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ADOT Statewide Bicycle and Pedestrian Program

Summary of Phase IV Activities

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1 INTRODUCTION

1.1 Introduction

This document provides a summary of activities completed during Phase IV of the Arizona Statewide Bicycle and Pedestrian Program. The purpose of Phase IV was to implement recommendations from the Arizona Statewide Bicycle and Pedestrian Plan. A summary of the following activities is presented in Section 2.

- Steering Committee
- Pedestrian Demand Measures
- Educational Training Program
- Public Safety Education Program
- Website Enhancements
- Grant Application

1.2 Project Overview

Approximately 20 percent of U.S. citizens, or nearly 41 million people, ride bicycles at least one or more times per month. Bicycling and walking are basic, fundamental modes of transportation that in today's motorized world of travel are commonly overlooked as an option to help manage our circulation issues. Planning for and constructing accommodations for bicycling and walking and improving safety, education, and enforcement programs are critical in increasing the mobility of pedestrians and bicyclists. One of the underlying principles in planning for bicycling and walking is to provide a system that allows users significant mode choices, and to make bicycling and walking a more attractive, viable option for transportation. This includes creating a non-motorized network comprised of on-street facilities, off-street facilities, and end of trip facilities. Education and enforcement programs also enhance alternative forms of transportation.

In 2003, the Arizona Department of Transportation completed the Arizona Statewide Bicycle and Pedestrian Plan. The purpose of the Arizona Statewide Bicycle and Pedestrian Plan is to provide a long-term plan for a statewide system of interconnected bicycle facilities that will guide ADOT transportation decisions relating to bicycle and pedestrian travel, planning, and facility development.

The plan was developed in two phases. Phase I reviewed existing conditions, developed a Statewide Bicycle Network, and recommended bicycle and pedestrian programs that when implemented will improve the accommodation of bicycles and pedestrians on Arizona Highways. Implementation of several of the most critical Phase I recommendations began in Phase II. Phase II included the creation of a Bicycle User Map, Bicycle Share the Road Guide, Sharing the Road with Pedestrians Guide, Arizona Bicycling Street Smarts, website enhancements, a Grant and Funding Plan, an Education Plan and a Pedestrian Action Plan. The majority of the bicycle and pedestrian facility improvements are planned to occur as ADOT constructs its roadway projects to meet current standards.

Implementation of the Plan continued in Phase III. Phase III included hosting training courses, updates to educational materials, website enhancements, and review of programmed projects to identify opportunities to integrate bicycle and/or pedestrian facilities into programmed projects.

Phase IV furthered implementation of the Arizona Statewide Bicycle and Pedestrian Plan. Specific tasks that were completed in Phase IV are:

- Pedestrian Demand Measures Map
- Educational Training Program
- Website Enhancements
- Grant Applications

Each of these is described in more detail in the following sections.

2 SUMMARY OF PHASE IV ACTIVITIES

2.1 BICYCLE AND PEDESTRIAN STEERING COMMITTEE

Three Bicycle and Pedestrian Steering Committee Meetings were held in conjunction with Phase IV activities. These were held on:

- March 6, 2007 (18 attendees)
- May 31, 2007 (20 attendees)
- December 5, 2007 (23 attendees)

The purpose of the Steering Committee Meetings is to report progress of project deliverables and activities, and to receive their input and feedback.

Summary notes from each of the Steering Committee Meetings are included in Appendix A.

2.2 Pedestrian Demand Index Map

The purpose of this task was to utilize available GIS data to prepare a map of pedestrian demand along roadways within the Arizona State Highway System. The purpose of the map is to provide ADOT an indication of where pedestrian facilities would potentially be used if they were provided.

