insight to Departments that are trying to set priorities for upgrades.

COORDINATION WITH OTHER AGENCIES

Coordination among transit agencies can be a helpful step in creating a Transition Plan that is concise and effective in addressing upgrades.

Public Transit: There are many states where Departments are not only responsible for pedestrian access along public rights-of-way but also for pedestrian access to other transit facilities. Departments of Transportation also frequently have responsibility for public transit such as responsibility for airports, ferry systems, light rail systems and bus terminals. Each of these presents unique compliance issues. All facilities need to be included in the Department's Transition Plan.



KEY TO SUCCESS

Creation of a regional working group for ADA compliance issues was cited by several states in the east as being a helpful practice in completing tasks related to the Transition Plan. These interstate groups are made up of an ADA coordinator as well as other members of Departments and FHWA. The meetings provide a forum for exchange of ideas and any Best Management practices. The groups exchange ideas in their approach to developing inventories and updating Transition Plans. Regional grouping also enables common challenges among the states to be more effectively addressed. Densely urbanized areas in the Northeast, with miles of urban sidewalks interspersed with public transit have different pedestrian issues than newer cities in the Southwest. For example, Washington State deals with an entirely different pedestrian issue in managing the nation's largest ferry system. Creating regional work groups can facilitate discussion of common regional problems.

Adjacent Jurisdictions: Where facilities owned and operated by the Department abut facilities owned by others, such as a municipality, responsibility for ADA compliance should be coordinated. For example group meetings with ADA coordinators throughout the state have been cited by some states as valuable in avoiding conflict among adjacent jurisdictions. In one phone interview with a Department ADA Coordinator, the coordinator explained that one of his priorities for the upcoming year was to create a master list for the state of all ADA Coordinators at the municipal and state level to facilitate statewide interagency coordination. Taking this one step further, many Departments in the northeast participate in a civil rights working group among the states. This group addresses Title II compliance as one of its tasks

IV CONCLUSION

The purpose of this document is to ensure that good ideas, helpful information, and successful practices concerning the development and updating of Program Access Plans or Transition Plans are recognized, recorded, and shared among Departments of Transportation.

The ideal conclusion to this process is the elimination of the barriers and the acceptance of the requirements of the ADA as an everyday reality in all future work going forward. Due to the magnitude of the task and the other priorities that a Department faces, the ideal scenario has not universally played out. Although the majority of Departments contacted had some form of inventory or Transition Plan completed, many of the Departments reported that they were either just beginning the process or didn't have firm plans for preparing a Transition Plan.

By highlighting some of the issues and the methods used to address issues that the Departments face when developing and updating their ADA Transition Plans it is desired that going forward all Departments can make significant progress towards improving access to the facilities they manage. This document presents ideal scenarios and some of the best practices of Departments across the country. It is recognized that each Department or responsible agency will have to tailor an approach to developing, updating and implementing a Transition Plan based upon their own needs and available resources and that the level of detail and content of the Plan will vary and be presented in a format that will be the most beneficial to them in implementing ADA.

V FURTHER REFERENCE

There are many guidance documents available on the internet with helpful information to assist in completing and updating ADA Transition Plans. Some of those more frequently cited by Departments include the following:

- **FEDERAL HIGHWAY ADMINISTRATION OFFICE OF CIVIL RIGHTS** *QUESTIONS AND ANSWERS ABOUT ADA AND SECTION 504*, January 2008. Available, [retrieved December 2008] http://www.fhwa.dot.gov/civilrights/ada_qa.htm
- **U.S. DEPARTMENT OF JUSTICE** *ADA BEST PRACTICES TOOLKIT FOR STATE AND LOCAL GOVERNMENTS* June 2008. Available, [retrieved December 2008] <http://www.ada.gov/pcatoolkit/toolkitmain.htm> .
- **UNITED STATE DEPARTMENT OF JUSTICE**, *THE AMERICANS WITH DISABILITIES ACT, TITLE II TECHNICAL ASSISTANCE MANUAL, COVERING STATE AND LOCAL GOVERNMENT PROGRAMS AND SERVICES*, November 1993. Available, [retrieved December 2008] <http://www.ada.gov/taman2.html>

- **PUBLIC RIGHTS-OF-WAY ACCESS ADVISORY COMMITTEE** and ITE Publication Special Report: *ACCESSIBLE PUBLIC RIGHTS-OF-WAY, PLANNING AND DESIGNING FOR ALTERNATIONS*. Available, [retrieved December 2008] <http://access-board.gov/prowac/alterations/guide.htm>
- **US ACCESS BOARD**, *REVISED GUIDELINES FOR ACCESSIBLE PUBLIC RIGHTS-OF-WAY*. November 2005. Available, [retrieved December 2008] <http://www.access-board.gov/PROWAC/draft.htm>
- **FHWA** *DESIGNING SIDEWALKS AND TRAILS FOR ACCESS PART 2*. Available, [retrieved December 2008] <http://www.fhwa.dot.gov/environment/sidewalk2> .
- **KRW INCORPORATED**, *ADA TRANSPORTATION ACCESSIBILITY REFERENCE GUIDE*, Project Action, National Easter Seal Society, and U.S. Architectural and Transportation Barriers Compliance Board, March 1993.

Many Departments cited recent training from FHWA as being helpful in understanding the issues surrounding ADA Transition Plan compliance. The FHWA training documents are often used as reference documents during the updating of a Transition Plan.

Statutes and Regulations: The Department's Title II regulations for state and local governments are found at Title 28, Code of Federal Regulations, Part 35 (abbreviated as 28 CFR pt. 35. The ADA Standards for Accessible Design are located in Appendix A of Title 28, Code of Federal Regulations, Part 36 (abbreviated as 28 CFR pt. 36 app. A). Those regulations, the statute, and many helpful technical assistance documents are located on the ADA internet Home Page at <http://www.ada.gov> and on the ADA technical assistance CD-ROM available without cost from the toll-free ADA Information Line at 1-800-514-0301 (voice) and 1-800-514-0383 (TTY).

VI ATTACHMENTS

LIST OF ADA CONTACTS BY STATE

State	ADA Coordinator	Contact (if different than ADA coordinator)
Alabama	Byron Browning Assistant ADA Coordinator Alabama Department of Transportation 1409 Coliseum Boulevard Montgomery, AL 36110 334-242-6942 browningb@dot.state.al.us	

State	ADA Coordinator	Contact (if different than ADA coordinator)
Alaska	<p style="text-align: center;">Jon Dunham Civil Rights Office Manager 2200 East 42nd Avenue PO Box 196900 Anchorage AK 99519-6900 907-269-0851 jon_dunham@dot.state.ak.us</p>	
Arizona	<p style="text-align: center;">Edward Edison Civil Rights Administrator Arizona Department of Transportation 1135 N 22nd Ave, 2nd Floor Phoenix, AZ 85009 602-712-7761 eedison@dot.state.az.us</p>	
Arkansas	<p style="text-align: center;">James Moore Internal EEO Coordinator Arkansas State Highway & Transportation Department 10324 Interstate 30 Little Rock, Arkansas 72209 501-569-2299 james.moore@arkansashighways.com</p>	
California	<p style="text-align: center;">Alex Morales III ADA/504 Coordinator California Department of Transportation Civil Rights Program 1823 14th Street MS 79 Sacramento CA 95814 916-324-8764 alex_morales@dot.ca.gov</p>	<p style="text-align: center;">Jerry Champa is the lead for the Transition Plan effort California Department of Transportation Civil Rights Program 1823 14th Street MS 79 Sacramento CA 95814 916-324-8764 jerry_champa@dot.ca.gov]</p>

State	ADA Coordinator	Contact (if different than ADA coordinator)
Colorado	<p>Benjamin Cordova ADA Coordinator Colorado Department of Transportation Center for Equal Opportunity 4201 East Arkansas Avenue, Room 200 Denver, Colorado 80222 303-757-9594 benjamin.cordova@dot.state.co.us</p>	
Connecticut	<p>John F. Carey Transportation Division Chief Connecticut Department of Transportation 2800 Berlin Turnpike P.O. Box 317546 Newington, CT 06131-7546 860-594-2710 john.f.carey@po.state.ct.us</p>	
Delaware		<p>Linda M. Osiecki, M.E., P.E. Program Manager, Quality Section Delaware Department of Transportation 800 Bay Road P.O. Box 778 Dover, DE 19903 302-760-2342 linda.osiecki@state.de.us</p>
District of Columbia	<p>Brett Rouiller ADA/504 Coordinator District of Columbia Department of Transportation 2000 14th Street, NW 5th Floor Washington, DC 20009 202-497- 4722 brett.rouillier@dc.gov</p>	

State	ADA Coordinator	Contact (if different than ADA coordinator)
Florida	<p>Dean Perkins ADA Coordinator Florida Department of Transportation Haydon Burns Building 605 Suwannee Street Tallahassee, Florida 32399-0450 850-414-4359 dean.perkins@dot.state.fl.us</p>	
Georgia	<p>Ulander Gervais Title VI/Environmental Justice Specialist Georgia Department of Transportation Office of Equal Opportunity 2 Capitol Square Atlanta, Georgia 30334 404-463-6928 ulander.gervais@dot.state.ga.us</p>	
Hawaii	<p>Benjamin Gorospe ADA Coordinator Hawaii Department of Transportation Office of Civil Rights 869 Punchbowl Street #112 Honolulu, Hawaii 96813 808-587-7584 benjamingGorospe@hawaii.gov</p>	
Idaho	<p>Karen Sparkman Director, Civil Rights Section Idaho Transportation Department P. O. Box 7129 Boise, ID 83707-1129 208-334-8852 karen.sparkman@itd.idaho.gov</p>	

State	ADA Coordinator	Contact (if different than ADA coordinator)
Illinois	<p>David Dailey ADA Specialist Bureau of Civil Rights 2300 South Dirksen Parkway, Room 317 Springfield, IL 62764 217-557-5900 david.dailey@illinois.gov</p>	
Indiana	<p>Christine D. Cde Baca Title VI/ADA Administrator 100 North Senate, Room N750 Indianapolis, IN 46204 317-234-6142 ccdebaca@indot.in.gov</p>	
Iowa	<p>Roger E. Bierbaum Director, Office of Contracts Highway Division Iowa Department of Transportation 800 Lincoln Way Ames, IA 50010 515-239-1414 roger.bierbaum@dot.iowa.gov</p>	
Kansas	<p>Mike Smith Internal Civil Rights/ADA Coordinator Kansas Department of Transportation Eisenhower State Office Building 700 SW Harrison Topeka, Kansas 66603 785-296-2279 eeooffice@ksdot.org</p>	
Kentucky	<p>Kathy Marshall Office of Human Resources Kentucky Transportation Cabinet 200 Mero Street Frankfort, KY 40601 502-564-4610 KathyN.Marshall@ky.gov</p>	

State	ADA Coordinator	Contact (if different than ADA coordinator)
Louisiana	<p>Candy Cardwell Human Resources Analyst Human Resources Section Louisiana Department of Transportation and Development P.O. Box 94245 Baton Rouge, LA 70804-9245 225-379-1241 candycardwell@dotd.louisiana.gov</p>	
Maine	<p>GiGi Ottmann-Deeves Maine Department of Transportation 16 State House Station Augusta, ME 04333 207-624-3036 gigi.ottmann-deeves@maine.gov</p>	
Maryland	<p>Linda I. Singer ADA Title II Coordinator, Legislative Manager Office of Policy and Research Maryland State Highway Administration 707 North Calvert Street Baltimore MD 21202 410-545-0362 lsinger@sha.state.md.us</p>	
Massachusetts	<p>David Phaneuf ADA Coordinator Massachusetts Highway Department State Transportation Building 10 Park Plaza, Room 3170 Boston, MA 02116 617-973-7722 david.phaneuf@state.ma.us</p>	<p>Angela Rootekoff Office of Civil Rights State Transportation Building 10 Park Plaza, Room 3170 Boston, MA 02116 617-973-7025 angela.rootekoff@state.ma.us</p>
Michigan	<p>Tony Kratofil Bay Region Engineer 55 E. Morley Dr. Saginaw, MI 48601 989-754-0878 kratofil@michigan.gov</p>	

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Minnesota	<p>Bruce Latu Minnesota Department of Transportation 395 John Ireland Boulevard St. Paul, MN 55155-1899 651-291-1016 bruce.latu@state.mn.us</p>	
Mississippi	<p>Carolyn Bell Civil Rights Manager Mississippi Department of Transportation 401 North West Street Jackson, MS 39201 601-359-7466 cbell@mdot.state.ms.us</p>	
Missouri	<p>Lester Woods External Civil Rights Administrator Missouri Department of Transportation 1617 Missouri Boulevard Jefferson City, MO 65109 573-751-2859 lester.woodsJr@modot.mo.gov</p>	<p>Stefan Denson Missouri Department of Transportation 1617 Missouri Boulevard Jefferson City, MO 65109 573-751-1355 stefan.denson@modot.mo.gov</p>
Montana	<p>Alice Flesch, Program Manager Montana Department of Transportation 2701 Prospect Avenue PO Box 201001 Helena, MT 59620-1001 406-444-9229 aflesch@mt.gov</p>	
Nebraska	<p>Jim Knott Director, Roadway Design Division Nebraska Department of Roads Roadway Design 1500 Highway 2 PO Box 94759 Lincoln, NE 68509-4759 402-479-4601 jknott@dor.state.ne.us</p>	

State	ADA Coordinator	Contact (if different than ADA coordinator)
Nevada	Dennis Coyle ADA/504 Coordinator Nevada Department of Transportation 1263 South Stewart Street Carson City, NV 89712 775-888-7598 dcoyle@dot.state.nv.us	
New Hampshire	David Chandler New Hampshire Department of Transportation 7 Hazen Drive P.O. Box 483 Concord, NH 03302-0483 603-271-2467 dchandler@dot.state.nh.us	
New Jersey	Chrystal Section-Williams Title VI Analyst Division of Civil Rights & Affirmative Action New Jersey Department of Transportation 1035 Parkway Avenue Trenton, NJ 08618 609-530-2939 chrystal.section-williams@dot.state.nj.us	Paul Thomas ADA Transition Plan Manager New Jersey Department of Transportation 1035 Parkway Avenue Trenton, NJ 08618 paul.thomas@dot.state.nj.us
New Mexico	Jose Ortiz ADA Coordinator New Mexico State Transportation Department Aspen Plaza 1596 Pacheco Street Santa Fe, NM 87505 505-827-1648 jose.ortiz@state.nm.us	

State	ADA Coordinator	Contact (if different than ADA coordinator)
New York	<p>David Perez Compliance Specialist II New York State Department of Transportation Office of Audits and Risk Management Services Civil Rights Bureau, Pod 62 50 Wolf Road Albany, New York 12232 dperez@dot.state.ny.us</p>	
North Carolina	<p>Walt Thompson Director, Productivity Services North Carolina Department of Transportation 1517 Mail Service Center Raleigh, NC 27699-1517 919-733-2083 wthompson@dot.state.nc.us</p>	
North Dakota	<p>Mark S. Gaydos, P.E. North Dakota Department of Transportation Design Division 608 East Boulevard Avenue Bismarck, ND 58505-0700 701-328-4417 mgaydos@nd.gov</p>	<p>Roger Weigel North Dakota Department of Transportation Design Division 608 East Boulevard Avenue Bismarck, ND 58505-0700 701-328-4403 rweigel@nd.gov</p>
Ohio	<p>Kimberly Watson EEO Program Administrator Office of Chief Legal Counsel Civil Rights Unit Ohio Department of Transportation Central Office 1980 West Broad Street Columbus, OH 43223 614-728-9245 kim.watson@dot.state.oh.us</p>	

State	ADA Coordinator	Contact (if different than ADA coordinator)
Oklahoma	<p style="text-align: center;">Glenn Brooks Title VI Coordinator Oklahoma Department of Transportation 200 N. E. 21st Street, Room 1-B4 Oklahoma City, OK 73105 405-521-4139 gbrooks@fd9ns01.okladot.state.ok.us.</p>	
Oregon	<p style="text-align: center;">Martha Smith EEO/Affirmative Action/ADA Coordinator Oregon Department of Transportation Office of Civil Rights/Human Resources 104 Transportation Building 355 Capitol Street NE Salem, OR 97301 503-373-7093 martha.smith@odot.state.or.us</p>	
Pennsylvania	<p style="text-align: center;">Chris Drda Chief, Consultant Agreement Section Bureau of Design Pennsylvania Department of Transportation 400 North Street Keystone Building, 7th Floor Harrisburg, PA 17120 717-783-9309 cdrda@state.pa.us</p>	
Puerto Rico	<p style="text-align: center;">Ana Olivencia aolivencia@act.dtop.gov.pt</p>	

State	ADA Coordinator	Contact (if different than ADA coordinator)
Rhode Island	<p>Michael Penn Senior Civil Engineer Rhode Island Department of Transportation Two Capitol Hill Providence, RI 02903 401-222-2023 x4050 mpenn@dot.ri.gov</p>	
South Carolina	<p>Natalie Moore ADA Coordinator South Carolina Department of Transportation 955 Park Street Columbia, SC 29201 803-737-1347 adacoordinator@scdot.org</p>	
South Dakota	<p>June Hansen Civil Rights Compliance Officer South Dakota Department of Transportation 700 East Broadway Avenue Pierre, SD 57501 605-773-3540 june.hansen@state.sd.us</p>	
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Texas	<p>Jesse W. Ball Jr. Civil Rights Director Texas Department of Transportation Office of Civil Rights 125 East 11th Street Austin, TX 78701-2483 512-475-3117 jball@dot.state.tx.us</p>	

State	ADA Coordinator	Contact (if different than ADA coordinator)
Utah	<p>Warren Grames Risk Manager Utah Department of Transportation 4501 South 2700 West 4th Floor Salt Lake City, UT 84114-8430 801-965-4272 wgrames@utah.gov</p>	<p>Ming Jiang Pedestrian Safety Engineer Utah Department of Transportation 4501 South 2700 West 4th Floor Salt Lake City, UT 84114-8430 801-965-4427 mjiang@utah.gov</p>
Vermont	<p>Lori Valburn Director of Civil Rights Programs Vermont Agency of Transportation National Life Building - Drawer 33 Montpelier, VT 05633 802-828-5561 lori.valburn@state.vt.us</p>	
Virginia	<p>Alexis Thornton-Crump SPHR, Certified Mediator Assistant Division Administrator Civil Rights Division Virginia Department of Transportation 1401 East Broad Street, Richmond, VA 23219 804-786-4414 alexis.crump@vdot.virginia.gov</p>	<p>Freddie Jones Virginia Department of Transportation 1401 East Broad Street, Richmond, VA 23219 804-786-4552 freddie.jones@vdot.virginia.gov</p>
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State	ADA Coordinator	Contact (if different than ADA coordinator)
West Virginia	<p>Ray Lewis, P.E. Traffic Research and Special Projects Engineer West Virginia Division of Highways Traffic Engineering Division 1900 Kanawha Boulevard East, Building Five Charleston, WV 25305 304-558-3063 rlewis@dot.state.wv.us</p>	
Wisconsin	<p>Title VI Coordinator Civil Rights and Compliance Section Bureau of Equity and Environmental Services Wisconsin Department of Transportation 4802 Sheboygan Avenue, Room 451 Madison, WI 53705 608-266-0208 vincent.fisher@dot.state.wi.us</p>	<p>Michele Carter and Ronald Ulvog Facilities Maintenance Personnel 4802 Sheboygan Avenue, Room 451 Madison, WI 53705 608-266-0208 608-266-5359 michele.carter@dot.state.wi.us ronald.ulvog@dot.state.wi.us</p>
Wyoming	<p>Lonny Pfau Human Resources Manager Wyoming Department of Transportation 5300 Bishop Boulevard Cheyenne, WY 82009 307-777-4103 lonny.pfau@dot.state.wy.us</p>	<p>Kent Lambert Wyoming Department of Transportation 5300 Bishop Boulevard Cheyenne, WY 82009 kent.lambert@dot.state.wy.us</p>

QUESTIONNAIRE

<p>QUESTIONNAIRE FOR DEPARTMENTS OF TRANSPORTATION</p> <p>DEVELOPMENT OF A BEST PRACTICES GUIDE</p> <p>TO UPDATE ADA TRANSITION PLANS</p> <p>NCHRP PROJECT NUMBER 20-7 (232)</p>	
<p>The Americans with Disabilities Act (ADA) and other federal statutes place responsibility on state departments of transportation to meet accessibility requirements for pedestrians. These requirements include a self-evaluation study to see where the agency's facilities stand with regard to accessibility and a transition plan to provide the needed accessibility improvements. An interview process with state departments of transportation is being carried out as part of a study called "Development of a Best Practices Guide to Update ADA Transition Plans". The study is being sponsored by the National Cooperative Highway Research Program; Jacobs Edwards and Kelcey is under contract to conduct interviews and prepare a report. The overall goal of the study is to ensure that good information, good ideas, and good practices concerning transition plans for pedestrian accessibility programs are recognized, recorded, and shared. There are three parts to the questionnaire: (1) the determination of some background information, (2) a discussion of self-evaluation studies that are used to define needed accessibility improvements, and (3) a discussion of transition plans that are used to carry out the improvements needed to bring facilities in line with accessibility standards.</p>	
Agency	
Contact Person	
Title	
Telephone Number	
E-Mail Address	
Date of Discussion	
What are your responsibilities?	
ADA Coordinator?	
Title II Coordinator?	
Section 504 Coordinator?	

Self-Evaluation Plan Manager?	
ADA Transition Plan Manager?	
Other?	
I BACKGROUND	
<p>Agencies vary greatly in their responsibilities and their structure and in the nature of the facilities that they manage. This section is intended to provide some context to help understand agency planning for accessibility.</p>	
1. Agency Responsibilities	
<p>The goal of this section is to determine the range of resources that the agency is responsible for. This range can vary widely between agencies. This study concerns itself only with highway rights-of-ways but the overall context of the agency's responsibilities needs to be understood.</p>	
What types of resources is your agency responsible for?	
Highways?	
Rest Areas?	
Welcome Areas?	
Scenic Overlooks?	
Recreation Areas?	
Office Buildings?	
Maintenance Facilities?	
Bus Transit Systems?	
Bus Stops?	
Van Transit Systems?	
Rail Transit systems	
Public Safety Facilities?	

Railways?	
Ferries?	
Airports?	
Ports and Harbors?	
Pipelines?	
Waterways?	
Anything else?	

2. The ADA Compliance Role Within the Agency

Transportation Agencies vary widely in how they integrate the ADA compliance responsibility into their organization. The goal of this section is to understand how the agency assigns the responsibility for ADA compliance.

Where does the ADA Coordinator role fall within your Agency?	
Office of the Commissioner?	
Civil Rights Office?	
Legal Department?	
Public Affairs Department?	
Pubic Involvement Department?	
Programs Department?	
Planning Department?	
Design Department?	
Right-of-way Department?	
Maintenance Department?	
Other?	

3. Document Development

Agencies vary in their progress on formal document development. The goal of this section is to determine where the agency stands in this process.

Does your agency have a joint self-evaluation and transition plan?	
--	--

Where can it be seen?	
-----------------------	--

Is it updated periodically?	
-----------------------------	--

Does your agency have a separate self-evaluation plan?	
--	--

Does your agency have a separate transition plan?	
---	--

Are either of these documents in progress?	
--	--

--	--

4. Compliance Complaints and Suits

The demand for pedestrian accessibility varies based on the nature of the area served. The goal of this section to understand the nature of the demand for pedestrian accessibility improvements.

Do you receive complaints about pedestrian accessibility?	
---	--

How many?	
-----------	--

What are the usual subjects of complaints?	
--	--

Have you been sued?	
---------------------	--

Have you entered into any settlements?	
--	--

Is there an activist community or organization that focuses on this subject?	
--	--

II SELF-EVALUATION PLAN

The State Department of Transportation is required to conduct a self-evaluation of its facilities to determine if these facilities are accessible to persons with disabilities. This can be a massive undertaking. This section is a discussion about how agencies have undertaken or are planning to undertake this assignment.

1. Inventory of Facilities

The goal of this section is to determine the approach the agency has taken to perform inventory work.

What is the magnitude of the inventory challenge?

Roadway miles?

Person hours?

Crew hours?

Months of duration?

What is your initial information base?

Aerial Photography Library?

Map Library?

Drawings?

Field Survey?

Computer Database?

What is your approach to doing inventory work?

Windshield survey?

On ground survey?

Photo studies?

What is the extent of inventory work?

All pedestrian facilities?

Only pedestrian facilities deemed of concern by the agency?	
Only pedestrian facilities in key areas?	
Only pedestrian facilities that support a public service function?	
Only pedestrian facilities where complaints have been received or concerns have been raised?	
Other selection criteria?	
What inventory tools have you found useful?	
GPS?	
Photography?	
GIS Mapping?	
Computer Database?	
2. Identification of Deficiencies	
The goal of this section is to discuss what facilities the agency is typically dealing with and what some of the common deficiencies are.	
What types of facilities are you dealing with?	
Sidewalks?	
Curb Ramps?	
Curb Cuts?	
Driveway Crossings?	
Crosswalks?	
Ramps?	
Medians?	
Bus Stops?	

Bike Paths?	
Other?	
What types of deficiency issues are you finding?	
Clear Width and Other Dimensions? (Narrow, Below Guidelines)	
Grade? (Steepness, Angle Points)	
Cross Slope? (Steepness, Irregularity, Variability)	
Materials and Finishes? (Deterioration, Inappropriateness)	
Discontinuities? (Missing Sections, Gaps, Drops)	
Obstructions? (Signs, Lights, Mail Boxes, Fire Hydrants, Newspaper Boxes, Drainage Structures, Standing Water)	
Detectable Warning Systems? (Missing, Inappropriate Materials, Inadequate Size, Wrong Location)	
Traffic Signal Systems? (Inadequate Time Allowed, Inaccessible Buttons, Inoperable Buttons, Lack of Visually Impaired Provisions)	
Lighting? (Missing, Not Operating, Inadequate Levels)	
Maintenance and Services? (Snow Removal, Debris Clean Up, Trash Cans, Recyclable Material Bins)	
Access Through Work Zones?	
Other?	

3. Validation of Selections

The agency is required to provide an opportunity for people with disabilities and other interested individuals and organizations to review and comment on the self-evaluation of facilities. The goal of this section is to determine the approaches used to provide this opportunity.

Is there an Advisory Group?	
How do they function?	
Periodic meetings?	
Field visits?	
Other?	
Is there input from activists or organizations?	
Is there input from other agencies?	
Is there input from elected officials?	
Is there a Community Outreach Effort?	
Are there local public meetings about inventory results?	
Are these independent meetings or piggybacked on other community meetings?	
What means of disseminating information are being used?	
Awareness days?	
Newsletters?	
Website?	
Public Access to Databases?	
What means of receiving input are there?	
Comment forms at meetings?	
Hotline?	

Published e-mail address?	
Published mail in address?	
Transcriptions of meetings?	
Staff memoranda concerning meeting comments?	
Are provisions made to accommodate the hearing impaired and the visually impaired?	
Is there a list of interested parties maintained?	
Other thoughts?	
4. Establishment of a Baseline	
There is a need to create a baseline of information to identify needs and have the ability to document progress. The goal of this section is to investigate how the agency accomplishes this.	
Is the self-evaluation study added on to some existing database?	
What is the nature of that database?	
Is the self-evaluation study a stand alone database?	
Is a GIS database used?	
Is a spread sheet approach used?	
What are the sorting categories?	

III TRANSITION PLAN

The agency must prepare a Transition Plan that identifies deficiencies, develops a method to make facilities accessible, provides a schedule for making the required access modifications, and designates a public official responsible for the Transition Plan. This section is a discussion about how agencies have undertaken or are planning to undertake this assignment.

1. Designs and Cost Estimates for Improvements

The improvements needed to correct deficiencies have to be defined through a design and cost estimating process. The goal of this section is to discuss the agency approach to doing this.

What design standards do you use?

ADA Accessibility Guidelines?

Uniform Federal Accessibility Standards?

Your own standards?

Have your standards been reviewed with regard to accessibility issues?

Do you have in house design capability with regard to accessibility issues?

Are design consultants needed?

What cost estimating resources do you rely on for accessibility improvements?

What escalation factors are you applying to accessibility improvements?

2. Prioritization of Improvements

A priority ranking for approaching the defined improvements has to be worked out so that an effective schedule can be established. The goal of this section is to discuss the methods used to rank the improvements in order of priority.

What is the approach to prioritizing improvements?

Population density in the area?	
Significant disabled population within the area?	
Proximity to key locations?	
Government offices?	
Schools?	
Hospitals?	
Places of employment?	
Shopping areas?	
The severity of the deficiency?	
Is a review of complaints a factor?	
Is public demand a factor?	
What are the sources of public demand?	
Is compatibility with the available budget a factor?	
How are the available budget and the improvement needs matched?	
3. Management Approach to Implementation	
<p>The goal of this section is to explore how the agency manages the development of the transition plan and carrying out the improvements. The development of the plan may be a one time rather intense effort but the tracking of the implementation of the improvements will be a less intense long time assignment.</p>	
Who is the public official responsible for the implementation of the Transition Plan?	
Who Is the ADA Transition Plan Manager?	
Is there an internal committee that provides input into the Transition Plan process?	
Has any staff been assigned to the	

Transition Plan Process?	
How many?	
In what capacity?	
In what department does the responsibility for the Transition Plan reside?	
What training courses about accessibility has the staff gone through?	
What reference works about accessibility do you find useful?	
Who has responsibility for transition plan updates?	
Have any consultants been contracted relative to Transition Plan work?	
4. Funding Mechanisms	
There is no specific funding mechanism related to the improvement of accessibility deficiencies. Funding might come from many different sources. The goal of this section is to explore the funding experience of the agency.	
Have accessibility improvements been incorporated into existing programmed projects?	
Has any cost differential been recognized?	
Have accessibility improvement been incorporated into any existing maintenance programs?	
Has any cost differential been recognized?	
Have stand alone accessibility improvements projects been processed through the Transportation Improvements Program?	
Have you had any instances where an accessibility improvement was found to be “unduly burdensome”?	

What sources have resulted in some funding for accessibility improvement programs?	
National Highway System Program?	
Surface Transportation Program?	
Highway Safety Improvements Program?	
Railway–Highway Crossing Program?	
Transportation Enhancements Activities Program?	
Congestion Mitigation/Air Quality Program?	
Recreational Trails Program?	
State and Community Traffic Safety Program?	
Safe Routes to School Program?	
Other Programs?	
Have accessibility improvements been included in developer impact fees?	
5. Scheduling and Budgeting	
Schedules and budgets are the tools of implementation. The goal of this section is to determine how the agency is scheduling and budgeting for accessibility improvements.	
Is there an overall completion target date?	
Are there milestone dates?	
Is there a separate Curb Ramp Installation Schedule?	
Is there a budget line item for accessibility improvements programs?	

6. Coordination with Other Agencies	
Other agencies have authority over pedestrian facilities and have an interest in accessibility. The goal of this section is to explore the exchange of information and the handling of interfaces with other agencies.	
Are there local government pedestrian master plans that are used as input and guidance?	
Are there local government transition plans for accessibility improvements that are used as input and guidance?	
How is the interface between agency sidewalks and local sidewalks handled?	
Who has authority over bus stops?	
How is the interface between sidewalks and bus stops handled?	
What other agencies – transit authorities, airport authorities, turnpike authorities – have jurisdiction over pedestrian facilities?	
Do you receive input from any social service agencies?	
7. Promulgation and Feedback	
The goal of this section is to _____	
8. Updating of Database	
The goal of this section is to _____	

Handout #3: Pedestrian Checklist and Considerations for Temporary Traffic Control Zones

Pedestrians Checklist and Considerations for Temporary Traffic Control Zones

For those who plan, design, and construct temporary traffic control (TTC) zones, the *Manual on Uniform Traffic Control Devices (MUTCD)* provides guidance considerations regarding pedestrians, accessibility, and worker safety. This document provides a checklist and overview of pedestrian-related considerations during planning, design, and construction phases for a project and is designed to enhance pedestrian safety and accessibility, maintain Americans with Disabilities Act of 1990 (ADA) compliance, and provide positive guidance to avoid pedestrian confusion throughout each phase. This side of the document provides pedestrian considerations for use during the planning and design phases, while the other side provides information for users while out in the field.

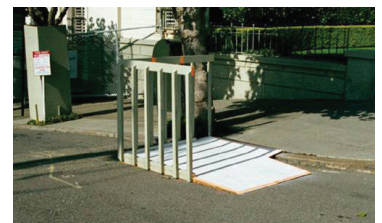
Pedestrian Considerations during Planning and Design

Planning

- Provide a safe, convenient travel path for pedestrians that replicates as nearly as possible the most desirable characteristics of the existing sidewalks or footpaths throughout all phases of construction.
- Avoid creating pedestrian paths that lead pedestrians into direct conflicts with work site vehicles, equipment, operations.
- Avoid creating pedestrian paths that lead pedestrians into direct conflicts with mainline traffic moving through or around the work site.
- Determine the TTC impact on pedestrians, including significant generators such as schools, senior centers, transit stops and shopping areas.
 - Determine the level of accessibility needed for pedestrians in the TTC zone through observing existing pedestrian travel patterns, and make accommodations prior to the start of work. Consider meeting with local community organizations (i.e., local blind organization, city ADA coordinator, etc.) through open houses to address concerns and needs. Develop outreach products available in the appropriate formats for those with special needs.
- Assess the TTC impact on existing pedestrian flow.
 - Ensure that temporary facilities replicate as nearly as practical the accessibility features present in the existing pedestrian facility when the existing facilities are disrupted, closed, or relocated in a TTC zone.

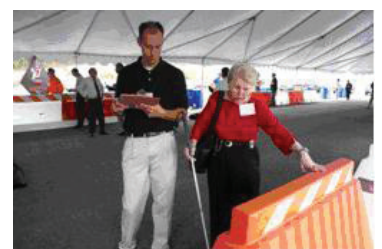


photo courtesy of AAA Foundation for Traffic Safety



Design

- Provide pedestrian information throughout the TTC zone.
 - Provide advance information, transition information, work area information, and ingress and egress directions for pedestrians. See *Accommodating Pedestrians in Work Zones* brochure developed by FHWA; FHWA-SA-03-011.
- The TTC pedestrian accommodation that utilizes a temporary route does the following:
 - Defines detoured routes clearly.
 - Provides advance signage at intersections rather than mid-block locations.
 - Separates pedestrians from vehicle traffic.
 - Avoids mid-block crossings.
 - Ensures that temporary routes are not much longer than the original route.
 - Provides clear and positive guidance to delineate a temporary route.
 - Provides continuous access to transit stops and/or relocates transit stops.
- Maintain a continuous accessible path of travel either around or through the construction site throughout all construction phases.
- Ensure compliance with Americans with Disabilities Act (ADA) of 1990 requirements.
 - Provide an alternate route when existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone. Temporary facilities should replicate the features present in the existing pedestrian facility.
 - Ensure a minimum sidewalk width of 36" (a 48" width is desirable), erect curb ramps, and provide passing space (minimum 5 foot by 5 foot space every 200 feet).
 - Maintain a minimum width and smooth surface to avoid creating tripping danger and to minimize barriers to wheelchair use. This includes providing ADA compliant facilities.
 - Make all barriers and channelizing devices detectable for pedestrians with visual disabilities. Note that the use of caution tape stretched between traffic control devices is not adequate and not acceptable.
 - Consider using additional devices for visual disabilities, such as audible information devices or accessible pedestrian signal.
- Maintain pedestrian access to businesses, residences, transit stops, etc.
- Provide temporary nighttime lighting for pedestrian walkways throughout the TTC zone.



continued on reverse

Pedestrians Checklist and Considerations for Temporary Traffic Control Zones

Continued

Pedestrian Considerations While in the Field

Construction/Maintenance/Utility

- Promote adequate pedestrian safety via physical separation from work space and vehicular traffic, overhead protection, etc.
- Provide adequate and safe detour(s) whenever sidewalks are closed or blocked.
 - Use signs at intersections to give advance notification of closures ahead, and inform pedestrians where to cross.
 - Provide audible signage for pedestrians with visual disabilities.
- Clear the path of debris and other items that may obstruct pedestrians' paths.
 - Avoid pedestrian walkway surfaces that are slippery when wet.
- Consider carefully the placement of intersection crosswalks, implement additional signing/markings, add and/or relocate transit stops, and modify traffic signals (traffic signal timing, pedestrian signals, push buttons) as necessary.
 - Take into account walking speeds and the distance pedestrians travel when traversing travel lanes to determine minimum green time.
- Inspect pedestrian accommodations during construction to ensure that the traffic control plan (TCP) is followed.
- Ensure traffic control devices are in good and safe condition.
 - Devices should be sturdy, firm to the grip, and smooth to the touch (have no rough edges).
 - Devices should not be potential tripping hazards.
 - Provide a continuous, detectable edging throughout the length of the facility such that pedestrians using a long cane can follow it.
- Make pedestrian routes ADA compliant and available to pedestrians during all phases of construction.



Helpful Resources

- U.S. Access Board www.access-board.gov
 - Public Rights-of-Way Accessibility Guidelines (PROWAG): <http://www.access-board.gov/prowac/draft.htm#Text> or US Access Board's PROW team: (800)872-2253.
 - Access Board videos on Accessible Sidewalks. <http://www.access-board.gov/news/sidewalk-videos.htm>.
 - Accessible Design for the Blind: www.accessforblind.org
- MUTCD. <http://mutcd.fhwa.dot.gov/index.htm>
- FHWA's pedestrian safety website. http://safety.fhwa.dot.gov/PED_BIKE/ped/index.htm.
- Federal Highway Administration, *Pedestrian Road Safety Audit Guidelines and Prompts Lists*, July 2007. FHWA-SA-07-007



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U.S. Department of Transportation
Federal Highway Administration

**Handout #4: ADA Compliance at
Transportation Agencies: A Review of
Practices**

ADA COMPLIANCE AT TRANSPORTATION AGENCIES: A REVIEW OF PRACTICES

Requested by:

American Association of State Highway
and Transportation Officials (AASHTO)

Standing Committee on Highways

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ABSTRACT

Transportation agencies nationwide must comply with provisions in the Americans with Disabilities Act (ADA). To assess ADA compliance, agencies need to develop a comprehensive inventory of pedestrian facilities, identify non-compliant locations, and develop a program for remedial repairs in order to bring facilities into compliance. The purpose of NCHRP Project 20-07, Task 249, *Asset Management Approaches to ADA Compliance*, was to gather information and develop a synthesis of practices, including best practices, on the various approaches transportation agencies use to address ADA compliance issues. The synthesis covered three main topics: asset data inventory, asset condition assessment, and programming of asset improvements. To make the project manageable, the focus was on pedestrian infrastructure on the public right-of-way, including elements such as sidewalks, curb ramps, pedestrian crossings, and obstructions. The analysis did not include buildings, facilities, or transit infrastructure. The synthesis also included the compilation of an extensive listing of asset inventory and condition data elements. The listing is intended as a preliminary menu that agencies could use as a foundation for the development of inventory programs that meet individual agency needs.

EXECUTIVE SUMMARY

Transportation agencies nationwide must comply with provisions in the Americans with Disabilities Act (ADA). To assess ADA compliance, agencies need to develop a comprehensive inventory of pedestrian facilities, identify non-compliant locations, and develop a program for remedial repairs in order to bring facilities into compliance.

The purpose of National Cooperative Highway Research Program (NCHRP) Project 20-07, Task 249, *Asset Management Approaches to ADA Compliance*, was to gather information and develop a synthesis of practices, including best practices, on the various approaches transportation agencies use to address ADA compliance issues. The synthesis covered three main topics: asset data inventory, asset condition assessment, and programming of asset improvements. To achieve this goal, the researchers conducted a literature review of practices, conducted an online survey to assist in the stakeholder identification process, gathered sample documentation, and interviewed officials from a sample of state and local agencies. To make the project manageable, the focus was on pedestrian infrastructure on the public right-of-way, including elements such as sidewalks, curb ramps, pedestrian crossings, and obstructions. The analysis did not include buildings, facilities, or transit infrastructure.

The synthesis also included the compilation of an extensive listing of asset inventory and condition data elements. The listing is intended as a preliminary menu that agencies could use as a foundation for the development of inventory programs that meet individual agency needs. Readers should note that an actual inventory program would logically include formal user need and data modeling phases to characterize data elements more precisely.

A review of the documentation gathered and feedback received led to the following conclusions:

- **Designing inventory data collection programs and data archival systems to support improvement programming activities is a best practice.** Best practices to support data collection and data archival programs include the following:
 - Use aerial photos or agency video logs as a screening tool and to focus resources.
 - Develop user-friendly data collection forms or input screens.
 - Use personal digital assistant (PDA)-based tools to automate information workflow.
 - Involve the agency's information technology group in designing data collection activities to ensure appropriate integration with other existing systems at the agency.
- **Having observers with adequate ADA training collect sufficient data and assess accessibility compliance levels in the field is a best practice.** The complex nature of standards and requirements related to accessibility is such that trained observers viewing a particular site directly will typically be in the best position to assess accessibility compliance levels. In some cases, it may be necessary to review additional documentation later in the office. However, it is frequently more difficult to assess

compliance later in the office when reviewing hand-written field notes, digital photographs, or other electronic data. Using properly trained personnel is also a critical requirement for quality control purposes.

- **Integrating ADA requirements into the project development and delivery process is a best practice.** Best practices involving the integration of ADA requirements into the project development and delivery process include the following:
 - Ensure that ADA requirements and standards are fully integrated into all of the agency’s policy, planning, and design handbooks or manuals.
 - Ensure that all district planning and engineering staff (and not just an ADA coordinator) have the required training.
 - Ensure that ADA improvements can be funded through a variety of funding programs/sources.
- **Developing user-friendly web sites that provide comprehensive information is a best practice.** The researchers identified a few cases where the agency’s website provided adequate information about laws and regulations, asset inventory activities, long-term and short-term projects, funding initiatives, complaint procedures, and community outreach. Such strategies help the agency to fulfill its mission and facilitate the development and implementation of programs as well as the interaction with the appropriate stakeholders.
- **Prioritizing inventory and improvement programming resources to focus on the most critical locations is a best practice.** Many agencies used a priority ranking system for their inventory data collection as well as their capital improvement programming. The priority ranking systems were typically based on importance (e.g., functional class of the roadway), adjacent land uses (e.g., public versus private facilities, high versus low pedestrian traffic), and the urgency of the improvement based on its condition. In some cases, the inventory process factored the priority ranking by collecting the most detailed and comprehensive data on high-priority road segments, while at the same time collecting simpler or less detailed data on lower-priority road segments.