The analysis is described in further detail in the following subsections. The results of the analysis are included in Appendix B – Pedestrian Demand Index for State Highway Facilities. The results of the methodology serve as an ‘initial’ screening device that identifies areas of potential pedestrian demand. The areas that are depicted as “Moderate PDI” or above can be further analyzed to confirm the specific pedestrian potential for the programming or design of specific pedestrian facility improvements. Additional analysis tools may include field reviews, aerial photography, land use mapping, identification of specific pedestrian generators such as parks and schools.

2.2.1 Literature Review

Kimley-Horn and Associates conducted a literature review of methodologies and techniques to estimate pedestrian demand. This information served as input to

development of a methodology to estimate pedestrian demand for roadways within the Arizona State Highway system.

The literature review revealed that agencies and jurisdictions throughout the country that have estimated pedestrian demand have done so primarily at a localized level – for a particular corridor, district, or neighborhood. The literature search identified just a handful of pedestrian demand methodologies which agencies have implemented on a region-wide level. The literature review is included in Appendix B – Pedestrian Demand Index for State Highway Facilities.

2.2.2 Pedestrian Demand Index Map

Following the literature search, discussion with ADOT Project Manager, and input from the Bicycle and Pedestrian Steering Committee, a ADOT Pedestrian Demand Index (PDI) was proposed that utilizes four indicators to determine the propensity for pedestrian facilities to be utilized if they were provided. The indicators are developed on a census tract basis and are:

- (1) Activity balance: This is a measure of the relationship between population and employment and is computed by dividing employment by population (employment/census tract population).
- (2) Pedestrian Facilities Index: This is a measure of the urbanization and population density.
- (3) Road Density Index: is also a measure of urbanization and is computed as the total number of miles of non-limited access highway roads and streets in a census tract to the total land area of that tract.
- (4) Pedestrian Demand Index: Following the calculation of each of the above indexes, the individual index scores were summed to calculate a total Pedestrian Demand Index score for each highway segment. The overall PDI scores were normalized from 0 to 100. Subsequently, roadway segments within urbanized area boundaries were given an additional 10 points to their score, and the overall score was renormalized from 0 to 100.

A detailed summary of each of these indicators is included in Appendix A – Pedestrian Demand Index for State Highway Facilities. The Pedestrian Demand Index (PDI) score for each roadway segment on the State Highway System was calculated. State highway segments were categorized as:

- Highest Pedestrian Demand Potential: State highway segments that pass through census tracts with PDI scores between 52 and 100 (Highest and High PDI in attached graphics).
- Moderate Pedestrian Demand Potential: Tracts with scores between 31 and 65 are considered to have moderate pedestrian demand (Moderate and Low PDI).
- Low Pedestrian Demand Potential: Scores less than 30 have low (Lowest PDI) pedestrian demand.

2.2.3 Crash Rate Index Maps

A secondary analysis was conducted utilizing pedestrian-crash data provided by ADOT. The five-year history of all pedestrian-related crashes was obtained for all state highways.

The number of crashes on each highway segment was calculated and summed. The number of crashes for each highway segment was subsequently normalized by segment length to develop a Crash Rate Index. The Pedestrian Crash Rate Index Maps are included in Appendix B – Pedestrian Demand Index for State Highway Facilities.

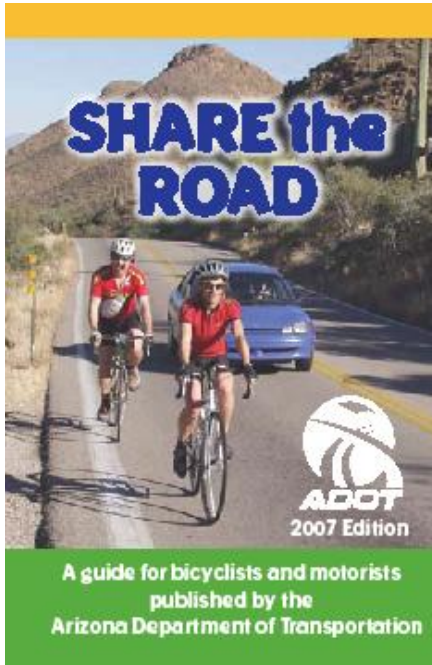
2.3 Education Program Support

The ADOT Statewide Bicycle and Pedestrian Plan (2003) included an education plan to guide ADOT's efforts in educating cyclists, motorists, and pedestrians. The education plan identifies five focus areas for improving bicycling and pedestrian safety. These are:

- Safety Education Training
- Safe Routes to School
- Bicycle and Pedestrian Facility Design Training
- Safety Awareness Campaign
- Archived Data

Elements of three of the five focus areas were addressed as part of Phase IV activities:

- Safety Education Training
- Bicycle and Pedestrian Facility Design Training
- Safety Awareness Campaign

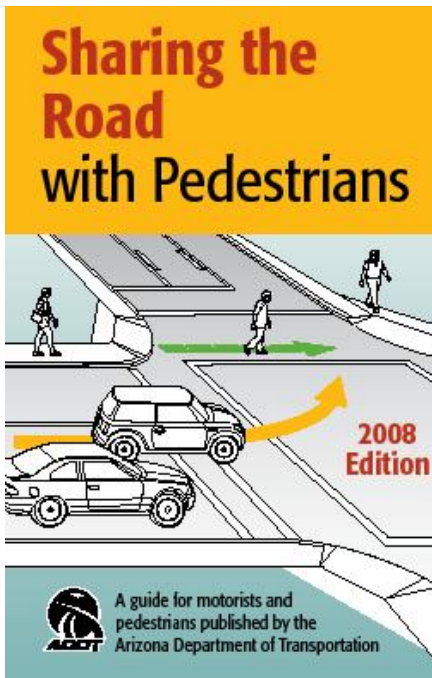


2.3.1 Safety Education Training

As part of the Safety Education Training focus area, ADOT previously (Phase II) developed *Sharing the Road with Pedestrians*, and *Share the Road: A guide for bicyclists and motorists*.

Phase IV activities included minor updates to each guidebook, and purchase of an additional 10,000 copies of each guidebook.

The updated documents are included in Appendix C.



2.3.1.1 Bicycle Share the Road Guide

Minor updates to *Share the Road: A guide for bicyclists and motorists*, included minor textual changes throughout the document, and several pages of new content, including:

- Page 7: Watch out for cars turning through gaps
- Page 14: Roundabouts
- Page 22: Watch for on-coming cars passing on 2 lane rural roads
- Page 28: Trucks and utility vehicles need to allow 5 feet

- Page 36: Watch for bikes when passing on 2-lane roads
- Page 46: 6 ways to make bike commuting easier

2.3.1.2 Pedestrian Share the Road Guide

Minor updates to the *Sharing the Road with Pedestrians* included:

- Adding a section about the visually impaired
- Adding a section about roundabouts
- Adding a section about runners
- Adding a section about walking in rural areas
- Updating graphic for “Always assume that drivers may not stop”
- Including additional statutes: 28-908, 28-856, 28-904, 28-646

2.3.2 Bicycle and Pedestrian Facility Design Training

Bicycle and Pedestrian Program, Phase III activities, included preparation of a grant application to the Arizona Governor’s Office of Highway Safety to fund bicycle and pedestrian facility design workshops. The funding application was selected for partial funding by the GOHS.

As part of Phase IV activities, Kimley-Horn and Associates assisted in the implementation of the GOHS FY2007 Bicycle and Pedestrian Facility Design Workshops. The purpose of the workshops was to increase the knowledge and design skills of engineers and planners for bicycle and pedestrian facilities. The proper design of such facilities will improve the safety of the bicyclist and the pedestrian.