Readers should be aware that the identification of “best practices” depends on the agency context in which the practices are to be implemented. In other words, one size does not fit all. For example, the researchers identified several agencies that use sophisticated systems to automate and streamline data collection, summary, and presentation of pedestrian infrastructure data. This is a best practice for agencies that have the necessary technical and institutional resources to implement and maintain those systems. In contrast, for agencies with fewer resources, a sophisticated system may quickly overwhelm agency staff and resources. For those agencies, a relatively simple paper-based or PDA-based approach would be a best practice.

CHAPTER 1 INTRODUCTION

Transportation agencies nationwide must comply with provisions in the Americans with Disabilities Act. Regardless of facility type (e.g., highways, rest areas, or trails), ADA compliance issues may surface throughout the lifetime of the facility, from planning and programming to operations and maintenance. To assess ADA compliance, agencies need to develop a comprehensive inventory of pedestrian facilities, identify non-compliant locations, and develop a program for remedial repairs in order to bring facilities into compliance.

The use of innovative approaches and technologies to inventory and characterize pedestrian infrastructure is increasing. Examples include geographic information systems (GIS), global positioning system (GPS) receivers, orthophotography, PDAs, and data management systems. Several agencies store pedestrian infrastructure data along with other infrastructure data in asset/facility management systems, which can include tools for ADA compliance. Agencies use these approaches and technologies to score facilities on ADA compliance, providing them a means to prioritize construction or maintenance needs. In many situations, these needs outweigh available resources. To optimize available resources, agencies are developing systematic ADA improvement, compliance, or transition plans to program repairs of non-compliant facilities. However, mechanisms need to be in place to verify that new or retrofitted facilities are compliant and that inventory and condition data are up to date.

The purpose of NCHRP Project 20-07, Task 249, *Asset Management Approaches to ADA Compliance*, was to gather information on the various approaches transportation agencies use to address ADA compliance issues in terms of (a) asset data inventory, (b) asset condition assessment, and (c) programming of asset improvements, with the primary objective being to share best practices among stakeholders. To make the project manageable, the focus was on pedestrian infrastructure on the public right-of-way and included elements such as sidewalks, curb ramps, pedestrian crossings, and obstructions. The analysis did not include buildings, facilities, or transit infrastructure.

This report summarizes the work completed as follows:

- Chapter 1 is this introductory chapter.
- Chapter 2 provides a literature review of standards, guidelines, and current practices.
- Chapter 3 summarizes the online survey procedure and results.
- Chapter 4 summarizes the process followed to conduct interviews and gather additional information from transportation agencies.
- Chapter 5 includes a summary of practices.
- The appendix includes the online survey form and amplifying questions.

CHAPTER 2 LITERATURE REVIEW OF STANDARDS, GUIDELINES, AND CURRENT PRACTICES

ACCESSIBILITY LAWS, REGULATIONS, AND STANDARDS

The Americans with Disabilities Act of 1990 provided comprehensive civil right protections to individuals with disabilities in areas related to employment (Title I), public services (Title II), public accommodations and services operated by private entities (Title III), telecommunications (Title IV), and miscellaneous (Title V). In particular, Title II prohibited the discrimination of individuals with disabilities in relation to benefits, programs, services, or activities offered by local and state governments. It also included provisions covering public transportation other than aircraft. Title V included the requirement to update existing minimum accessibility guidelines to ensure consistency with the ADA.

In 1992, the U.S. Department of Justice issued 28 Code of Federal Regulations (CFR) Part 35, *Nondiscrimination on the Basis of Disability in State and Local Government Services*, to implement Subtitle A of Title II of the ADA (*I*). In particular, this regulation extended the prohibition of discrimination in federally assisted programs already established by Section 504 of the Rehabilitation Act of 1973 to all activities of state and local governments, including those that do not receive federal financial assistance. The regulation also incorporated specific rulings to address provisions in Titles I, III, and V of the ADA.

A provision in the regulation, 28 CFR 35.150(d), included a requirement for state and local agencies to prepare a transition plan in accordance with the following requirements:

(d) Transition plan.

(1) In the event that structural changes to facilities will be undertaken to achieve program accessibility, a public entity that employs 50 or more persons shall develop, within six months of the effective date of this part, a transition plan setting forth the steps necessary to complete such changes. A public entity shall provide an opportunity to interested persons, including individuals with disabilities or organizations representing individuals with disabilities, to participate in the development of the transition plan by submitting comments. A copy of the transition plan shall be made available for public inspection.

(2) If a public entity has responsibility or authority over streets, roads, or walkways, its transition plan shall include a schedule for providing curb ramps or other sloped areas where pedestrian walks cross curbs, giving priority to walkways serving entities covered by the Act, including State and local government offices and facilities, transportation, places of public accommodation, and employers, followed by walkways serving other areas.

(3) The plan shall, at a minimum --

(i) Identify physical obstacles in the public entity's facilities that limit the accessibility of its programs or activities to individuals with disabilities;

(ii) Describe in detail the methods that will be used to make the facilities accessible;

(iii) Specify the schedule for taking the steps necessary to achieve compliance with this section and, if the time period of the transition plan is longer than one year, identify steps that will be taken during each year of the transition period; and

(iv) Indicate the official responsible for implementation of the plan.

(4) If a public entity has already complied with the transition plan requirement of a Federal agency regulation implementing section 504 of the Rehabilitation Act of 1973, then the requirements of this paragraph shall apply only to those policies and practices that were not included in the previous transition plan.

Another provision in the regulation, 28 CFR 35.151, included the following requirements regarding new construction and alterations:

(a) Design and construction. Each facility or part of a facility constructed by, on behalf of, or for the use of a public entity shall be designed and constructed in such manner that the facility or part of the facility is readily accessible to and usable by individuals with disabilities, if the construction was commenced after January 26, 1992.

(b) Alteration. Each facility or part of a facility altered by, on behalf of, or for the use of a public entity in a manner that affects or could affect the usability of the facility or part of the facility shall, to the maximum extent feasible, be altered in such manner that the altered portion of the facility is readily accessible to and usable by individuals with disabilities, if the alteration was commenced after January 26, 1992.

(c) Accessibility standards. Design, construction, or alteration of facilities in conformance with the Uniform Federal Accessibility Standards (UFAS) (appendix A to 41 CFR Part 101-19.6) or with the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG) (appendix A to 28 CFR Part 36) shall be deemed to comply with the requirements of this section with respect to those facilities, except that the elevator exemption contained at § 4.1.3(5) and § 4.1.6(1)(j) of ADAAG shall not apply. Departures from particular requirements of either standard by the use of other methods shall be permitted when it is clearly evident that equivalent access to the facility or part of the facility is thereby provided.

(d) Alterations: Historic properties.

(1) Alterations to historic properties shall comply, to the maximum extent feasible, with § 4.1.7 of UFAS or § 4.1.7 of ADAAG.

(2) If it is not feasible to provide physical access to an historic property in a manner that will not threaten or destroy the historic significance of the building or facility, alternative methods of access shall be provided pursuant to the requirements of § 35.150.

(e) Curb ramps.

(1) Newly constructed or altered streets, roads, and highways must contain curb ramps or other sloped areas at any intersection having curbs or other barriers to entry from a street level pedestrian walkway.

(2) Newly constructed or altered street level pedestrian walkways must contain curb ramps or other sloped areas at intersections to streets, roads, or highways.

In 1991, the Architectural and Transportation Barriers Compliance Board (previous name of the U.S. Access Board) published the ADA Accessibility Guidelines (ADAAG) (2). In 2004, the U.S. Access Board published a revised version of the ADAAG as 36 CFR Part 1191 after a

decade-long process of review and update (3). In general, ADAAG (both the 2004 version and previous versions) focuses primarily on accessibility to buildings, facilities, sites, and elements (i.e., architectural or mechanical components of a building, facility, or site). ADAAG does not address requirements for public rights-of-way, with the exception of curb ramps and islands.

In 1991, the U.S. Department of Justice and the U.S. Department of Transportation incorporated ADAAG into their ADA implementing regulations, making ADAAG the enforceable standard under Titles II and III of the ADA (4). The U.S. Department of Justice issued regulation 28 CFR Part 36, *Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities*, to implement Title III of the ADA (5). The current version of 28 CFR Part 36 includes the 1994 version of ADAAG as Appendix A, *Standards for Accessible Design*. The U.S. Department of Transportation issued regulation 49 CFR Part 37, *Transportation Services for Individuals with Disabilities (ADA)*, to implement Subpart B of Title II of the ADA (6). With some modifications, the current version of 49 CFR Part 37 includes the 2004 version of ADAAG by reference to 36 CFR Part 1191.

DEVELOPMENT OF ACCESSIBILITY STANDARDS FOR PUBLIC RIGHTS-OF-WAY

In 1992, the U.S. Access Board published proposed supplements to ADAAG to address public right-of-way accessibility requirements (7). However, the transportation community expressed serious concerns about these proposed rules, including that the provisions would require substantial rebuilding of existing right-of-way structures and that the proposed rules did not properly address how public agencies develop and manage facilities in the public right-of-way (8). In 1998, the U.S. Access Board published ADA accessibility guidelines for state and local governments but decided to reserve action on several areas related to the public right-of-way pending further analysis (9).

In 1999, the Board established the Public Right-of-Way Access Advisory Committee (PROWAAC) with a charge to develop relevant ADAAG provisions and special application sections. In 2001, PROWAAC published the report *Building a True Community*, which included proposed standards for public sidewalks, protruding objects, street fixtures and furniture, sidewalk/street transitions, pedestrian street crossings, and vehicular ways and facilities (8). In 2002, the U.S. Access Board published draft guidelines for accessible public rights-of-way, based on recommendations from the 2001 PROWAAC report (10). Following a public comment and review process, in 2005 the U.S. Access Board revised the draft guidelines (11). The Board did not seek public comment on this revised draft. Instead, a Notice of Proposed Rulemaking (NPRM) will follow seeking public comment prior to publication of a final rule. Although not an enforceable standard, the Federal Highway Administration (FHWA) considers the draft guidelines—also known sometimes as *Draft Public Rights-of-Way Accessibility Guidelines (PROWAG)*—to be the currently recommended best practices in accessible pedestrian design for public rights-of-way (12).

ACCESSIBILITY STANDARDS AND REGULATIONS AT THE STATE LEVEL

States and local jurisdictions around the country have adopted their own codes and regulations on accessibility requirements and standards (13). Many states incorporate national guidelines and standards (e.g., ADAAG) by reference in their access codes. Other states have made modifications and/or additions, frequently introducing more restrictive accessibility requirements than the federal guidelines. In some cases, if there are conflicts between the state access code and the federal guidelines, the reason is that the state code has not caught up with a change in federal regulations. For example, in 2001, the U.S. Department of Justice decided to let the suspension on detectable warnings expire (14). Beginning that year detectable warnings were again required. Truncated domes are the standard design requirement for detectable warnings. However, a number of states still required other designs, such as grooves.

A finding of the literature review is that agencies have to navigate through many laws, regulations, and standards, and that it is common to have to identify and reconcile discrepancies between national guidelines and standards, state code, and local ordinances before undertaking a data collection program.

KINNEY VERSUS YERUSALIM CASE

The Kinney versus Yerusalim case in Philadelphia set a significant precedent concerning the definition of a roadway “alteration” for determining when it is necessary to program ADA requirements (15). In Kinney versus Yerusalim, a district court determined that resurfacing public streets in Philadelphia (defined as laying at least 1½ in. of new asphalt, sealing joints and cracks, and patching depressions of more than 1 in., spanning the length and width of a city block) was an alteration that affected the usability of the street and thus triggered the requirement for curb ramp installation at intersections. The significance of the case is that many transportation agencies consider relatively minor projects such as overlays as preventive maintenance projects, falling under the jurisdiction of maintenance sections and programs. Yet, those projects could be considered “alterations” according to the Kinney versus Yerusalim case. As a result, programming accessibility improvements usually involve not just regular highway construction projects but also a few maintenance projects that could qualify as “alterations.”

DESIGN GUIDES AND OTHER RELEVANT DOCUMENTATION

The body of literature related to design guidelines and criteria to address ADA requirements, including inventory procedures, forms, and training materials, continues to grow. A number of agencies have published and/or distributed relevant documentation, including the U.S. Access Board, the U.S. Department of Justice, FHWA, state departments of transportation (DOTs), cities, counties, metropolitan planning organizations (MPOs), and universities. A few relevant examples follow.

In July 2007, the PROWAAC Technical Assistance subcommittee published the report *Special Report: Accessible Public Rights-of-Way Planning and Design for Alterations*, which

provides an overview of alteration project case studies from regulatory and project development perspectives (16).

In 2006 and 2007, the U.S. Department of Justice published a best practices toolkit to assist state and local governments to improve compliance with Title II of the ADA (17). Specifically, Chapter 6 of the toolkit described requirements for curb ramps and pedestrian crossings and included a checklist to assess overall agency compliance as well as a detailed survey form to assess compliance of individual curb ramp locations (Figure 1).

Between 1999 and 2001, FHWA published a two-volume series that Beneficial Designs, Inc., prepared on the design of sidewalks and trails for accessibility (4, 18). Chapter 4 of the first volume summarized critical access characteristics and design elements for infrastructure components such as sidewalks, driveway crossings, medians and islands, crosswalks, pedestrian-actuated traffic controls, midblock crossings, sight distances, and grade-separated crossings. Chapter 11 of the second volume described a sidewalk assessment process (SWAP) to conduct sidewalk inventories and condition assessments (19).

SWAP is a modified version of a previous process for trails called the Universal Trail Assessment Process (UTAP) (20). SWAP uses several tools, such as a rolatape (i.e., a measuring wheel), a hand-held clinometer, a digital inclinometer (level), a tape measure, and a profile gauge. Critical sidewalk attributes, which surveyors can record on a stroll sheet, include grade, cross slope, changes in grade and cross slope, sidewalk design width, minimum clear width, vertical clearance, location of protruding objects, detectable warnings, and changes in level.

Separate element analysis forms enable surveyors to record attribute data for intersections, curb ramps, medians, refuge islands, and driveway crossings. As an illustration, Figure 2 shows the sidewalk assessment sheet, Figure 3 shows the intersection checklist, and Figure 4 shows the analysis form for curb ramps. More recent assessment forms are available on the Beneficial Designs, Inc., website (21). As an illustration, Figure 5 shows the curb ramp assessment form.

Curb Ramps

Construction/Alteration Date (circle one): Before 1/26/92 After 1/26/92

Facility Name/Address:	Date:
Location:	Surveyors:

Record your measurements in the blanks when they are provided. Do not circle a response for a question you are directed to skip. If your answer to a question is no, but the choices are "Y" and "n/a," circle "n/a" (not applicable).
A circled "N" signifies a violation.

Describe each curb ramp's location:	Curb Ramp D:
Curb Ramp A:	Curb Ramp E:
Curb Ramp B:	Curb Ramp F:
Curb Ramp C:	Curb Ramp G:

Refer to #	Curb Ramp (CR) Questions	Curb Ramp A		Curb Ramp B		Curb Ramp C		Curb Ramp D		Curb Ramp E		Curb Ramp F		Curb Ramp G	
		Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
1	Is ramp of CR at least 36" wide (not including flared sides)?														
2	Does CR have a running slope of 8.33% or less?														
3	Does CR have a cross slope of 2% or less?														
4	Does CR have a gutter slope of 5% or less?														
5	Are transitions on and off CR flush and free of abrupt level changes? <i>Record the height of any level changes.</i>														
6	Does CR have detectable warnings?	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
7	Can CR be blocked by legally parked cars?	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
8	Is the sidewalk at the "top" of CR at least 36" wide?														
9	Does CR have flared sides? <i>If yes, answer one of the next two questions. If not, skip to question 10.</i>	Y	n/a	Y	n/a	Y	n/a	Y	n/a	Y	n/a	Y	n/a	Y	n/a
9.a	If the sidewalk at the "top" of CR is 48" wide or more, is the slope of the flared sides 10% or less?														
9.b	If the sidewalk at the "top" of CR is less than 48" wide, is the slope of the flared sides 8.33% or less?														
10	If no flared sides, is there an obstruction or grass on each side of CR that discourages pedestrians from traveling across ramp? <i>If the CR has flared sides, skip this question.</i>	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
11	If CR is built-up to the curb, is it outside the path of cars? <i>If CR is not built-up to curb, skip this question.</i>	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Answer the last two questions only if the CR is located at a marked crossing:															
12	Is ramp of CR contained in markings?	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
13	If corner-type CR, is bottom landing at least 48" long and contained in crosswalk? <i>If not corner-type CR, skip this question.</i>														

Comments: _____

This survey form is designed to assist you in identifying common barriers to access – not all barriers. To identify all barriers, you must survey for compliance with §§ 4–10 of the ADA Standards.

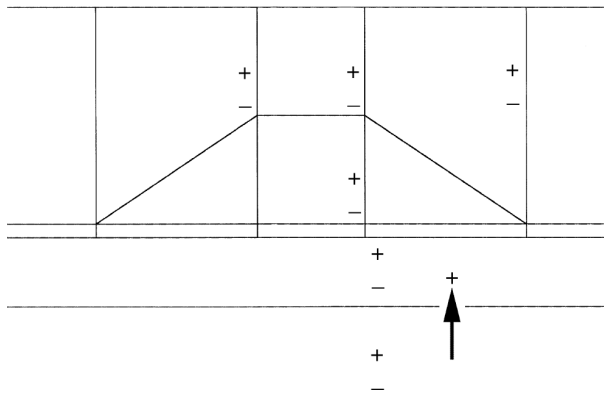
Figure 1. U.S. Department of Justice ADA Toolkit Curb Ramp Form (17).

Intersection Checklist:

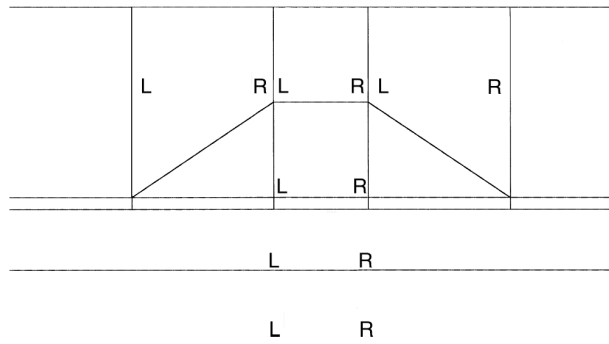
Name of primary street:	
Name of cross street:	
Total number of lanes on primary street:	
Total distance across primary street (measure with rolatape):	
Total number of lanes on cross street:	
Total distance across street (measure with rolatape):	
Are there any left turn only lanes?	yes---no
Are there any right turn only lanes?	yes---no
Is a right turn on red permitted?	yes---no
Is there a right turn island?	yes---no
Is parking permitted on the primary street?	yes---no
Is parking permitted on the cross street?	yes---no
How many corners have curb extensions (bulbouts)?	
Is there a median?	yes---no
If so, is it designed as a pedestrian refuge?	yes---no
Is it identifiable to people with vision impairments?	yes---no
Is it accessible to people with mobility impairments?	yes---no
Does the intersection have four way stop signs?	yes---no
Does the intersection have two way stop signs?	yes---no
Is the intersection signalized?	yes---no
Is there a pedestrian actuated control signal?	yes---no
Location of control:	
Information emitted: audible vibrotactile infrared	
Is there a high contrast between the button and post color?	yes---no
Is there a tactile arrow indicating the street crossing direction?	yes---no
Height of control:	
Dimension of pedestrian button?	
Is 5 lbs of force or less required to operate the signal?	yes---no
Is the crosswalk marked?	yes---no
If so, what are the conditions of the markings?	
Duration of WALK interval:	
Comments:	

Figure 3. FHWA Accessibility Intersection Checklist (18).

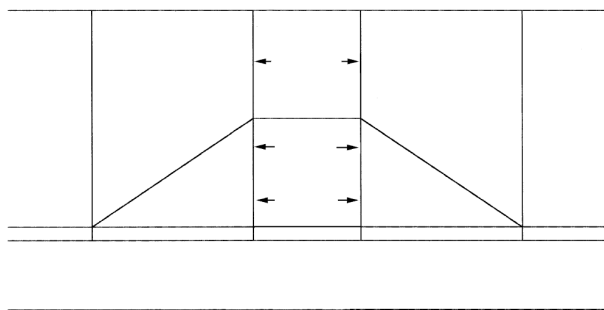
Slope Measurements in the Plus/Minus Direction



Downward Slope Measurements in the Left/Right Direction



Dimension Measurements in the X Direction



Dimension Measurements in the Y Direction

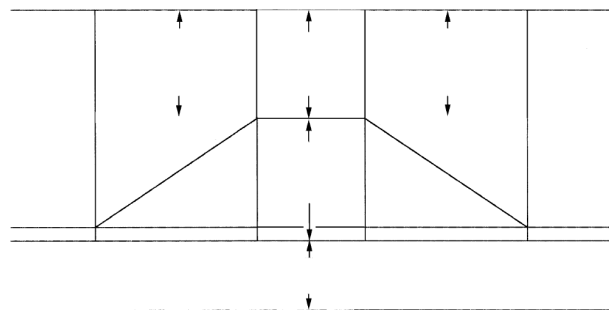


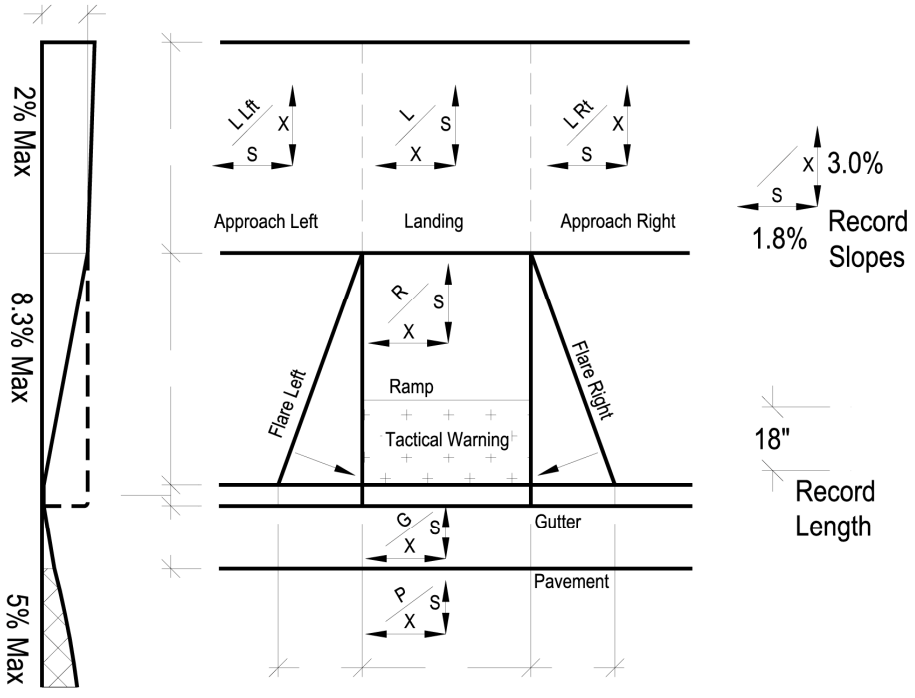
Figure 4. FHWA Accessibility Curb Ramp Element Analysis Form (18).

Curb Ramp Data Collection Form

Date _____ Data Recorder _____

CURB RAMP LOCATION

Street Name _____	Side of Street	N	S	W	E
Nearest Cross Street(s) _____	Indicate Corner of Intersection	N	S	W	E
GPS Coordinates _____		NW	NE	SW	SE
N/S	E/W	Adjacent Property Description _____			



CURB RAMP CHARACTERISTICS/SIDEWALK ELEMENTS

Include all sidewalk elements (i.e. utility pole, sign, etc.) on the drawing to indicate their position.

Digital Image taken – frame # and description _____

Record any surface height transitions over 0.25 inches using a profile gauge. Trace the transition on the back of this form, then indicate the location on drawing.

Curb Ramp Type:	Surface Material Type:	Recommended Action:	
<input type="checkbox"/> Diagonal	<input type="checkbox"/> Asphalt	<input type="checkbox"/> Repair	<input type="checkbox"/> Construct
<input type="checkbox"/> Perpendicular	<input type="checkbox"/> Concrete	<input type="checkbox"/> Reconstruct	<input type="checkbox"/> Monitor
	<input type="checkbox"/> Other: _____	<input type="checkbox"/> Other: _____	

Figure 5. Beneficial Designs Curb Ramp Assessment Form (Courtesy: Beneficial Designs, Inc.) (21).

In 2007, NCHRP published the report *Guidelines for Accessible Pedestrian Signals* in response to the call in PROWAG for the use of push button-integrated accessible pedestrian signals (APS) that provide audible and vibrotactile indications of the walk interval (22). Although the report did not address inventory issues, it did identify critical APS functions that should be included in all push button-integrated APS, regardless of intersection geometry or signalization, making these functions potential candidates for inclusion in asset inventory data collection efforts:

- pushbutton locator tone (any),
- clearly defined pushbutton that is tactually identifiable,
- tactile arrow,
- audible walk indication,
- vibrotactile walk indication, and
- ambient sound responsiveness.

In 2007, FHWA published the report *Pedestrian Road Safety Audit Guidelines and Prompt Lists* to provide guidance regarding the road safety audit (RSA) process and how to take into consideration pedestrian needs when conducting RSAs (23). RSAs are formal safety examinations of future roadway projects or existing facilities that are conducted by independent teams. All RSAs should include a review of pedestrian safety. In addition, some RSAs may be conducted to address an identified pedestrian safety problem.

The report included a knowledge base and a field manual. The knowledge base included basic RSA concepts, such as pedestrian characteristics, pedestrian crashes, and pedestrian considerations in the eight-step RSA process. The field manual included guidelines and prompt lists that provide detailed descriptions and general listings, respectively, of potential pedestrian safety issues. National standards and guidelines referenced in the report included ADAAG, the American Association of State Highway and Transportation Officials (AASHTO) *Policy on Geometric Design of Highways and Streets* (also called the “Green Book”) (24), and the FHWA *Manual on Uniform Traffic Control Devices* (MUTCD) (25). The report highlighted the role of ADAAG as a minimum design standard (i.e., the starting foundation), emphasizing that additional measures may be necessary to ensure pedestrian safety, particularly in high-use areas and situations where motorists do not anticipate pedestrian traffic. The guidelines and prompt lists reflect this philosophy by including checklists that go beyond the minimum requirements included in ADAAG.

Also related to safety concerns is the Partnership for a Walkable America’s checklist to determine potential walkability problems (26). Indirectly, the walkability checklist can enable the collection of some data elements that may be needed to address ADA compliance issues.

University of Oregon researchers developed a prototype system to measure street walkability levels. This system uses PDAs preloaded with a GIS map and a questionnaire to capture data such as sidewalk width and condition, path obstructions, and street safety or attractiveness for walking (27). More recently, the researchers modified the PDA walkability tool to include an ADA audit module (Figure 6) (28). As described in more detail in Chapter 4,

the Oregon DOT is planning to use the modified audit tool to collect curb ramp and crossing data along state highways in Oregon.

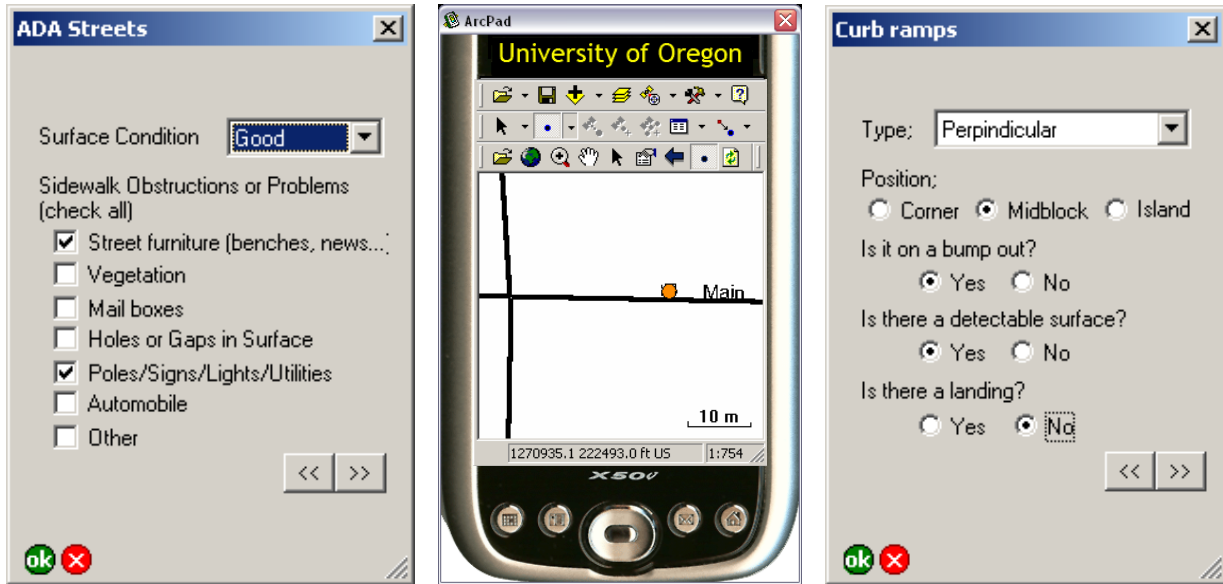


Figure 6. University of Oregon Prototype ADA Audit Module (Courtesy: Marc Schlossberg) (28).

Texas Transportation Institute (TTI) researchers developed a pedestrian accommodation/accessibility checklist document for the Texas Department of Transportation (TxDOT) to use in temporary traffic control areas (e.g., work zones) (29). The checklists provide guidance on pedestrian accommodation during the different stages of a construction project.

ADA-RELATED INVENTORY AND CONDITION ASSESSMENT EFFORTS

ADA compliance inventory and assessment efforts vary widely, from simple “yes/no” clipboard inventories of accessible elements (e.g., the presence of curb ramps) to detailed survey measurement of cross slope, grade, and vertical discontinuities. Increasingly, transportation agencies are using innovative approaches and technologies such as GIS, GPS receivers, orthophotography, PDAs, and data management systems. The sophistication of the assessments depends on several factors, including the intended application(s) of the assessment, the size and resources available to the public agency, and complaints or lawsuits.

A preliminary literature review enabled the researchers to identify a few examples of ADA inventory, condition assessment efforts, and/or transition plans relevant to this report:

- **State DOTs:**
 - Maryland State Highway Administration (MDSHA) (30)
 - Texas Department of Transportation (31)

- **Local Jurisdictions:**
 - City of Asheville, North Carolina (32),
 - City of Austin, Texas (33),
 - City of Bellevue, Washington (34),
 - City of Clarksville, Tennessee (35),
 - Cobb County, Georgia (36),
 - City of Colorado Springs, Colorado (37),
 - City of Oakland, California (38),
 - City of San Clemente, California (39),
 - City of San Antonio, Texas (40), and
 - Tucson Region, Arizona (41).

Chapter 4 describes in detail the asset inventory, condition assessment, and programming of needed improvement practices at a sample of selected agencies contacted by the researchers.

CHAPTER 3 ONLINE SURVEY PROCEDURE AND RESULTS

INTRODUCTION

The researchers developed a two-pronged strategy for gathering data from stakeholders, which included an online survey and follow-up telephone interviews. This chapter summarizes the online survey process and responses. Chapter 4 summarizes the findings from the interviews.

ONLINE SURVEY FORM

The researchers prepared a 12-question online survey form on pedestrian infrastructure data inventory practices. Because the intent was to conduct follow-up interviews, the online survey was intentionally short, designed to be completed within 10 minutes. To assist in this process, the researchers implemented the survey using a web-based survey form hosted on a TTI web server and invited the transportation community (by email) to participate in the survey. The appendix shows the online survey form as implemented on the TTI website. The researchers sent invitation emails as follows:

- State pedestrian coordinators: 50 individuals, one for each state.
- Association of Pedestrian and Bicycle Professionals (APBP) Email Listserv: 640 subscribers.
- Institute of Transportation Engineers (ITE) Traffic Engineering Council: about 545 subscribers. **Note:** The original intent was to send the email to ITE Pedestrian and Bicycle Council members. However, this council email listserv no longer exists.
- Other: 23 individuals, including representatives from the U.S. Access Board, FHWA, the National Highway Traffic Safety Administration (NHTSA), and the Pedestrian and Bicycle Information Center (PBIC).

The researchers also coordinated with the contractor in charge of NCHRP Project 20-07, Task 232, because that project also included a survey on ADA transition plans. There was some overlap between Task 249 and Task 232 in that the Task 232 survey asked high-level general questions about roadway asset inventory and condition assessment procedures in the context of updating ADA transition plans. Ultimately, the Task 249 online survey took place prior to the Task 232 survey.

ONLINE SURVEY RESULTS

The researchers received 12 responses: six responses from state agencies and six responses from city/county representatives. Although the response rate was very low, the feedback was informative nonetheless. Table 1 summarizes the results of the survey. For each

question choice provided, the table shows the number and percentage of respondents who selected that choice. The questions were not mandatory, which explains why the total of number of respondents for each question did not necessarily add up to 12.

Table 1. Online Survey Results.

Does your agency inventory pedestrian infrastructure, either as a standalone initiative or as part of a larger asset management program?		
Yes	92%	11
No	8%	1
N/A	0%	0
	Total	12

If yes, which pedestrian infrastructure types does your agency inventory?		
Curb ramps	91%	10
Sidewalks	91%	10
Crossings	82%	9
Pedestrian signals	64%	7
Transit facilities in the right-of-way	36%	4
Medians	27%	3
Refuge islands	27%	3
Signs	18%	2
Other:	18%	2
Drainage grates, pedestrian push buttons, side obstructions		
	Total	11

What pedestrian infrastructure attributes does your agency inventory?		
Sidewalk/ramp width	91%	10
Grade	82%	9
Detectable warnings	73%	8
Cross slope	55%	6
Obstacles	55%	6
Changes in grade and cross slope	45%	5
Deficiencies	45%	5
Horizontal clearance	45%	5
Condition	36%	4
Pedestrian push button characteristics	36%	4
Texture	36%	4
Vertical clearance	36%	4
Material	27%	3
Color	18%	2
Other:	18%	2
Poor drainage, separation from roadway		
Relative compliance with the Americans with Disabilities Act, not specific values (e.g., greater than or less than based on the Act)		
	Total	11

Table 1. Online Survey Results (continued).

What tools does your agency use to support the inventory?		
Clipboards	100%	11
GIS	73%	8
Digital cameras	64%	7
Relational databases	55%	6
Aerial photography	45%	5
Inclinometer	45%	5
Measuring wheel	45%	5
CAD	18%	2
PDA's	18%	2
Survey-level GPS receivers	18%	2
Video logs	18%	2
Low-end GPS receivers	9%	1
Mapping-level (1 m) GPS receivers	9%	1
Profile gauge	9%	1
Other:	18%	2
Video cameras mounted on a van		
Geodatabase and GIS based analysis		
	Total	11

Is your agency involved in the funding and programming of pedestrian infrastructure facilities?		
Yes	100%	12
No	0%	0
N/A	0%	0
	Total	12

Does your agency plan/design/construct pedestrian infrastructure facilities?		
Yes	100%	12
No	0%	0
N/A	0%	0
	Total	12

If yes, what design guidelines/tools does your agency use:		
ADA Accessibility Guidelines (ADAAG)	75%	9
Agency standards and specifications	75%	9
Local/regional/national standards and specifications	58%	7
Public Rights-of-Way Accessibility Guidelines (PROWAG)	58%	7
Other:	25%	3
Current research and FHWA Guidance		
Texas Accessibility Standards		
MDSHA's guidelines for pedestrian facilities along state routes		
	Total	12

Table 1. Online Survey Results (continued).

Does your agency measure ADA compliance of pedestrian infrastructure facilities?		
Yes	67%	8
No	33%	4
N/A	0%	0
	Total	12

Does your agency have an ADA Transition Plan in place?		
Yes	75%	9
No	25%	3
N/A	0%	0
	Total	12

Does your agency participate in the development of ADA standards?		
Yes	50%	6
No	50%	6
N/A	0%	0
	Total	12

Do you know of any other local/regional/national agencies that are involved with pedestrian infrastructure facilities and that are leaders or innovators in this field?		
Yes	11%	1
No	78%	7
N/A	11%	1
	Total	9

May we contact you at a later date for additional information?		
Yes	92%	11
No	8%	1
N/A	0%	0
	Total	12

Additional comments:		
I did an informal survey of State DOT's about a year ago. I contacted about six Ped/Bike Coordinators and found that not one agency I contacted inventoried sidewalks. No one had information about condition, gaps, issues, or problem areas and few had funding sources for sidewalk construction. I did not ask about ADA compliance.		
We collected our data back in 2000 and would do some things differently if we did it again. It was a one-time snapshot, not an ongoing inventory effort. We focused only on intersections - curb ramps primarily, but also median crossings and push buttons.		
Most of the ADA compliance is handled by our CPM division and our signal design sections, neither of which I have any management control.		
We have done extensive research in this topic and have developed a state of the art GIS system to guide the effort. I would be happy to share any of that knowledge with you.		

SUMMARY OF FINDINGS AND CONCLUSIONS

Although the survey sample size was lower than desired, the online survey findings reinforce the findings from the literature review and other similar reviews of the state-of-the-practice in this area. Those findings are as follows:

- There is a wide range and level of sophistication in the use of technology to conduct sidewalk inventories and condition assessment. The primary determining factors for the type and use of technology appear to be the agency's prior experience, available resources, and amount of infrastructure to inventory.
- With some exceptions, local agencies (e.g., city, county, regional government) appear to have more experience and/or use more advanced tools for conducting pedestrian facility inventories and assessments. The researchers hypothesized several possible explanations for this phenomenon:
 - Local agencies are typically responsible for less road mileage than a state DOT, making implementation at a smaller scale more manageable.
 - Urban roads under the jurisdiction of local agencies typically have more sidewalks, as opposed to state DOTs with many miles of rural highways that have a different set of maintenance requirements than urban streets.
 - Decision making and standard setting typically take longer in a larger agency (such as a state DOT).

Other interesting findings that were specific to the online survey include the following:

- Eleven of the twelve agencies that responded have conducted inventories of pedestrian facilities, but there is variation in the type of elements that are inventoried. Most agencies inventory sidewalks, curb ramps, and crossings. Fewer agencies inventory or survey transit stops, median refuge islands, or pedestrian push buttons.
- There are also variations in the attributes that agencies collect as part of the data collection process. Most agencies collect sidewalk and curb ramp width and grade, as well as the presence of detectable warnings. Fewer agencies collect data about cross slope, obstacles, or specific deficiencies.
- Clipboards, GIS, and digital cameras are the tools of choice for most inventories. Fewer respondents use tools such as aerial photography, inclinometer, measuring wheels, and GPS receivers.
- Only one survey respondent knew of "best practices" from another agency. This observation is an indication of the need for more active information exchange among agencies.

CHAPTER 4

INTERVIEWS AND OTHER INFORMATION GATHERED FROM STAKEHOLDERS

INTRODUCTION

The researchers contacted individuals at 14 agencies for follow-up interviews: six state DOTs (Florida, Maryland, Missouri, New Jersey, Oregon, and Texas) and eight local jurisdictions (Austin, Texas; Bellevue, Washington; Charlotte, North Carolina; Cobb County, Georgia; Colorado Springs, Colorado; Oakland, California; Sacramento County, California; and Tucson Region (Pima Association of Governments [PAG]), Arizona). Of the 14 identified agencies, it was possible to conduct six interviews as follows: four state DOTs (Florida, Maryland, Oregon, and Texas) and two cities (Bellevue, Washington and Charlotte, North Carolina). In addition, there was ample documentation about the inventory programs for Sacramento County, California, and the Tucson region, Arizona. This chapter provides a summary of the accessibility inventory programs at these eight agencies.

FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT)

Asset Data Inventory and Condition Assessment Practices

Florida has about 2,500 centerline miles of sidewalks along the state highway network. FDOT inventories pedestrian infrastructure to determine correction and/or improvement needs, either as part of the regular maintenance rating program or in response to complaints and comments from the public. With the maintenance rating program, FDOT officials determine the condition of sidewalks, intersections, and other elements on a regular basis (once or twice a year). Officials assess pedestrian infrastructure conditions using a combination of procedures that include driving and walking. In response to complaints from the public, FDOT officials verify the characteristics, issues, and needs of the specific locations of interest.

To address accessibility inventory requirements, FDOT uses a number of checklists. For ramps, FDOT uses the U.S. Department of Justice's toolkit form (Figure 1). For sidewalks and intersections, FDOT uses different forms. As an illustration, Figure 7 shows the street crossing and curb ramp assessment form. To assist in the data collection effort, FDOT uses clipboards, digital cameras, measuring wheel, and inclinometer. Practices vary across the state, with most districts conducting pedestrian infrastructure inventories using paper-based approaches.