Bicycle and Pedestrian Facility Design Training Workshops were conducted in April 2008. Workshops were held in Flagstaff and Phoenix. Each workshop was 1 ½ days. Michael Ronkin (Designing Streets for Pedestrians and Bicycles, LLC) and Roger Gellar (City of Portland) conducted the workshops. Workshop curriculum included the following:

- Planning issues that affect bicycling; characteristics of bicyclists
- Basics of on-road bikeway design: shared roadways, bike boulevards, bike lanes
- Other on-road bikeway design issues: surfacing, drainage grates, railroad crossings
- Intersection design
- Bicycle parking
- Innovative practices
- Shared-use paths: planning and design

The workshops were attended by over 50 engineers, planners, and others involved in the planning and design of bicycle and pedestrian facilities. Course evaluations submitted to ADOT Technical Training staff found that participants rated the workshop “above average” to “excellent.” Several attendees stated that there should be follow up training on bicycle / pedestrian design.

2.3.3 Bicycle and Pedestrian Safety Awareness Campaign

With the nation's 5th highest rate of pedestrian fatalities and over 3 bicyclist fatalities per million population, Arizona clearly has a need for a targeted public safety education program that will successfully impact behaviors for safer streets.

To address this need, ADOT submitted a grant application to the Arizona Governor's Office of Highway Safety to fund the FY2007 Bicycle and Pedestrian Safety Awareness Campaign. The GOHS provided partial funding for the Safety Awareness Campaign. As part of Phase IV activities, Kimley-Horn assisted in development and implementation of the Safety Awareness Campaign.

Safety Awareness Campaign development activities identifying and review currently available campaign materials that could be adapted for use in the Safety Awareness Campaign, meeting with the Statewide Bicycle and Pedestrian Steering Committee to define Campaign focus areas and messages, identifying interested "pilot communities", obtaining community support, and drafting the campaign pilot program scope and implementation timelines.

A summary of the Bicycle and Pedestrian Safety Awareness Campaign materials is



included in Appendix D – FY2007 Bicycle and Pedestrian Safety Awareness Campaign. The campaign promotes safety tips for bicyclists, pedestrians and motorists through a variety of materials. The campaign identity "Be a Roll-Model" was integrated in all program materials. Campaign materials were created for various media, and for all age levels. The materials include two 60 second radio commercials, one for bicycle safety and one for pedestrian safety. These commercials focus on preventing bicycle/motorist conflicts by stating where bicyclists can safely and legal ride, letting motorists know that they must share the road with bicyclists, and to

give bicyclists at least 5 feet. Print ads, promotional stickers, flyers, and hanging tags were also made with similar messages.

To maximize the benefit of the available GOHS grant funds for implementation of the Bicycle and Pedestrian Safety Awareness Campaign, distribution of campaign materials was focused on a small geographic area, the Verde Valley communities of Cottonwood, Sedona, and Clarkdale.

Campaign materials were posted at various sites throughout the Verde Valley, including bicycle shops, and major retail stores (e.g. Walmart). The Campaign materials also included 'hang tags' that were distributed to local bicycle shops to be hung on every new bicycle. The hang tag included safety information and tips.

The campaign radio announcements reached residents in the surrounding communities of Jerome, Page Springs, Prescott Valley, and Flagstaff.



2.4 Website Enhancements

Phase IV activities included routine maintenance and minor enhancements to the ADOT Bicycle and Pedestrian Program website, azbikeped.org. The website was updated to include material and deliverables from Phase IV activities. In addition, broken links were corrected and updates were made to the calendar of events and contacts sections of the website.

2.5 Grant Applications

The GOHS previously awarded funding for the FY2007 Bicycle and Pedestrian Facility Design Training Courses, and for the FY2007 Statewide Bicycle and Pedestrian Safety Awareness Campaign, as part of Phase III activities. Implementation of the FY2007 GOHS grants is described previously in Section 2.3.

Following the success of FY2007 Phase III funding applications to the GOHS, Phase IV included additional funding applications to the GOHS for FY2008 funds and for FY2009 funds. Funding applications were submitted as described below.