QUESTIONS		YES	NO	✓	POSSIBLE SOLUTIONS
<p>Street Crossings / Curb Ramps</p> <p>People with disabilities should be able to use the pedestrian facilities at intersections as freely as everyone else. Street crossings and curb ramps are key components of providing safe and accessible paths of travel at an intersection where pedestrians must cross a street.</p>					
	<p>If there is a curb, does it have a curb ramp?</p> <ul style="list-style-type: none"> - Min. width of curb ramp is 36" - Max. curb ramp slope is 1:12 - Max. side slope is 1:12 - Curb must have 48" landing at top 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Install curb ramp. Modify curb ramp. Install landing</p> <p>(see Fig. 2)</p>
	<p>If pedestrians are likely to cross curb ramp laterally, are there flared sides?</p> <ul style="list-style-type: none"> - Max. side slope is 1:12 <p>If there are street furnishings or fixtures that would prohibit crossing the ramp laterally, return curbs are permitted.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Modify curb ramp. Install side slopes</p>
	<p>Does the curb ramp have a detectable warning (tactile surface)? The curb ramp texture must contrast with adjacent materials.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Add a detectable warning</p> <ul style="list-style-type: none"> - applied mat, thermoplastic Replace ramp with one with detectable warning - pattern impressed in concrete - concrete/brick pavers, tiles
	<p>Are level changes 1/4" high or less, or if beveled edge, no more than 1/2" high?</p> <p>Especially important at the bottom of curb ramps where the ramp abuts the curb & gutter and the roadway pavement</p> <ul style="list-style-type: none"> - Up to 1/4" change-in-level vertical - 1/4" to 1/2" requires 1:2 slope (max.) - Greater than 1/2" requires 1:12 slope 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>If there is a level change greater than 1/4" up to 1/2", grind or otherwise modify this edge.</p> <p>If there is a single step with a rise of greater than 1/2", add a short ramp.</p>
	<p>Does the curb ramp junction with the gutter or roadway have a reasonable counter slope?</p> <p>A counter slope of greater than 11% may catch foot rests or back rollers on some wheelchairs.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Add a 24" level landing at bottom of curb ramp.</p> <p>Reduce ramp slope to that counter slope is less than 11%.</p> <p>(see Fig. 3)</p>

Figure 7. FDOT's Checklist for Street Crossings and Curb Ramps (Courtesy: FDOT).

A lawsuit against a number of agencies in the Tampa region, including the local transit agency, the county government, and FDOT, resulted in a settlement that is changing the way those agencies address ADA requirements. As part of the settlement agreement, FDOT agreed to spend \$1.5 million over a 5-year period to correct ADA deficiencies. The other defendant agencies reached separate settlement agreements. FDOT District 7 allocates funds for every resurfacing project (around \$9,000/mi) to fix minor ADA deficiencies of existing infrastructure, (e.g., cracked sidewalks or inappropriate ramps). Capacity projects already have accessibility requirement components. To assist in the data collection and assessment process, the district uses a number of tools, including the following:

- Digital cameras equipped with GPS antennas and the capability to display latitude-longitude data on pictures. Survey crews have GPS receivers in the field.
- Basic tools, such as a smart level, tape measure and/or measuring wheel, and clipboard.
- GIS that includes a number of layers, such as stop signs, highway project alignments, and bicycle routes (county-produced with FDOT assistance). By overlaying stop signs on the highway project layer, district officials can associate stop sign and project locations. A review of project plans enables the determination of potential changes to plans.
- Video log system that includes front and lateral views, which enables district officials to review roadway characteristics quickly. The image resolution is good enough to read stop sign and bus route numbers, as well as evaluate certain cases such as substandard benches. Video logs are updated every two years.
- Tools that include drive-by video clips, such as Google Maps, to help document cases.
- Crash data, which are useful for analysis, although there are issues with the positional accuracy of the linearly referenced crash location data (1/10 mi to 1/5 mi in some cases, according to district officials).

Programming of Asset Improvements

Florida codified ADA requirements through the Florida Accessibility Code (FAC), which became Chapter 11 of the Florida Building Code (FBC) in 2003 (42). This code covers buildings, although it also includes elements such as curb ramps. FBC meets ADAAG, except that for detectable warning surfaces FBC follows American National Standards Institute (ANSI) A117.1-1986 surface requirements (exposed aggregate concrete, cushioned rubber or plastic surface, raised strips, or grooves the full width and length of a curb ramp). These surfaces are not equivalent to the truncated domes as required in the U.S. DOT modifications to ADAAG (24 in. deep and full width) (6). The discrepancy between FBC and ADAAG is an area the state is working to resolve. FDOT's standard sheets for ramps are available online (43).

Depending on the nature and location of the specific accessibility improvement need, FDOT decides whether to use maintenance funds or general project programming. Through their

maintenance program, districts handle relatively small improvement needs. FDOT handles larger improvement needs using the normal project programming process. For highway projects, ADA coordinators are involved in all phases (planning, pre-design, design, and construction). During the planning phase, FDOT conducts inventories of pedestrian facilities for need assessment purposes. Prior to letting, ADA coordinators have an opportunity to review plans and offer suggestions to make sure the plans include appropriate accessibility features. After letting, ADA coordinators may have to address questions from field inspectors and, as needed, recommend specific changes to drawings. FDOT does not conduct post-construction surveys.

Additional strategies to meet accessibility requirements include making complaint forms available on the FDOT website and providing online and offline training opportunities. FDOT inspectors have undergone training. Many contractors have also received training.

FDOT does not have a formal transition plan but believes its procedures meet the intent of ADA regulations. The FHWA Florida Division Office has commented that FDOT's "mainstreaming" of accessibility features into most/all projects meets the intent of a transition plan. Over the last few years, FDOT has seen a decrease in the number of complaints from the public.

MARYLAND STATE HIGHWAY ADMINISTRATION

Asset Data Inventory and Condition Assessment Practices

In 2006, MDSHA began a GPS/GIS-based approach for the inventory of pedestrian infrastructure in the state with a focus on limited attribute data collection and in-the-field assessment of accessibility compliance. The motivation for this data collection approach was two main trends observed during a preliminary evaluation of practices at other transportation agencies: one trend focusing on only sample data gathering and a second trend focusing on very detailed attribute data gathering (e.g., for bus stops, there was a case where the number of attributes was around 50). Prior to the new inventory initiative, pedestrian infrastructure data collection was limited to a sidewalk attribute (yes/no) associated with roadway centerline segments as part of regular annual inventory activities at MDSHA. Video log data collection supports this inventory effort.

The goal of the new data collection effort was to use field measurements to make a determination of ADA compliance "on the fly." While crews collected data for all elements, MDSHA decided only to record attribute data for non-compliant elements. At the conclusion of the initial data collection effort, the results were as follows:

- Sidewalks: 874 mi (455 mi were compliant) (**Note:** The inventory has now grown to 910 mi of sidewalks, of which 489 mi are compliant)
- Bus stops: 2617 (1,304 bus stops were compliant) (**Note:** MDSHA forwarded bus stop data to the transit authority)
- Curb ramps: 24,981 (1,412 curb ramps were compliant)
- Driveway crossings: 18,198 (4,670 driveway crossings were compliant)

- Median treatments: 1,183 (817 median treatments were compliant)

MDSHA uses a checklist (Figure 8) for the inventory and condition assessment of pedestrian facilities, which is included in MDSHA's *Accessibility Policy & Guidelines for Pedestrian Facilities along State Highways (44)*. To collect data in the field, MDSHA developed a data dictionary in Trimble Pathfinder Office, which they uploaded to handheld GPS receivers. MDSHA also created maps for field crews with indications on what sidewalks to cover in their daily inventory efforts.

After collecting data in the field, operators brought the data into a GIS environment (Environmental Systems Research Institute (ESRI) personal geodatabase in Microsoft Access .mdb format). Part of the quality control involved overlaying GPS data locations on 6-in. resolution orthophotos and adjusting locations as needed. (**Note:** Some locations around airport facilities have 3-in. aerial photography.) Quality control also included conducting spot checks to verify the accuracy and completeness of the data collected. In the future, MDSHA plans to migrate the data to an enterprise system. MDSHA is also developing a mobile GIS application to enable field crews to access the database and update records in real-time as needed. MDSHA expects this application to be operational by mid 2009.

As part of the new inventory initiative, MDSHA provided data collectors with the same level of ADA training as what MDSHA already provides for consultants, developers, and contractors. This training includes a guidebook that each individual receives and a full day of instruction.

SHA – ADA CHECKLIST

This checklist has been developed to provide an itemized list of considerations that will help the designer to determine the best possible accessible facility or route.

Sidewalk

- | YES | NO | N/A | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is the sidewalk width 5 foot (60") exclusive of curb? If no, what physical constraint(s) exist to cause a reduction in sidewalk width? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Where sidewalk width is less than 5 feet, are passing zones (60" x 60") provided at intervals no greater than every 200 feet. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is the sidewalk cross-slope no greater than 2%? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is the vertical elevation difference between adjacent surfaces no greater than 1/4" (for example stamped concrete, driveway entrances, etc.) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | If elevation differences between 1/4" and 1/2" exist are they beveled at maximum 2:1 slope? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are sidewalks adjacent to steep slopes? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | If yes, are handrails provided? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are there protruding objects located in the sidewalk (ex: utility poles, mailboxes, signal poles, signs, etc.)? |

Ramps

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are all ramps free from obstacles? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are ramps perpendicular to the curb? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are the bottoms of ramps flush with roadway? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are ramps placed at each end and in-line with crosswalk. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are ramps (not including side slopes) located at least 2 feet (measured from inside to inside of crosswalk striping) within the limits of the crosswalk striping? |

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is a level area measuring 4 feet wide by 4 feet long provided when using a ramped median? |
|--------------------------|--------------------------|--------------------------|---|

Driveway Crossing

- | YES | NO | N/A | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Where the sidewalk crosses the driveway/entrance, is the cross-slope a 2% maximum? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | At the point of crossing, is the driveway/entrance profile in fact the sidewalk cross-slope? |

Accessible Pedestrian Signals (APS) (To be developed by OOTS)

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are pedestrian signals being replaced or installed within the limits of the project? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | If yes, are Accessible Pedestrian Signals included? |

Protruding Objects

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are any objects mounted to a fixed structure between 27" and 80" above the ground? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | If yes, do the objects extend more than 12" from the fixed structure into the sidewalk? |

Miscellaneous

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is enough detail included to construct all ADA features properly? (i.e. curb elevations, etc.) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Do plans include handicapped accessible Maintenance of Pedestrian Access plans? |

YES NO N/A

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are crosswalks perpendicular to the lanes? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | If no, can they be perpendicular to the lanes? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are stop bars located a minimum of 4 feet from the crosswalk? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are pedestrian push buttons located 10 feet maximum from the curb and accessible? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are ramp running slopes no greater than 12:1? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are cross-slopes on the ramps no greater than 2%? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are side flares sloped 12:1? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is the minimum width of sidewalk ramps 40"? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is a level (max. 2%) landing area provided at the top of perpendicular and diagonal ramps? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is the landing area 60" x 60"? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Do construction notes on roadway plans include Detectable Warning Surfaces placement? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are ramps located to minimize pedestrian exposure to traffic? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are ramps located outside of sump areas where ponding could occur? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | If the project includes multi-use trails, is the ramp width equal to the width of the trail? |

Median Treatments

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is the minimum median width for pedestrian refuge 6 feet from face of curb to face of curb? If no, what physical constraint(s) exist to cause a reduction in the width? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Is a 4-foot minimum clear width for pedestrian travel provided on cut through and ramped medians? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Are median ramp slopes 12:1 maximum? |

Figure 8. MDSHA's Accessibility Checklist (Courtesy: MDSHA) (44).

Prioritization of improvement needs has involved the use of techniques such as identifying areas with the highest concentration of non-compliant locations and overlaying layers, for example government facilities, transit facilities, pedestrian accidents, and fatality data. MDSHA is beginning to explore the possibility of developing automated decision support tools in the GIS to assist in these activities. MDSHA also looks at non-compliant locations in the context of current highway project locations. To support the overall planning process, MDSHA developed an intranet application in ESRI ArcIMS that overlays consolidated transportation program (CTP) projects (which include capital projects that are proposed for construction or for development and evaluation during the next 6-year period), aerial photography, video log imagery (taken every 50 ft), and crash data (from the Maryland State Police), as well as property lines and owner data.

MDSHA's goal is to increase ADA compliance by 2% every year, as established in the MDSHA Business Plan (45). In the last two years, MDSHA went from 52% to 57% compliance.

Programming of Asset Improvements

MDSHA is responsible for ADA compliance along state routes and reports directly to the governor on these matters. MDSHA has developed a set of guidelines for pedestrian facilities along state highways (44), which follows ADAAG and additional requirements unique to Maryland (46). MDSHA has also developed design pedestrian and bicycle facility guidelines (47).

MDSHA's coordination with local and regional stakeholders includes holding meetings with the disability community on a regular basis to discuss issues, programs, and projects. MDSHA officials usually bring a laptop that has all the relevant GIS layers to facilitate the discussion to those meetings. MDSHA's program to address ADA complaint requirements includes a formal complaint procedure, a complaint/grievance form, and an ADA complaint process flowchart (45).

MDSHA schedules projects to address improvement needs through the highway project development process and through a separate ADA program that focuses on improvement needs at locations where there are not active highway construction projects. MDSHA reviews plans at least at three points in the project development process: at the end of the preliminary design phase, roughly at 50 percent design, and at the end of the design phase. All construction projects, as well as access permit applications, undergo an ADA review. In addition, MDSHA does not release bond and does not turn over a project to maintenance until a final ADA review has taken place. In general, at the conclusion of a construction project, field crews visit the site and update records, which are later merged with the inventory database in the office. Currently, MDSHA has three consultant inspection crews: two crews for construction projects and one crew for access permits.

OREGON DEPARTMENT OF TRANSPORTATION (ODOT)

Asset Data Inventory and Condition Assessment Practices

ODOT's highway asset database ties sidewalks to highway centerline segments. According to the database, there are sidewalks along 900 centerline miles of state highways. However, this is just an estimate. In reality, ODOT does not know how many miles of sidewalks there are on the network or their condition. In addition, the inventory does not track curb ramps, crossings, or other pedestrian infrastructure elements.

To address this issue, in 2006 ODOT started a new inventory of pedestrian facilities (as part of a larger initiative at ODOT that is evaluating its entire asset inventory practices). The first phase focuses on a sidewalk inventory limited to state highways within urban growth boundaries (UGBs) (48). The new inventory program started in 2006 with a pilot test in which ODOT hired college students to extract as much information as possible from existing video log data, compile the data into Excel spreadsheets, drive the highway network to validate the data, and provide feedback needed to populate the inventory in a mainframe database. At the conclusion of the pilot test, the department decided to expand the data collection to the rest of the highway network located inside UGBs. ODOT expects to complete that activity later this year. The sidewalk inventory includes data elements such as sidewalk width, condition, and material. It also tracks whether a buffer separates curbs and sidewalks and whether there are midblock crossings. The inventory does not measure running slopes. For areas that do not currently have sidewalks, ODOT has instructed the students doing the data collection to make a determination on whether sidewalks are necessary. The assessment takes into consideration several factors, including video log data observations and land use characteristics.

The video logs used for the sidewalk inventory are the same video logs ODOT already uses for its highway asset inventory program (49). The resolution of the video log data is sufficient to read elements such as street names. However, it is not adequate for quantitative measurements such as widths or slopes.

After completing the sidewalk inventory, the plan is to continue with curb ramps and crossings. Realizing that video logs are not adequate for recording curb ramp data, ODOT plans to use a modified version of a PDA-based prototype system developed at the University of Oregon (27, 28). Currently, ODOT has identified the data fields it would like to use for the inventory of curb ramps, and later this year, it expects to conduct a pilot test with University of Oregon researchers to determine the feasibility of the PDA-based approach.

Programming of Asset Improvements

Since 1971, state law in Oregon has mandated the inclusion of facilities for pedestrians and bicyclists wherever a road is built or re-built in the state (50). Because of this mandate, many roadways in Oregon have walkways. For example, most roads with curbs have sidewalks. Likewise, there are communities with more than 90% of bicycle and pedestrian facilities

complete. This level of penetration helps to generate demand for similar facilities in other areas of the state, aided by support from other segments of society (e.g., the public health community).

The determination of need for pedestrian and bicycle facilities is context sensitive and depends on factors such as type of roadway facility and local conditions (e.g., in rural areas with limited vehicle traffic, a road with narrow shoulders could be considered adequate for walking). Projects such as signal or signing improvements, landscaping, other incidental work, or preservation overlays (if the only intent of the project is to preserve the current riding surface in usable condition) do not fall under the category of building or re-building highways.

The 1995 Oregon Bicycle and Pedestrian Plan provides guidelines to ODOT, MPOs, counties, and cities for the implementation of bikeway and walkway systems; provides a history of relevant laws and regulations; and provides standards for planning, designing, and maintaining bikeways and walkways (51). The 1995 document is the fourth version of the plan (previously adopted bicycle plans were in 1984, 1988, and 1992), and the first one to include pedestrian facilities. According to this plan, in 1994 approximately 30% of urban state highways had sidewalks on both sides of the road. The plan for 2005 and 2015 was to have sidewalks on 80% and 100%, respectively, of urban state highways. The Oregon Bicycle and Pedestrian Plan also includes the criteria and rating process to select bikeway/walkway projects (Figure 9). In principle, projects are only eligible if they meet the requirements of the plan, relevant planning rules, and a recently adopted local plan. Rating criteria include system connectivity, roadway classification, intended users, potential daily usage, current conditions, compliance with ODOT standards, and relative costs with respect to other similar projects. Additional points are possible if a project provides for both bicyclists and pedestrians, reduces out-of-direction travel, or provides a connection to another mode of transportation.

ODOT has a number of strategies to program accessibility improvements, including pedestrian infrastructure elements in highway construction projects, responses to address citizen complaints, Bicycle and Pedestrian Program grants, and Safe Routes to School grants (49). The Bicycle and Pedestrian Program at ODOT provides technical assistance with designing, constructing, and maintaining walkways and bikeways; recommending design standards; and reviewing construction plans to ensure compliance with current standards and specifications (49). The program is not involved during or after the construction phase, neither with conducting inspections or updating records in the agency's asset database after construction ends. The program also reviews local transportation plans for pedestrian and bicycle compatibility as part of Oregon's Transportation and Growth Management initiative, which is a joint venture between ODOT and the Oregon Department of Land Conservation and Development (DLCD) (52).

ODOT standard drawings include details for the design and construction of sidewalks and ramps (53). The standard drawings, which ODOT revises every 6 months, are based on the state's standards for curbing (54) and the PROWAAC report (10).

Applicant: _____ **Region:** _____
Roadway: _____ **Length:** _____
Section: _____
Cost: _____ **Cost/mile:** _____

Is it the appropriate type of bicycle/pedestrian treatment for the corridor served?
 See the Oregon Bicycle and Pedestrian Plan for details.

Does the project satisfy the requirements of: (a) LCDC's Transportation Planning Rule 12, (b) the Oregon Bicycle/Pedestrian Plan, and (c) a recently adopted local plan?

A "No" answer to any of the above questions should disqualify a project from further consideration.

RATING CRITERIA: (circle relevant factors)	POINTS
1. Will it be an important part of a bikeway or walkway system? <i>Points: most direct route which links or completes a system: or essential core route which serves many users = 8; extends existing facility = 6; begins a planned system = 4; isolated project with no linkage = 2.</i>	8
2. What is the classification of the roadway being treated? <i>Points: arterial = 6; major collector = 4; minor collector = 3; local = 2</i>	6
3. Who will the main users be? <i>Points: 2 each for commuter/utility; school children; disabled; recreation/touring</i>	8
4. What is the potential daily usage (relative to projects of a similar nature)? <i>Points: very high = 6; high = 5; average = 4; fairly low = 3; low = 2; very low = 1;</i>	6
5. Current conditions: is the existing roadway a deterrent to bicycling or walking? <i>Points: (add each factor cumulatively: high = 2, moderate = 1, low = 0)</i> <i>Bikeways and walkways along roadway: ADT___; narrow___; curves___; other safety factors___ (trucks, etc._____).</i> <i>Intersection treatments: ADT___; speed___; width___; accesses, other threats___ (i.e. skew, sight distance, etc._____)</i>	8
6. Are ODOT adopted standards used? <i>Points: highest = 8; intermediate = 6; minimum = 4; below standard = 0</i>	8
7. Are the costs reasonable compared to projects of a similar nature? <i>Points: under 80% of usual costs = 6; within 20% either way of usual costs = 5; 20%-50% over usual costs = 4; 50%-100% over usual costs = 2; more than 100% over usual costs=1.</i>	6
BONUS POINTS: <i>Does the project provide for both bicyclists and pedestrians? Points = 5</i> <i>Does the project reduce out-of-direction travel? (Mostly applicable to paths) Points = 3</i> <i>Does the project provide a connection to another mode? (transit, car pool) Points = 3</i>	
TOTAL POINTS POSSIBLE = 50 (w/o bonus points)	TOTAL POINTS:

Figure 9. ODOT Bikeway/Walkway Project Rating Sheet (Courtesy: ODOT) (51).

TEXAS DEPARTMENT OF TRANSPORTATION

Asset Data Inventory and Condition Assessment Practices

TxDOT undertook a comprehensive data collection program in 2001, with a focus on intersections, including curb ramps, crossings, and pedestrian push buttons. Given the size of the state and the extent of the state-maintained highway network, TxDOT implemented a data collection program that relied on a single standardized data collection form (Figure 10) but left to the discretion of the districts how to implement data collection activities within their jurisdiction.

DISTRICT INVENTORY OF PEDESTRIAN ACCESSIBILITY AT INTERSECTIONS

District: _____ Control-Section: _____
 County: _____ Cross Street: _____
 City: _____ Corner (NW, etc.): _____
 Route: _____ No.: _____ Suffix: _____ Reference Marker: _____ + _____
 Inventory performed by: _____ Date of survey: _____

Location information — Corner is near (within 3 blocks):

- hospital or retirement home school bus/transit stop major employers
 govt. bldg., public park or public facility (library, civic center, etc.)

Comments: _____

<p>A. <input type="checkbox"/> No curb ramp</p> <p><input type="checkbox"/> Curb exists <input type="checkbox"/> Sidewalk exists <input type="checkbox"/> Pedestrian path exists <input type="checkbox"/> Curb cut exists</p> <p><input type="checkbox"/> No sidewalk or path currently exists (Skip to box C below)</p> <p>Potential construction difficulties: <input type="checkbox"/> 1) Drainage structure conflict <input type="checkbox"/> 2) Utility conflict <input type="checkbox"/> 3) Small sign relocation required <input type="checkbox"/> 4) Signal support relocation req'd <input type="checkbox"/> 5) Historic elements exist <input type="checkbox"/> 6) High curbs/elevation obstacle <input type="checkbox"/> 7) Other (please describe) _____</p>	<p>B. <input type="checkbox"/> Has curb ramp</p> <p><input type="checkbox"/> TDLR compliance certificate received for CSJ _____ (Skip to box C at left)</p> <p>Number of curb ramps: <input type="checkbox"/> Two per corner <input type="checkbox"/> One per corner <input type="checkbox"/> Serves two crossing directions (diagonal) <input type="checkbox"/> Has 48" extension into crosswalk <input type="checkbox"/> Serves one crossing direction <input type="checkbox"/> Another ramp needed</p> <p>Details for each ramp:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">RAMP 1 (N or S)</th> <th style="width: 50%;">RAMP 2 (E or W)</th> </tr> </thead> <tbody> <tr> <td>Type¹ <input type="checkbox"/> Perp <input type="checkbox"/> Parallel</td> <td><input type="checkbox"/> Perp <input type="checkbox"/> Parallel</td> </tr> <tr> <td>Grade %</td> <td> %</td> </tr> <tr> <td>Cross slope %</td> <td> %</td> </tr> <tr> <td>Width in</td> <td> in.</td> </tr> <tr> <td>Texture cont.² <input type="checkbox"/> None <input type="checkbox"/> Domes <input type="checkbox"/> Grooves <input type="checkbox"/> Aggr <input type="checkbox"/> Other</td> <td><input type="checkbox"/> None <input type="checkbox"/> Domes <input type="checkbox"/> Grooves <input type="checkbox"/> Aggr <input type="checkbox"/> Other</td> </tr> <tr> <td>Color contrast <input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Landings³ <input type="checkbox"/> Good <input type="checkbox"/> None <input type="checkbox"/> Small</td> <td><input type="checkbox"/> Good <input type="checkbox"/> None <input type="checkbox"/> Small</td> </tr> <tr> <td>Obstructions <input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Ramp lands in crosswalk? <input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Flush trans⁴ <input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Flares⁵ <input type="checkbox"/> Good <input type="checkbox"/> Steep <input type="checkbox"/> Curbed</td> <td><input type="checkbox"/> Good <input type="checkbox"/> Steep <input type="checkbox"/> Curbed</td> </tr> <tr> <td>Curb returns protected?⁶ <input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Slip resistant?⁷ <input type="checkbox"/> Yes <input type="checkbox"/> No</td> <td><input type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Potential Constraints⁸ <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td> <td><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td> </tr> <tr> <td> <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7</td> <td><input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7</td> </tr> </tbody> </table>	RAMP 1 (N or S)	RAMP 2 (E or W)	Type ¹ <input type="checkbox"/> Perp <input type="checkbox"/> Parallel	<input type="checkbox"/> Perp <input type="checkbox"/> Parallel	Grade %	%	Cross slope %	%	Width in	in.	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<p>C. Pedestrian push buttons</p> <p><input type="checkbox"/> Pedestrian push button(s) present <input type="checkbox"/> Push button not accessible from sidewalk and/or ramp <input type="checkbox"/> Button height >42" <input type="checkbox"/> Button diameter <2"</p>	<p>D. Crossings</p> <p><input type="checkbox"/> Striped crosswalk exists <input type="checkbox"/> Median/Island crossings accessible</p>																																
<p>Notes: _____</p>																																	

Instructions: If site is under construction, complete form to reflect plan information.

COMPLETE ONE FORM FOR EACH CORNER AT AN INTERSECTION

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Figure 10. TxDOT's Pedestrian Accessibility Data Collection Form (Courtesy: TxDOT).

The data collection form included fields for data elements such as district, county, city, route, control section, reference marker, proximity (within three blocks) to major activity centers, curb ramp characteristics, pedestrian push button characteristics, and crossing characteristics. For locations *with* curb ramps, the form enabled officials to bypass the curb ramp inventory if a Texas Department of Licensing and Regulation (TDLR) compliance certificate was on file for a relevant control section job (CSJ) associated with that curb ramp. (**Note:** In practice, TxDOT uses this option more often after construction has occurred as a mechanism to instruct districts that there is a previous record for that location in the database. If TDLR inspects the project, the instruction to the district has the effect of not having to re-measure the location to update the database.) For locations *without* curb ramps, the form also included fields to identify potential construction difficulties (e.g., drainage structure conflict, utility conflict, small sign or signal support relocation required, and high curb or elevation obstacle). Although including potential construction difficulties on the form seemed like a good idea, in practice the type of responses received from the field led to the conclusion that such assessments would actually require personnel with more training and expertise than what typical data collectors had.

Some districts used temporary summer employees who typically received some training but were not very knowledgeable of elements such as routes, control sections, and reference markers (which sometimes resulted in incorrect route or control section labeling); did not understand the importance or scope of the entire program; and did not understand the relative importance of several infrastructure elements within the right-of-way. Some districts used consultants (e.g., land surveyors). Other districts used district employees or TxDOT retirees. Typically, these personnel knew TxDOT processes well. Although the resulting data quality was more predictable than when external data collectors were involved, not too many districts had sufficient internal resources to undertake the data collection by themselves.

TxDOT inventoried all the intersections on the state highway system, with the exception of locations in rural areas with no curbs, sidewalks, pedestrian paths, striped crosswalks, or pedestrian-activated signals. The result was a database (currently in SQL Server) of some 121,000 corners. TxDOT also built a web-based application to enable district officials to access all the data within their jurisdiction and update the status of a particular location at the conclusion of a project. Upon request, TxDOT also provides access to the data in Microsoft Access format. The web-based application is a standalone application that does not have linkages to other information systems at the department. Division personnel can also access the database, look up individual records, and produce reports. Districts are asked to keep the database up-to-date by indicating when locations have been upgraded. In practice, this updating is sometimes difficult to accomplish due to heavy workloads and staff shortages.

In addition to the database and the web-based application, the consultant that TxDOT hired prepared a series of maps in GIS format to enable the visualization of priority levels in relation to individual corner locations. The initial prioritization plan that TxDOT developed followed a series of database queries (Table 2). For example, priority 1A was all curb ramps that had a running slope >12% and were located near major activity centers. Likewise, priority 3 was all locations where there were no curb ramps but there were striped crosswalks. In total, there were 13 priority levels. In retrospect, TxDOT officials indicated they would have chosen a

simpler prioritization scheme (e.g., high, medium, and low). Reasons that 13 priority levels were unnecessary include the fact that no corners were associated with one of the priority levels and there were a large number of intersections with corners that had different priority levels.

Table 2. Initial TxDOT Prioritization Plan (55).

Priority	Criteria
1A	Existing curb ramp with running slope >12% AND Location near hospital, school, transit stop, govt. bldg, etc.
1B	No curb ramp where sidewalk or pedestrian path exists AND Location near hospital, school, transit stop, govt. bldg, etc.
2A	Existing curb ramp with running slope >12% (NOT located near hospital, etc.)
2B	No curb ramp where sidewalk or pedestrian path exists (NOT located near hospital, etc.)
3	No curb ramp and striped crosswalk exists
4	One curb ramp per corner and another is needed to serve the other crossing direction
5A	Existing curb ramp with either running slope >1:12 or insufficient landing
5B	Existing curb ramp with obstructions in the ramp or landing
5C	Existing curb ramp with any of the following conditions: a) cross slope >3% b) width <36 in. c) no flush transition, OR Median/island crossings that are inaccessible
5D	Existing curb ramp with returned curbs where pedestrian travel across the curb is not protected
5E	Existing diagonal curb ramp without the 48" extension in the crosswalk
5F	Existing curb ramp without truncated dome texture contrast OR without color contrast
6	Pedestrian push button is not accessible from the sidewalk and/or ramp

In practice, having detailed data has enabled the department to answer certain types of questions. For example, if there is a question about why a specific curb ramp is non-compliant when all appearances are that it is compliant, officials can look up the data associated with that particular location and provide a more detailed explanation.

Programming of Asset Improvements

TxDOT addresses accessibility improvements using a variety of strategies, including the regular highway project development process, an ongoing curb ramp program that uses state funds to address the construction or replacement of curb ramps at on-system intersections for locations where highway construction projects are not programmed in the near future, and highway maintenance activities. In general, TxDOT schedules curb ramp improvements for any project that is at least a seal coat. Districts are responsible for addressing ADA complaints from the public. In practice, most complaints are in relation to projects that have just finished and the complainer believes the solution provided was incorrect or insufficient.

Most of the coordination needed to address accessibility requirements takes place at the district level through the district's bike/pedestrian coordinator. At the division level, there is some coordination with the Governor's Committee on People with Disabilities. Recently, there has been some coordination with the City of Austin to develop a video on accessible pedestrian facilities.

TxDOT has adopted PROWAG elements they feel confident will become part of the new federal standard. For example, TxDOT has now adopted 4-ft wide ramps. TxDOT also developed standard detail sheet PED-05 to detail curb ramps and other accessible features (56). In addition, TxDOT has a standard specification for sidewalks (Standard Specification 531), as well as special specifications that address specific needs for individual projects (e.g., curb ramps, landings, and retrofitting detectable warning surfaces on curb ramps) (57).

In addition to inspections by TxDOT inspectors during the construction phase, many projects are subject to inspections by TDLR (58), which is the state agency responsible for certifying compliance with the Texas Accessibility Standards (TAS) (59) and Texas Architectural Barriers Administrative Rules (60). For projects on public rights-of-way, project owners must submit construction plans to TDLR if the pedestrian elements in the project are expected to cost \$50,000 or more. TDLR then conducts a plan review and construction inspection. For every other project (e.g., hike-and-bike projects or buildings), the threshold for submitting plans for TDLR review is a total project cost of \$50,000 or more. Some elements in TAS are more stringent than ADAAG.

CITY OF BELLEVUE, WASHINGTON

Asset Data Inventory and Condition Assessment Practices

In 2006, the City of Bellevue started an ADA transition plan update that included an improvement of procedures to document existing barriers and program corrective actions. Bellevue considered a number of options for gathering data on its 336 mi of sidewalks, including traditional survey and light detection and ranging (LIDAR). Based on preliminary tests, the city concluded that the cost of using either one of these two technologies could be at least \$1 million. After evaluating other technologies, the city decided to test a modified ultra-light, slow-speed inertial profiler (ULIP) mounted on a Segway Human Transporter (Figure 11). Testing of this technology was the result of a research partnership agreement with FHWA. Based on the results of an initial test during the summer of 2007, Bellevue staff decided to use the technology to develop a comprehensive inventory of sidewalks and curb ramps throughout the city. The year 2008 is the second year of operations.

Officials used the city's existing GIS inventory on the location 336 sidewalk miles to organize the data collection. Two technicians carry out the data collection in the field: one technician who operates the ULIP and conducts the sidewalk inventory, and a second technician who rides a bicycle and uses a Topcon GMS-2 handheld GPS receiver to conduct the curb ramp inventory.

The ULIP hardware sensor box includes a displacement measurement laser (for height measurement), three accelerometers, an optical trigger, and a distance measurement instrument (DMI). The addition of a gyroscope removes remaining errors due to pitch and roll. The grade (running slope) measurement uses the gyroscope pitch angle, the mechanical layout of the ULIP and the sensor box, the position and calibration of the laser, and the measured distance from the laser to the pavement. The cross slope measurement uses the gyroscope roll. The sidewalk fault (heaving) measurement uses an inertial profile based on laser, accelerometer, and DMI data.

An attached laptop computer stores ULIP data and uses a graphical user interface for real-time data collection display. The system also produces reports and data files in text format suitable for inclusion in the city's GIS. As an illustration, Table 3 shows sample ULIP running slope, cross slope, and heaving data. The bump category thresholds are ¼ in., ½ in., and 1 in. The system enables the collection of sidewalk surface data at a rate of 6 mph.



Figure 11. City of Bellevue’s ULIP and Segway Human Transporter Equipment (*Courtesy: City of Bellevue*).

Table 3. Sample ULIP Running Slope, Cross Slope, and Heaving Data.

Sample Running Slope and Cross Slope Data				
Travel Distance (ft)	Marker Distance (ft)	Time (sec)	Grade (%)	Cross slope (%)
95.8	0.0	5.87	4.52	1.57
96.8	1.0	5.93	4.22	1.46
97.8	2.0	5.99	4.21	1.45
98.8	3.0	6.04	4.28	1.66
99.8	4.0	6.10	4.18	1.54
100.8	5.0	6.16	4.00	1.28
101.8	6.0	6.22	4.12	1.40

Sample Heaving Data			
Distance (ft)	Time (sec)	Bump Category	Bump Height (in.)
7.05	1.58	1	0.27
7.15	1.61	1	0.26
7.23	1.63	1	0.28
7.32	1.64	1	0.25
11.75	2.65	2	0.90
12.57	2.84	-1	-0.28
13.17	2.98	-1	-0.29

The system also enables operators to record video data and verbalized descriptions of obstructions that might affect accessibility (e.g., “branch,” “utility pole,” or “mail box”) by using a video camera connected to a 30 gigabyte hard disk and a Red Hen GPS encoder device. Although the unit uses a GPS receiver, it is not uncommon to lose the signal, making it necessary to rely on orthophotos and field observations to determine the location where data collection occurred.

The bicycle operator carries a Topcon handheld GPS receiver, which is equipped with a digital camera and a graphic interface with a data entry form. The positional accuracy of the GPS receiver is 1 to 3 meters. However, because the receiver can also load and display orthophotos, the operator can easily zoom in and create points associated with specific curb ramps. The spatial resolution of the orthophotos loaded on the GPS receiver is 1 ft per pixel. Table 4 shows the data dictionary loaded on the GPS receiver.

Table 4. City of Bellevue’s Data Dictionary for Curb Ramps.

Element	Options
Ramp Type	Directional Perpendicular Parallel Diagonal Construction None (indicates no ramp where ramp is needed)
Gutter Running Slope	Compliant (<5%) Non-compliant (>5%)
Gutter Cross Slope	Compliant (<5%) Non-compliant (>5%)
Transition	Free of heaves, gaps, and obstructions (yes/no)
Clear Space at Bottom	4’ x 4’ of clear space at the bottom of a diagonal ramp, within marked crosswalk (yes/no)
Detectable Warnings	A 2’ x 4’ yellow (or other high-contrast color) panel of truncated domes located adjacent to gutter transition (yes/no)
Marked Crossings	Curb ramp is wholly contained within crosswalk markings (yes/no)
Landing Slope	Landing slope does not exceed 2% in any direction (yes/no)
Landing Panel	None (non-compliant) ≥48 in. (best practices) 36–47 in. (compliant) <36 in. (non-compliant)
Ramp Width	≥48 in. (best practices) 36–47 in. (compliant) <36 in. (non-compliant)
Ramp Slope	<8.3% (compliant) 8.3%–10% (non-compliant) >10% (non-compliant)
Ramp Cross Slope	<2% (compliant) 2%–4% (non-compliant) >4% (non-compliant)
Ramp Flares	None ≤10% (compliant) 10.1%–12% (non-compliant) >12% (non-compliant)
Returned Curbs	None (if no ramp flares) Compliant (ramp is situated such that pedestrians will not walk across returned curbs) Non-compliant (returned curbs may present tripping hazard)

Lessons learned from the use of the equipment and the new data collection approach that city staff identified include the need for software debugging (particularly during the first year) and identification of the range of operations of the equipment. For example, wet pavement can affect laser readings. The equipment is also sensitive to changes in tire pressure (tire pressure is an optimization parameter in the software). The Segway tends to buck back on hilly terrain, causing the laser unit to go out of range (a valid question is whether this is a serious problem given that it is difficult to find ADA compliant elements on very hilly areas anyway).

The city is beginning to track costs associated with the operation of the system, although it is still early for definitive assessments. Several aspects of the City of Bellevue data collection program are unique to this prototype implementation and may not be easily translatable to other jurisdictions. For example, FHWA owns the equipment and the software and agreed to absorb all the costs to customize and adapt the system (including changes to hardware and software) to enable the collection of pedestrian infrastructure data (at a cost of about \$200,000). The city also negotiated with another agency to pay for the staff members who are involved in the inventory process.

A concern for city staff is the lack of guidance in ADAAG regarding distances over which to take measures in the field. The city now has the ability to collect ground data at extremely fine spatial resolution levels, but guidelines or procedures on how to derive measures at higher aggregation levels are not available. As a result, just by looking at individual data points in the city's data collection program, many elements might appear to be non-compliant. However, if averaged over a pre-established distance, say, 5 ft, it is quite possible that those elements could meet accepted standards. City staff identified a need to develop guidelines to address the issue of how to convert fine-resolution data into aggregated measures that can enable effective comparisons against the standard (or modify the standard so that it effectively includes elements such as distance).

Programming of Asset Improvements

After determining which facilities do not meet standards, the next phase will be to develop a prioritized list of improvement requirements in conjunction with the disability community and other stakeholders. The prioritized list would likely take into consideration factors such as proximity to transit, activity centers, and social services, as well as maximization of available resources by leveraging connections to other funded projects. For this effort, the city will use GIS to overlap data layers, each representing one of several characteristics, and determine the cumulative intensity of all characteristics throughout the city. In December 2007, the city conducted three informal focus groups with different segments of the disability community and intends to conduct a follow-up series of conversations over the next few months.

Once the prioritized list of improvement requirements is in place, the city will program needed implementation resources through the transition plan time horizon. The city already has a number of mechanisms in place to address needs as they arise, including sidewalk maintenance, curb ramp retrofit, and pavement overlay programs. In addition, the city incorporates ADA improvements into its capital projects and as permit conditions for development. The city also

maintains an online system and phone line that enable citizens to file requests to correct barriers (61). An ADA coordinator logs these requests and tracks their resolution. Requests tend to be concentrated in residential areas, with less than half of requests received having an accessibility component upon evaluation. The city also has a formal grievance process for ADA complaints.

The city schedules improvements to curb ramp infrastructure for any project that involves at least overlays. City officials review plan sets (e.g., at 30%, 60%, and 90% design complete) and conduct field assessments, which can result in recommendations for changes to drawings. Officials also review plans for subdivision and commercial developments. During construction, inspectors make assessments about the construction process to ensure the finished products meet the defined guidelines. The city is reviewing current practices to improve areas of communication between the various participants in the project development and implementation process to meet ADA requirements more effectively. For example, there are discussions about providing training on ADA requirements to inspectors and contractors.

In situations where PROWAG is more stringent than ADAAG, the city is using PROWAG under the assumption that those guidelines will eventually become the standard. For example, the city uses 4-ft wide landings. Transportation design standards, which include dimensions for curb ramps, driveway ramps, and sidewalks, are available online (62).

CITY OF CHARLOTTE, NORTH CAROLINA

Asset Data Inventory and Condition Assessment Practices

City of Charlotte officials determined that their inventory of pedestrian facilities was not sufficiently accurate or up-to-date. For example, according to one estimate, the city needs about 1,900 mi of new sidewalks. However, city officials are not sure about the accuracy of this estimate. Likewise, the city has approximately 1,900 mi of existing sidewalks, but there is no certainty regarding this value or the condition of the sidewalk infrastructure. To address this situation, the city has started a program to improve the quality and coverage of its inventory of pedestrian facilities. The city has just completed the development of a preliminary data model (Figure 12), which outlines general design characteristics and requirements of the data collection program. The plan is to collect data elements such as sidewalk widths, ramp locations, and ramp surface treatments. The city already inventoried pedestrian signals.