	Status
FY2008 Bicycle and Pedestrian Facility Design Workshops	Funded. Workshops completed in May 2009. The focus of the workshops was on Complete Streets.
FY2008 Bicycle and Pedestrian Safety Media Campaign	Not funded by GOHS.
FY2009 Bicycle and Pedestrian Facility	Funded. Workshop planning is in progress under Phase V.
FY2009 Bicycle and Pedestrian Safety Media Campaign	Funded. Campaign planning is in progress under Phase V.

The FY2008 Bicycle and Pedestrian Facility Design Workshop funds were used to conduct a Complete Streets workshop for engineers, planners, elected officials and others involved in the planning and design of bicycle and pedestrian facilities. Complete Streets are planned, designed and operated to enable safe access for all users. The Complete Streets Workshops provide a background on the benefits of Complete Streets, and explain how existing streets can easily be retrofitted into Complete Streets. The Complete Streets workshops are appropriate for elected officials, transportation agency leaders, transportation planners, traffic engineers, roadway designers, planning and engineering

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consultants, transit providers, pedestrian and bicycle advocates, health service and older adult providers, and any others who are interested.

Three Complete Streets workshops were conducted in May 2009. Over 180 people participated. A 2-hour Complete Streets Overview session was held on May 18, 2009. A all-day Complete Streets Workshop was held on May 19 for representatives from agencies and jurisdictions in the MAG region. An all-day Complete Streets Workshop for representatives from ADOT and agencies outside of Maricopa County was held on May 20, 2009.

Planning for the FY2009 Bicycle and Pedestrian Facility Design Workshops and for the FY2009 Statewide Bicycle and Pedestrian Safety Awareness Campaign is underway as part of Phase V.

3 SUMMARY AND CONCLUSIONS

The following activities and deliverables were completed as part of ADOT Bicycle and Pedestrian Program, Implementation Support, Phase IV.

- Three Bicycle and Pedestrian Steering Committee Meetings were held.
- An analysis of pedestrian demand on state highways was conducted. The analysis resulted in a Pedestrian Demand Index Map. The purpose of the analysis was to utilize available GIS data to prepare a map of pedestrian demand along roadways within the Arizona State Highway System. The purpose of the map is to provide ADOT an indication of where pedestrian facilities would potentially be used if they were provided.
- Updates were made to the bicycle and pedestrian share the road guides.
- Bicycle and Pedestrian Facility Design Training Courses were conducted in Flagstaff, Arizona and Phoenix Arizona. Nearly 80 planners, engineers, and others involved in planning and design of bicycle and pedestrian facilities attended.
- Three Complete Streets workshops were conducted in May 2009: An all-day Complete Streets Workshop for representatives from agencies and jurisdictions in the MAG region, an all-day Complete Streets Workshop for representatives from ADOT and agencies outside of Maricopa County, and a 2-hour Complete Streets Overview session. Over 180 people participated in the three workshops.
- A Statewide Bicycle and Pedestrian Safety Awareness Campaign was developed. The campaign identity “Be a Roll-Model” was integrated in all program materials, which included radio commercials, print ads, promotional stickers, flyers, and hanging tags. Campaign messages focus on preventing bicycle/motorist conflicts by stating where bicyclists can safely and legal ride, letting motorists know that they must share the road with bicyclists, and to give bicyclists at least 5 feet.
- Minor updates to azbikeped.org were completed.
- Funding applications were submitted to the Arizona Governor’s Office of Highway Safety. The GOHS awarded funding as described in the table below.

	Status
FY2008 Bicycle and Pedestrian Facility Design Workshops	Funded. Workshops completed in May 2009. The focus of the workshops was on Complete Streets.
FY2008 Bicycle and Pedestrian Safety Media Campaign	Not funded by GOHS.
FY2009 Bicycle and Pedestrian Facility	Funded. Workshop planning is in progress.
FY2009 Bicycle and Pedestrian Safety Media Campaign	Funded. Campaign planning is in progress.