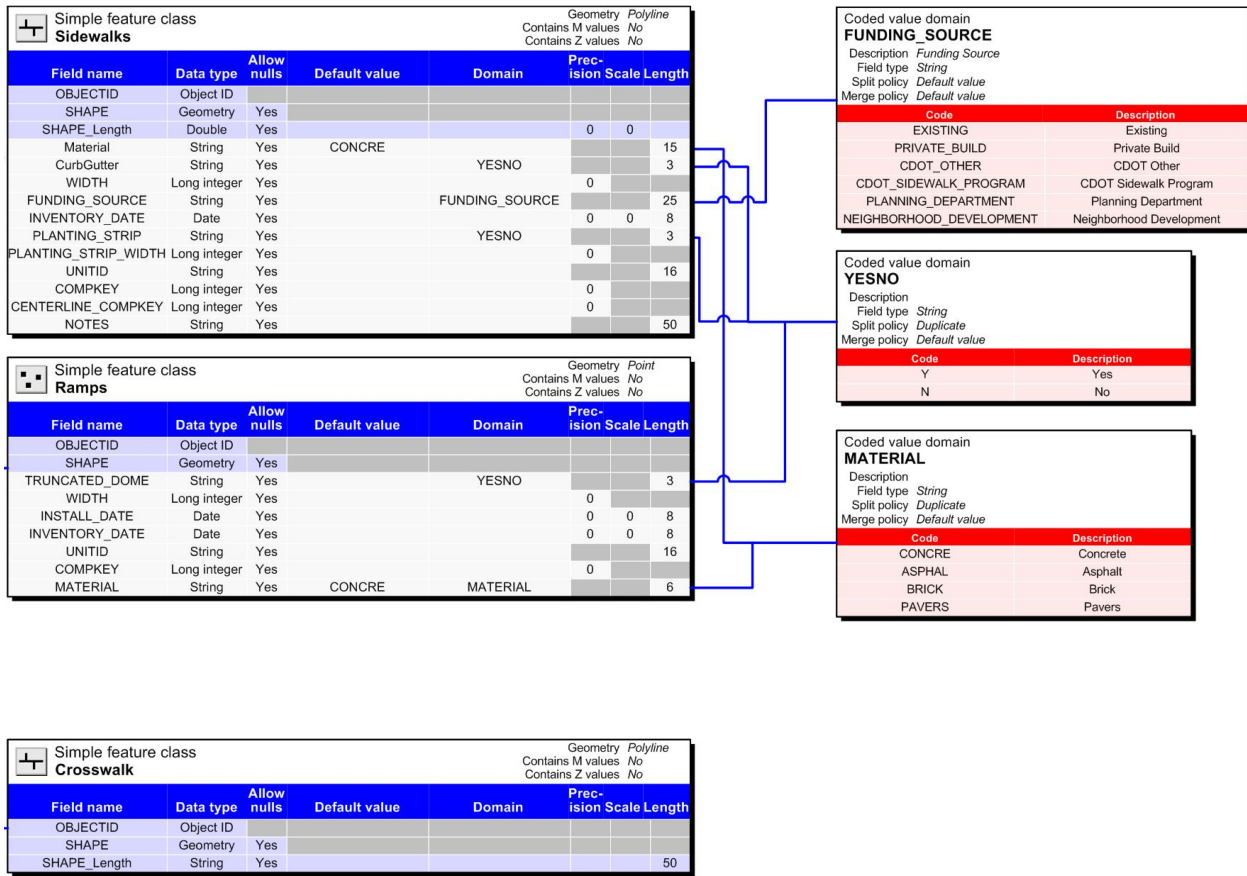


Figure 12. City of Charlotte's Preliminary Data Model (Courtesy: City of Charlotte).

The second phase, which should start within the next few months, will involve collecting data at sample locations in the field using two different methodologies: a Segway Human Transporter and orthophotography. Orthophotography has been part of current data collection procedures in the region for years. The city and Mecklenburg County have a program to collect aerial imagery over the entire county approximately every 2 years. Staff has access to 1/2-ft pixel resolution imagery. In addition to orthophotos (which are available to both government agencies and the public), city officials have access to high-resolution oblique photography to assist in situations where sidewalks are not visible on the orthophotos. This data resource is only available to city officials. The city does not have a video log program to support asset inventory activities.

Programming of Asset Improvements

The City of Charlotte's Sidewalk Retrofit Policy outlines the city's plan to rank, add, and improve pedestrian infrastructure (63). The city also has a strategic plan that recommends developing a pedestrian master plan, street design guidelines, a new methodology for pedestrian level of service at controlled intersections, and pedestrian mid-block crossing guidelines. Sidewalk project prioritization uses a variety of criteria, including roadway and pedestrian infrastructure characteristics, connectivity, proximity to activity centers, and funding availability. Table 5 shows the City of Charlotte's sidewalk prioritization categories.

Table 5. City of Charlotte’s Sidewalk Prioritization Categories (63).

Factor	Tier 1	Tier 2	Tier 3	Tier 4
Functional Class [Average Annual Weekday Traffic (AAWT)]	Thoroughfares (all criteria) [Varies]	Locals and collectors (all criteria) [>3,000]	Locals and collectors near school or park (four criteria) [1,000–3,000]	Locals and collectors (all criteria) [<3,000]
One side/both sides	One or both sides to be determined by staff	One side to be determined by staff	One side to be determined by staff. Staff will also identify critical adjacent streets that comprise the key route network to park or school. The network will be considered one single project.	One side to be determined by design constraints and neighborhood input
Identified by *	Staff	Staff	Staff	Residents and/or property owners
% neighborhood support required to be ranked	None	None	None	25% support of property owners or tenants on both sides of the street maximum of two signatures per lot or dwelling unit)
Public Input	Typically no public meeting	Typically no public meeting	Public information meeting held when project nears top of ranking list; residents given various opportunities to provide feedback regarding design issues, other comments	Public information meeting held when project nears top of ranking list; residents given various opportunities to provide feedback regarding design issues, other comments
Public notification	Both sides of street (4 communications typical-before survey, during design process, real estate notification, construction notification)	Minimum of both sides of the streets and HOA notification (4 communications typical-before survey, during design process, real estate notification, construction notification)	Notify all properties within ¼ mile and HOA (for public meeting and notification of construction)	Prior to public meeting, notify both sides of street of meeting. If subsequent petition submitted meets requirements and project is funded, both sides of street notified. (4 communications typical-before survey, during design process, real estate notification, construction notification)
Ranked by	Staff	Staff	Staff	Staff
Ranking Criteria	All	All	AAWT, Proximity to Park, Proximity to School, School Type	All
% neighborhood support/petition required for construction	N/A	N/A	N/A	A petition requiring at least 60% of all property owners on both sides of street is required (after public meeting). Tenant signatures are not counted as part of this process. 90 days allowed for petition to be completed.
Notes	When ranked highly and funded, moves forward due to safety concerns	When ranked highly and funded, moves forward due to safety concerns	When ranked highly and funded, moves forward due to safety concerns	Constructed within a clearly defined time frame; petition form supplied by city with key details to minimize project misinformation

* Residents may contact staff regarding streets in any tier, however, only the fourth tier has a formal process for citizen requests.

The city adds pedestrian infrastructure through several mechanisms, including a sidewalk program, roadway projects, land development requirements, and state participation. The sidewalk program, which is part of the capital improvement program, operates on a \$5 million budget to build sidewalks on existing thoroughfares, collector streets, and local streets. The policy is to add at least 10 mi of new sidewalks every year. The city also participates in the cost of construction of sidewalks identified through the city's Neighborhood Reinvestment Program. The city adds sidewalks on all roadway construction projects within the City of Charlotte. The current plan is to add sidewalks on one side of local and collector streets and on both sides of thoroughfares. In the case of land development, the city's role is to coordinate and regulate the construction of sidewalks. Land developers and/or property owners absorb the cost of construction of sidewalks. The city and the North Carolina Department of Transportation (NCDOT) also have an agreement for the construction of sidewalks on state highways, in which the city and NCDOT share the cost of construction of sidewalks if NCDOT initiates the project. The city absorbs the cost if the city initiates a sidewalk project on a state highway.

In 2007, the city completed the development of the *Urban Street Design Guidelines* as a mechanism to provide information on acceptable, desirable design practices for the urban street design environment, as well as information on how to apply the guidelines and how to use specific design features for different types of streets (64). The guidelines include a procedure for the determination of pedestrian and bicycle levels of service at signalized intersections. The guidelines also include information about pedestrian infrastructure requirements.

TUCSON REGION, ARIZONA

Asset Data Inventory and Condition Assessment Practices

The Pima Association of Governments, Tucson region's metropolitan planning organization (MPO), conducted an initial sidewalk inventory in 2003 (65). PAG conducted the sidewalk inventory to identify areas with deficient or no sidewalks and to prioritize new sidewalk improvement projects. The Tucson inventory included about 4,000 directional miles of arterial and collector streets and took place over a 10-month period. The inventory also included shared use paths, as most paths are parallel to arterial streets and accommodate pedestrian travel. PAG inventoried sidewalks on a ½-mi to 1-mi road segment or between major intersections. A future phase will include an inventory of local streets to identify neighborhood-scale sidewalk needs.

PAG used a variety of tools to conduct the inventory. First, they used local staff knowledge to identify roads without sidewalks since about 25% of roads are rural roads without basic design elements like curbs and sidewalks. Then they used digital orthophotos in the office to inventory many of the remaining streets in the Tucson region. On some urban streets, the digital orthophotos did not provide a clear view of the sidewalk and roadside area. In these cases, officials checked the Tucson DOT's video log for a better horizontal view. Finally, surveyors went to the field to gather inventory data at obstructed locations and to verify the inventory in certain growth areas. The final step involved importing the data collected into a GIS to assist in future project development and prioritization activities.

PAG classified sidewalk segments in four status categories:

- Sidewalk (Accessible): continuous sidewalk segments on both sides of the road (unless one side is entirely undeveloped) that appear to be accessible for persons with disabilities.
- Sidewalk (Partially Accessible): continuous sidewalk segments on both sides of the road that appear not to be accessible (e.g., because there are no ramps, the sidewalk is too narrow, slopes are too steep, or there are permanent pathway barriers).
- Partial Sidewalk: sidewalk segments for only a portion of the entire length of the roadway segment or only on one side of the roadway with existing development. In these cases, the sidewalk segment is considered not accessible.
- Shared-Use Path: designated asphalt or concrete-paved pathways shared by pedestrians, cyclists, and other non-motorized users. (**Note:** All shared-use paths are considered accessible for persons with disabilities.)

Programming of Asset Improvements

The goal of the PAG inventory effort was to include sidewalk improvements into short-range and long-term transportation plans. To support this goal, PAG staff developed a ranking system to prioritize the sidewalk segments, based on a 100-point scale using nine criteria:

- annual average daily traffic: 10 points
- transit ridership: 10 points
- population density: 10 points
- commercial land use within ¼ mi: 15 points
- schools within 1/3 mi: 15 points
- parks and recreation within ¼ mi: 10 points
- medical within ¼ mi: 10 points
- ADA eligible rider density: 10 points
- local priority/safety: 10 points

Many highly ranked sidewalk projects were funded through an annual capital improvement program. Other sidewalk projects were included in future roadway reconstruction projects.

SACRAMENTO COUNTY, CALIFORNIA

Asset Data Inventory and Condition Assessment Practices

The Sacramento County DOT began developing an ADA transition plan in 2002. The plan only covered the unincorporated areas within Sacramento County, which includes both developed and undeveloped areas with a wide variety of pedestrian infrastructure. The inventory

survey covered about 2,200 mi of streets (11,000 intersections or 45,000 street corners) over a 5-month period.

The inventory involved 23 data collectors. Each surveyor received at least 80 hours of training on equipment, data collection methods, and ADA principles and standards. The main tools used by the surveyors included GIS-enabled PDAs, digital cameras, tape measures, smart levels, clipboards, and notepads. Table 6 summarizes the data collection elements included in the PDAs. For the inventory, the county classified roads into three priority levels (high priority, medium priority, and low priority) based upon several criteria, including functional classification, adjacent land uses, geographic equity, high pedestrian crash locations, and locations with the greatest potential to serve pedestrian travel. More detailed inventory procedures and measurements were used on high priority locations, whereas a simpler survey and visual inspection were used on lower priority locations.

Part of the inventory effort involved combining and resolving conflicts and differences between the national guidelines (at the time it was ADAAG), California state law, and Sacramento County policies and standards.

Programming of Asset Improvements

One of the primary purposes of the sidewalk inventory was to develop a capital improvement program devoted to sidewalk, curb ramp, signal retrofit, and other types of pedestrian improvement projects. The county designed the asset inventory and condition database to facilitate the production of prioritized improvement lists and maps, as well as several types of summary reports.

The county assigned priorities to improvement projects based largely on existing agency policies, as follows:

- **Use Priority A (Public Input Requests):** requests made by the public for accommodation (also known as public complaints).
- **Use Priority 1 (State and Local Governmental and Public Use):** areas located within the public right-of-way that abut or serve public and governmental agencies and offices.
- **Use Priority 2 (Public Accommodations):** areas located within the public right-of-way that abut or serve public accommodations that are privately owned, including hospitals, shopping malls, housing/apartment complexes, and major employment sites.
- **Use Priority 3 (Low-Density Residential and Other Uses):** areas located within the public right-of-way that abut or serve single-family residential areas, industrial areas, and other areas not falling into the above priority groups.

Within each priority category, the county used a condition priority to rank projects based on the urgency of improvement, as follows:

- **Condition Priority 1:** locations where existing curb ramps have an unsafe condition that may cause a trip and fall. Examples are vertical displacement of the curb ramp, steep side slopes, and deteriorated conditions.
- **Condition Priority 2:** locations where there is no curb ramp to provide accessibility.
- **Condition Priority 3:** locations where a corner has one existing curb ramp and conditions allow for the construction of an additional curb ramp at the same corner, provided that traffic controls allow for a safe path of travel (only applies to intersections on arterial and thoroughfare streets).
- **Condition Priority 4:** locations with difficult physical conditions, such as major utility conflicts, physical barriers, or other constraints, that would create a hardship situation on the entity.
- **Condition Priority 5:** other locations that do not meet current federal and state accessibility standards (i.e., steep slopes, improper landings, and lack of detectable warnings). In general, lower priority is given to locations with elements that are closer to the required values (e.g., the lower the slope, the lower the priority).

Current Sacramento County DOT policy also includes priorities and evaluation criteria based upon pedestrian usage. A point system evaluates criteria such as proximity to facilities for the disabled, proximity to key facilities, density, and access to public transit. The policy also contains mobility evaluation criteria.

Table 6. Sacramento County Data Collection Elements.

Element	Comment
Crosswalks	Whether crosswalks are present at any or all crossings. If present, the width, type, alignment, presence of tactile guidestrips, presence of islands, and disabled access.
Curb Ramps	Whether existing curb ramp(s) are present at any of the corners within the intersection.
Directional Corner of Intersection	NE, SE, SW, and NW. (Note: All corners will be referred to by one of these compass points. If the street is not perfectly aligned north and south, the direction will be assigned within the nearest 45 degrees.)
Intersection Geometry	Whether the intersection is standard right angle, T-shaped, Y-shaped, skewed, or any other irregular geometry. Whether there are pedestrian island(s) or right turn lanes.
Islands	If present, then presence of curb ramps and push buttons.
Obstructions and Obstacles	The general presence and nature of abrupt changes in sidewalk level of greater than ½-in., paving obstructions, or accessibility obstacles immediately adjacent to the corner. The following obstacles near a corner will be recorded: utility pole, traffic light pole, drain inlet, fire hydrant, street furniture, and newsstand.
Pedestrian Signals	Whether visual or accessible pedestrian signals are present. If present, the type, size, height, and location of actuator buttons. The location parameters are “at curb,” “on landing,” “on ramp slope – arm length,” and “on ramp slope – not arm length.” Another location question asks if the pedestrian push button is parallel to the crosswalk alignment.
Sidewalk Present	Whether a sidewalk leading to and from the curb is present. If present, the paved sidewalk width at the intersection.
Tactile Guidestrips	Whether tactile guidestrips are present at any crosswalk. If present, the location, height, width, and color of the tactile guidestrips.
Traffic Control	Whether traffic signals, stop signs (all way vs. two-way vs. one-way), yield control, roundabout, or no control.
Transit Stop Type	The parameters of the transit stop type are none, light rail, bus, and other.
If a curb ramp is not present at a particular corner, the following data were collected:	
Curb Type	Whether a curb is present, and if present, the type (vertical or rolled).
Flush Corner	If there is no curb, whether a flush transition from the street to the sidewalk is present.
If a curb ramp is present (either one or two at a corner), the following data were collected for each curb ramp:	
Car Obstruction	Curb ramp not located so that it could be obstructed by parked vehicle.
Common Landing	Dimensions of any common landing for two curb ramps.
Curb Ramp Type	A general description of the curb ramp: flared, pan, chute, blended corner, or built-up.
Detectable Warnings/Truncated Domes	Whether truncated domes are present. If present, the dome location, size, type (e.g., plastic, concrete, concrete tile, brick, or other), and color. Truncated domes are placed at level landings to alert visually-impaired individuals of a transition between the sidewalk and the street or railroad tracks.
Grooved Border	Whether a 12-in. grooved border around all sides is present and its width.
Gutter Slope	Slope in percent of the gutter or street transition.
Lip	Whether a lip is present at the bottom of the curb ramp, and if present, the height to the nearest ¼ in.
Location in Crosswalk	Curb ramp wholly contained in marked crosswalk, if applicable.
Main Slope	Main slope of the curb ramp or level landing in percent adjacent to and perpendicular to the street.
Main Cross Slope	Cross slope of the main slope of the curb ramp or level landing, parallel to the street. The cross slope is perpendicular to the main slope of a curb ramp.
Side Slope(s)	Whether a side slope or parallel slope is present, and if present, the slope of each sloping side or flare parallel to the street in percent.
Slip-resistant Surface	Whether or not the surface is slip-resistant.
Street	Street the curb ramp is facing, or if facing the intersection (diagonal).
Top Landing Depth	Whether a 48-in. deep level landing is provided at the top of the curb ramp or at the top of each slope of a parallel curb ramp.
Transition Slope	Slope of the transition to the sidewalk, verifying slope of 5% or less for the right and left sides.
Width	Width of the curb ramp or pan. A pan or level landing exists when there is a lack of vertical separation between the sidewalk and the street.

CHAPTER 5 SUMMARY OF PRACTICES

CONCLUSIONS

The goal of this study was to gather and identify best practices for assessing ADA compliance in three main areas: 1) asset data inventory, 2) asset condition assessment, and 3) asset improvement programming. To achieve this goal, the researchers conducted a literature review of practices, conducted an online survey to assist in the stakeholder identification process, gathered sample documentation, and interviewed officials from a sample of state and local agencies.

A review of the documentation gathered and feedback received led to the following conclusions:

- **The identification of “best practices” depends on the agency context in which the practices are to be implemented.** In other words, one size does not fit all. For example, the researchers identified several agencies that use sophisticated systems to automate and streamline data collection, summary, and presentation of pedestrian infrastructure data. This is a best practice for agencies that have the necessary technical and institutional resources to implement and maintain those systems. In contrast, for agencies with fewer resources, a sophisticated system may quickly overwhelm agency staff and resources. For those agencies, a relatively simple paper-based or PDA-based approach would be a best practice.

Closely related to this observation is the realization that existing laws and regulations provide considerable flexibility regarding the identification of physical obstacles that limit accessibility to individuals with disabilities. In other words, the standard for what constitutes acceptable practice (and, by extension, what could become a best practice) regarding data collection, condition assessment, and programming of needed improvements varies considerably and is subject to interpretation. For example, 28 CFR 35 Part 150(d) focuses on the requirement to include a schedule for curb ramps in transition plans, which could be interpreted as meaning that transportation agencies should focus on curb ramps first, both for inventory and for improvement programming purposes. At the same time, the regulation also includes the requirement for transition plans to identify physical obstacles that limit accessibility to individuals with disabilities, but it does not say that the inventory should be comprehensive from the beginning. This flexibility enables agencies to develop data collection, assessment, and improvement programming initiatives in a way that fits their current capabilities and limitations.

- **The study identified a few data collection strategies and programs worth noting:**
 - *Using existing aerial photos or agency video logs as a screening tool and to focus resources.* Several agencies used aerial photos or video logs to identify the presence or absence of sidewalks, as well as to identify those streets/sidewalks on which additional field data collection was required.

- *Developing user-friendly data collection forms or input screens.* In addition to training data collection personnel, having easy-to-use, understandable forms will improve the quality and consistency of asset inventory and condition data. This report documented several examples of user-friendly forms that can be used as-is or modified to suit specific agency needs.
 - *Using PDA-based tools to automate information workflow.* Several agencies have used PDA-based tools to increase data collection efficiency and reduce data collection and transcription errors. In many cases, these tools allow the data collector to specify the location of interest (e.g., based on the agency’s linear referencing system, by clicking a point on a background orthophoto image, or by using a GPS-enabled PDA) and then go through various checklists with drop-down menus (which are preferable and more efficient than simple text boxes). These PDA-based tools will have a clearer advantage in locations with extensive pedestrian infrastructure to inventory.
 - *Involve the agency’s information technology group in designing data collection activities to ensure appropriate integration with other existing systems at the agency.* Although it may be tempting to bypass this group to expedite data collection, the end result may be another “stovepipe” database that cannot easily be incorporated into standard agency practices and procedures. In particular, the use of formal data models and database and system design protocols is critical in order to ensure robust, scalable applications.
- **Having observers with adequate ADA training collect sufficient data and assess accessibility compliance levels in the field is a best practice.** The complex nature of standards and requirements related to accessibility is such that trained observers viewing a particular site directly will typically be in the best position to assess accessibility compliance levels. In some cases, it may be necessary to review additional documentation later in the office. However, several agencies indicated it was more difficult to assess compliance later in the office when reviewing hand-written field notes, digital photographs, or other electronic data.

Using properly trained personnel is also a critical requirement for quality purposes. In general, relying on personnel without proper ADA training who, in addition, do not understand or share the requirements, objectives, procedures, and expected outcomes of the data collection effort tends to have a detrimental effect on the quality of the finished product. Properly trained personnel are particularly critical in situations where the data elements being collected in the field are relatively simple, making the accessibility compliance determination “on the fly” critical.

Efforts such as those at the City of Bellevue, Washington, that rely on the collection of large datasets at extremely fine spatial and temporal disaggregation levels have the potential to significantly automate the identification of non-compliant locations in the field. For such data collection approaches to fulfill their potential, it would be necessary to develop algorithms and procedures that aggregate the data at manageable levels. Those algorithms and procedures could be used at the office while post-processing the

raw field data. However, they could also be used to enable the detection of out-of-compliance situations “on the fly,” (i.e., while the data collection is taking place).

- **Integrating ADA requirements into the project development and delivery process is a best practice.** For example, one of the state DOTs interviewed indicated that they did not have a formal “transition plan” document, yet they believe they have met the full intent of ADA by integrating ADA requirements and standards throughout their project development process and delivery, from initial concept and scoping to final design to construction inspection. This same agency has been proactive about implementing ADA requirements since the early 1990s by training their employees, regularly updating their procedures, and participating in the development of guidelines for implementing ADA in the public right-of-way. At another agency, updates are underway to all of their project development guides to ensure that ADA requirements are adequately addressed.

Best practices involving the integration of ADA requirements into the project development and delivery process include the following:

- *Ensure that ADA requirements and standards are fully integrated into all of the agency’s policy, planning, and design handbooks or manuals.*
 - *Ensure that all district planning and engineering staff (and not just an ADA coordinator) have the required training.* Because of evolving ADA standards and employee turnover, periodic offerings of training will be necessary.
 - *Ensure that ADA improvements can be funded through a variety of funding programs/sources.* For example, nearly all agencies surveyed made ADA improvements through standard construction/reconstruction projects. For relatively small improvement needs, most agencies used a maintenance budget. In other cases, if an improvement need could not be included in a maintenance budget and there was an active construction project, several agencies budgeted a separate and distinct funding category specifically for ADA improvements.
- **Prioritizing inventory and improvement programming resources to focus on the most critical locations is a best practice.** Many agencies used a priority ranking system for their inventory data collection as well as their capital improvement programming. The priority ranking systems were typically based on importance (e.g., functional class of the roadway), adjacent land uses (e.g., public versus private facilities, high versus low pedestrian traffic), and the urgency of the improvement based on its condition. In some cases, the inventory process factored the priority ranking by collecting the most detailed and comprehensive data on high-priority road segments, while at the same time collecting simpler or less detailed data on lower-priority road segments.
- **Designing inventory data collection programs and data archival systems to support improvement programming activities is a best practice.** The primary goal of an inventory effort to support the ADA compliance process is to enable the development of a prioritized list of improvement projects that can be incorporated into agency programs and budgets. GIS tools can be very helpful for determining priorities for improvements and displaying the corresponding locations on a variety of mapping interfaces.

At the same time, agencies should not lose sight of the fact that data collection efforts require the use of valuable, scarce resources. As a result, while addressing ADA requirements is a fundamental objective, a best practice would involve incorporating appropriate integration points with other data collection efforts and systems at the agency or region to ensure a more cost-effective, enterprise-wide use of resources. Ignoring those integration points can result in redundant data collection efforts, incur additional costs and implementation delays, and contribute to the perpetuation of stovepipe systems that do not enable effective data exchange and management.

From this perspective, structuring pedestrian infrastructure inventory databases purely as a mechanism to identify improvement needs can have the unintended effect of producing databases that only show locations where there are improvement needs at a specific point in time. Such databases tend to decrease in size over time and have a limited long-term value for asset management purposes. Under these conditions, it would be preferable to implement asset data collection programs that capture data about all assets, *including* those with ADA improvement needs to ensure that both general asset management requirements *and* accessibility compliance inventory requirements are met. The resulting inventory data collection and management system would enable agencies to incorporate asset updates (e.g., after building or re-building sidewalks or after collecting new or more detailed inventory) into the system.

- **Developing user-friendly web sites that provide comprehensive information is a best practice.** The researchers identified a few cases where the agency’s website provided adequate information about laws and regulations, asset inventory activities, long-term and short-term projects, funding initiatives, complaint procedures, and community outreach. Such strategies help the agency to fulfill its mission and facilitate the development and implementation of programs as well as the interaction with the appropriate stakeholders.

INVENTORY ELEMENTS TO ADDRESS ACCESSIBILITY REQUIREMENTS

From the review of practice, the researchers compiled an extensive listing of asset inventory and condition data elements (see below). The listing is intended as a preliminary menu that agencies could use as a foundation to develop inventory programs that meet individual agency needs. **Note:** An actual inventory program would logically include formal user need and data modeling phases to characterize data elements more precisely.

General Survey Data

- Surveyor name(s)
- Survey date
- Survey/intersection location
 - District, county, city, street name, and nearest cross street
 - Agency linear referencing identifier

- Coordinates
- Construction/alteration date: before 1/26/1992, after 1/26/1992
- Adjacent property/land use description
- Intersection geometry description: standard right angle, T-shaped, Y-shaped, skewed, other irregular geometry
- Traffic control: traffic signals, stop signs (all-way, two-way, one-way), yield control, roundabout, or no control
- Transit stop present, and if so, type: light rail, bus, none

Pedestrian Signal and Actuator Button Data

- Type of pedestrian signal: visual or accessible
- Is actuator button accessible from sidewalk or ramp? reach distance to button?
- Is actuator button parallel to crosswalk alignment?
- Type/manufacturer/model of actuator button
- Location of actuator button: at curb, on landing, or ramp slope-arm length, on ramp slope-not arm length
- Size/diameter of button (>2 in.)
- Height of button (<42 in.)
- Clear level landing at button (30 x 48 in.)

Sidewalk Data

- Is route of travel stable, firm, and slip-resistant, even when wet?
- Is the route at least 36 in. wide and clear of obstructions?
 - Route can be as narrow as 32 in. at a point not exceeding 24 in. wide, such as a utility pole, etc.
- Does the path of travel have a cross slope of 1:50 (2%) or less?
- Are level changes ¼-in. high or less, or if beveled edge, no more than ½-in. high?
 - Up to ¼-in. change in level vertical
 - ¼ in. to ½ in. requires 1:2 slope (maximum)
 - Greater than ½ in. requires 1:12 slope
- Can objects protruding into the circulation paths be detected by a person with a visual disability using a cane?
 - In order to be detected using a cane, an object must be within 27 in. of the ground. Objects hanging or mounted overhead must be higher than 80 in. to provide clear head room. Objects that protrude less than 12 in. from a post may remain.

Curb Ramp Data

- Location
 - Directional corner of intersection: NE, SE, SW, NW

- Coordinates
- Corner refuge island
- Median refuge island
- Are curb ramp(s) present at this corner? If so, describe type: diagonal (corner), perpendicular, flared, pan, chute, blended corner, built-up, other.
- If no curb ramps are present at the corner:
 - Is a sidewalk present?
 - Is a pedestrian path present?
 - Is a curb cut present?
 - Is a curb present? If so, type: vertical, rolled
 - If there is no curb present, is there a flush transition from the sidewalk to the street?
- Can curb ramp be blocked by a legally parked vehicle?
- If type is a built-up curb ramp from street to sidewalk, is it outside the path of vehicles?
- Is the surface of the curb ramp slip resistant?
- Is a marked crosswalk present? If so, what is the width?
- If a marked crosswalk is present, does the curb ramp land in marked crosswalk?
- Detectable warning surfaces
 - Type and material: truncated domes, grooves, plastic, concrete, concrete tile, brick, other
 - Location with respect to ramp
 - Width (specify dimensions and whether full width) and depth of detectable warning surface
 - Truncated dome size and spacing: 0.2 in. (height), 0.9 in. to 1.4 in. (diameter), and 1.6 in. to 2.4 in. (center-to-center spacing)
 - Color: does detectable warning have an acceptable contrasting color?
- Curb ramp dimensions and slopes
 - Width, not including flared sides (3 ft minimum)
 - Running slope (8.33% or less)
 - Cross slope (2% or less)
 - Gutter slope (5% or less)
 - Flush transitions at sidewalk and gutter? (record the height of any level changes)
 - Top landing depth (36 in. minimum)
- If the curb ramp has flared sides:
 - If the top landing depth is 48 in. deep or more, is the slope of the flared sides 10% or less?
 - If the top landing depth is less than 48 in., is the slope of the flared sides 8.33% or less?
- If the curb ramp does not have flared sides, is there an obstruction or grass that discourages pedestrians from traveling across the curb ramp?
- If the curb ramp is a corner type, is the bottom landing at least 48 in. long and contained in the crosswalk?
- Are obstacles or obstructions present near the curb ramp? If so, describe/sketch type and location: traffic signal/utility pole, drain inlet, fire hydrant, street furniture, other.

Ramp Data (for grades along accessible routes)

- Are the slopes of ramps no greater than 1:12?
- Do all ramps longer than 6 ft have railings on both sides?
- Are railings sturdy, and between 34 in. and 38 in. high?
- Is the width between railings or curbs at least 36 in.?
- Are ramps slip-resistant?
- Is there a 5-ft-long level landing at every 30-ft horizontal length of ramp, at the top and bottom of ramps, and at switchbacks?
- Does the ramp rise no more than 30 in. between landings?

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ABBREVIATIONS, ACRONYMS, INITIALISMS, AND SYMBOLS

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADAAG	ADA Accessibility Guidelines
APBP	Association of Pedestrian and Bicycle Professionals
ANSI	American National Standards Institute
APS	Accessible Pedestrian Signal
CFR	Code of Federal Regulations
CSJ	Control Section Job
CTP	Consolidated Transportation Program
DLCD	Department of Land Conservation and Development
DMI	Distance Measuring Instrument
DOT	Department of Transportation
ESRI	Environmental Systems Research Institute
FAC	Florida Accessibility Code
FBC	Florida Building Code
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
GASB	Governmental Accounting Standards Board
GIS	Geographic Information System
GPS	Global Positioning System
ITE	Institute of Transportation Engineers
LIDAR	Light Detection and Ranging
MDSHA	Maryland State Highway Administration
MPO	Metropolitan Planning Organization
MUTCD	Manual on Uniform Traffic Control Devices
NCDOT	North Carolina Department of Transportation
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NPRM	Notice of Proposed Rulemaking
ODOT	Oregon Department of Transportation
PAG	Pima Association of Governments
PBIC	Pedestrian and Bicycle Information Center
PDA	Personal Digital Assistant
PROWAAC	Public-Right-of-Way Access Advisory Committee
PROWAG	Public Rights-of-Way Accessibility Guidelines
RSA	Road Safety Audit
SWAP	Sidewalk Assessment Process
TAS	Texas Accessibility Standards
TDLR	Texas Department of Licensing and Regulation
TTI	Texas Transportation Institute
TxDOT	Texas Department of Transportation
UFAS	Uniform Federal Accessibility Standards
UGB	Urban Growth Boundary
ULIP	Ultra-Light, Slow-Speed Inertial Profiler

UTAP

Universal Trail Assessment Process

APPENDIX

SURVEY FORM AND AMPLIFYING QUESTIONS

ONLINE SURVEY FORM





NCHRP 20-07, Task 249 "Asset Management Approaches to ADA Compliance"

Introduction

The Texas Transportation Institute (TTI) is conducting a study for the National Cooperative Highway Research Program (NCHRP) to gather information about approaches transportation agencies are using to address Americans with Disabilities Act (ADA) compliance requirements, with the primary objective being to share best practices among stakeholders. The focus of the project (NCHRP 20-07, Task 249 "Asset Management Approaches to ADA Compliance") is on innovative practices and strategies related to asset data inventory, asset condition assessment, and programming of asset improvements.

We are requesting your participation in our data gathering process. To achieve this objective, we have prepared a short questionnaire that you can complete online on this web site. The purpose of the questionnaire is to gather basic information about the use of asset management techniques to address ADA compliance needs and requirements. As part of the questionnaire, we are also asking you to identify any other agencies at the local, regional, state, or national level that are involved with pedestrian infrastructure facilities and that are leaders or innovators in this field. Our goal is to follow up with a selected group of stakeholders to learn and discuss about lessons learned, best practices, documentation of practices, and data inventory details. To the extent possible, we will be requesting available documentation. We anticipate that all communications with the group of stakeholders will be by phone and email.

Note: You may have heard about a related project (NCHRP 20-07, Task 232 "Development of a Guide to Update ADA Transition Plans"). As a part of this project, the consulting team (Jacobs Engineering) will be contacting state department of transportation (DOT) officials for information. While Tasks 232 and 249 share some common elements, Task 249 is very specific and focuses on data inventory and asset management issues. By comparison, Task 232 is much broader in scope and addresses the entire ADA transition plan process.

For additional information about Task 249, please contact Cesar Quiroga (c-quiroga@tamu.edu,  210-731-9938 ) or Shawn Turner (shawn-turner@tamu.edu,  979-845-8829 )

Thank you very much for your participation in this project.

Contact Information

Name:





Department/Division:

Agency:

Phone Number:

Email Address:

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For additional information about NCHRP 20-07, Task 249, please contact Cesar Quiroga (c-quiroga@tamu.edu,  210-731-9938 ) or Shawn Turner (shawn-turner@tamu.edu,  979-845-8829 )

* Note: If you choose at any point not to continue this survey, you may close your browser. None of the responses that you entered will be retained.

NCHRP 20-07, Task 249 "Asset Management Approaches to ADA Compliance"

Basic Information

Does your agency inventory pedestrian infrastructure, either as a standalone initiative or as part of a larger asset management program?

Yes No N/A

If yes, which pedestrian infrastructure types does your agency inventory?

- Sidewalks
- Curb ramps
- Crossings
- Pedestrian signals
- Signs
- Transit facilities in the right of way
- Medians
- Refuge islands
- Other

What pedestrian infrastructure attributes does your agency inventory?

- Grade
- Cross slope
- Changes in grade and cross slope
- Sidewalk/ramp width
- Horizontal clearance
- Vertical clearance
- Obstacles
- Detectable warnings
- Pedestrian push button characteristics
- Texture
- Color
- Material
- Condition
- Deficiencies
- Other

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NCHRP 20-07, Task 249 "Asset Management Approaches to ADA Compliance"

Basic Information Cont'd

What tools does your agency use to support the inventory?

- Clipboards
- PDAs
- Digital cameras
- Low-end GPS receivers
- Mapping-level (1 m) GPS receivers
- Survey-level GPS receivers
- Measuring wheel
- Inclinometer
- Profile gauge
- Video logs
- Aerial photography
- GIS
- CAD
- Relational databases
- Other

Is your agency involved in the funding and programming of pedestrian infrastructure facilities?

- Yes No N/A

Does your agency plan/design/construct pedestrian infrastructure facilities?

- Yes No N/A

If yes, what design guidelines/tools does your agency use:

- ADA Accessibility Guidelines (ADAAG)
- Public Rights-of-Way Accessibility Guidelines (PROWAG)
- Agency standards and specifications
- Local/regional/national standards and specifications
- Other

Does your agency measure ADA compliance of pedestrian infrastructure facilities?

- Yes No N/A

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NCHRP 20-07, Task 249 "Asset Management Approaches to ADA Compliance"

Basic Information Cont'd 2

Does your agency have an ADA Transition Plan in place?

- Yes No N/A

Does your agency participate in the development of ADA standards?

- Yes No N/A

Do you know of any other local/regional/national agencies that are involved with pedestrian infrastructure facilities and that are leaders or innovators in this field?

- Yes No N/A

If yes, please provide contact information:

Name

Department/Division

Agency

Phone Number

Email Address

Name

Department/Division

Agency

Phone Number

Email Address

May we contact you at a later date for additional information?

- Yes No N/A

If yes, please click [here](#) to download a PDF copy of the amplifying questions we will use during the discussion with stakeholders by phone and/or email.

General Comments:

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[Submit Survey](#)

For additional information about NCHRP 20-07, Task 249, please contact Cesar Quiroga (c-quiroga@tamu.edu, [210-731-9938](tel:210-731-9938)) or Shawn Turner (shawn-turner@tamu.edu, [979-845-8829](tel:979-845-8829)).

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AMPLIFYING QUESTIONS

Introduction

The Texas Transportation Institute (TTI) is conducting a study for the National Cooperative Highway Research Program (NCHRP) to gather information about approaches transportation agencies are using to address Americans with Disabilities Act (ADA) compliance requirements, with the primary objective being to share best practices among stakeholders. The focus of the project (NCHRP 20-07, Task 249 “Asset Management Approaches to ADA Compliance”) is on innovative practices and strategies related to asset data inventory, asset condition assessment, and programming of asset improvements.

One of the activities in our research is to contact a selected group of stakeholders to learn about and discuss lessons learned and best practices that could be shared with the rest of the transportation community. We anticipate that all communication with each stakeholder will be by phone and email. To assist in this process, we have prepared a series of amplifying questions that we will use as a reference for the discussion.

For additional information about this project, please contact Cesar Quiroga (c-quiroga@tamu.edu, 210-731-9938) or Shawn Turner (s-turner@tamu.edu, 979-845-8829).

Questions

A. Asset Data Inventory Practices

- A.1. Please describe the process and criteria to inventory pedestrian infrastructure facilities at your agency, including planning, frequency, costs, and quality control/quality assurance.
- A.2. What forms does your agency use to inventory pedestrian facilities?
- A.3. What is the experience of your agency with FHWA guidelines and practices to conduct pedestrian facility inventories?
- A.4. What tools (including hardware and software) does your agency use to support data collection, data processing, and data storing?
- A.5. Please describe coordination and integration with other databases (e.g., asset, project, document, features) at your agency.
- A.6. What future inventory activities is your agency planning?
- A.7. Please describe challenges and solution approaches for implementing pedestrian infrastructure inventory programs.

- A.8. What techniques (including determination of benefits and costs) has your agency implemented to measure the effectiveness of the pedestrian infrastructure inventory program?
- A.9. Does your agency use pedestrian infrastructure data to assist in financial reporting requirements [e.g., Governmental Accounting Standards Board (GASB)]?
- A.10. Could you provide sample data and documentation to help us develop a better understanding of your current asset data inventory practices?

B. Asset Condition Assessment Practices

- B.1. Please describe the process (including funding, programming, schedule, and cost) to measure the condition of pedestrian infrastructure at your agency.
- B.2. What performance measures, standard condition rating, and criteria for evaluation does your agency use to assess the condition of the pedestrian infrastructure?
- B.3. What statistical analysis techniques and historical data does your agency use to support asset condition assessments?
- B.4. Does your agency use construction inspection reports to provide feedback to the inventory and condition assessment process?
- B.5. What maintenance programs and schedules are in place to address pedestrian infrastructure maintenance needs?

C. Programming of Asset Improvements

- C.1. Please describe how the long-range transportation planning process, including funding and programming, at your agency/region addresses ADA requirements.
- C.2. Describe current public participation practices and programs at your agency to communicate pedestrian infrastructure inventory, needs, and plans to the public.
- C.3. Please describe the process and criteria to prioritize ADA-related improvement needs.
- C.4. What levels of coordination does your agency have in place to integrate pedestrian infrastructure requirements into the project development process (including schematic design, design, and cost estimates)?
- C.5. Please describe how your agency uses design guidelines/tools such as ADA Accessibility Guidelines (ADAAG), Public Rights-of-Way Accessibility Guidelines (PROWAG), and local/regional/national standards and specifications to support the development of pedestrian facilities.

- C.6. Please describe challenges and solution approaches for implementing pedestrian infrastructure improvements.
- C.7. Describe methodologies and techniques your agency uses to measure costs and benefits associated with the implementation of pedestrian infrastructure improvements.

**Handout #5: ADA Transition Planning
Emphasis Area Guidance: Milestones**

ADA Transition Planning Emphasis Area Guidance – Milestones

Milestone I – To be completed by December 31, 2011

- Identify all jurisdictions in region with 50 or more employees
- Each jurisdiction must appoint an ADA Coordinator
- Each jurisdiction must officially adopt _____ and _____ standards
- Each jurisdiction must adopt a ADA grievance procedure
- Each jurisdiction must develop a traffic and pedestrian generator map to be used in the development of Milestone II – Sidewalk and Curb Inventory – this should include all state and local intersections.
- Obtain an inventory assessment methodology for identify and ranking ADA system inventory priorities or use the MACOG database tool.

Milestone II – To be completed By June 30, 2012

- Develop an intersection database for all intersections for each jurisdiction using GIS
- Provide data to
- Using the Traffic and Pedestrian Generator Map completed under Milestone I, complete a curb and sidewalk inventory assessment for each jurisdiction.
- Each jurisdiction must develop Functional Classification Map, showing the intersections and sidewalks to be used in the development of Milestone II – Sidewalk and Curb Cut Inventory – this should include all state and local intersections.
- Input the data into the selected priority assessment tool and provide a priority listing for the Traffic and Pedestrian Generator Inventory Assessment in PDF format

Milestone III – To be completed By December 31, 2012

- Using the Functional Classification Map completed under Milestone II, complete a curb and sidewalk inventory assessment for each jurisdiction.
- Each jurisdiction must develop a map showing the remaining the intersections and sidewalks to be used in the development of Milestone III – Sidewalk and Curb Cut Inventory – this should include all state and local intersections.
- Input the data into the selected priority assessment tool and provide a priority listing for the Traffic and Pedestrian Generator Inventory Assessment in PDF format

Milestone IV – To be completed By June 30, 2013

- Using the remaining intersection and sidewalks completed under Milestone III, complete a curb and sidewalk inventory assessment for each jurisdiction.

- Input the data into the selected priority assessment tool.
- Using all of the inventory assessment data collected in all milestones provide a system-wide ADA Transition Plan Inventory.
- Complete an ADA Transition Plan with narrative and inventory that meets the requirements of _____CFR
- Each jurisdiction adopts their ADA Transition Plan and post it to their agency website.