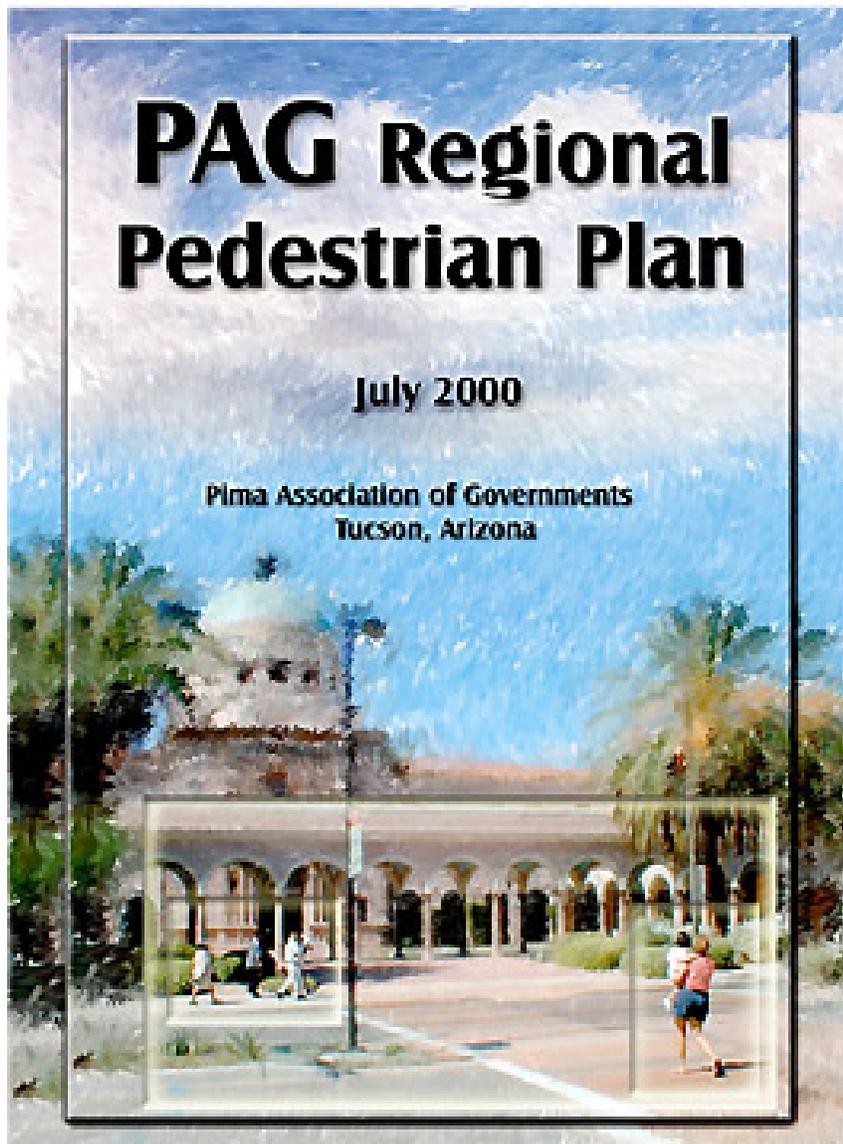


Regional Pedestrian Plan

July 2000



PIMA ASSOCIATION OF GOVERNMENTS

REGIONAL COUNCIL

Sharon Bronson (Chair)
Chair, Pima County
Board of Supervisors

Zachery Freeland (Vice-Chair)
Mayor, Town of Sahuarita

Paul Loomis (Treasurer)
Mayor, Town of Oro
Valley

Robert Walkup
Mayor, City of Tucson

Shirley Villegas
Mayor, City of South Tucson

Ora Harn
Council Member,
Town of Marana

Katie Dusenberry
State Transportation Board
Representative
(for transportation matters only)

MANAGEMENT COMMITTEE

Charles Sweet
Manager, Town of Oro
Valley

Charles Huckelberry
Administrator, Pima County

James R. Keene, Jr.
Manager, City of Tucson

Fernando Castro
Manager, City of South
Tucson

Jerry Flannery
Manager, Town of Sahuarita

Mike Hein
Manager, Town of
Marana

Mary Lynn Tischer
ADOT Representative
(for transportation matters only)

TRANSPORTATION PLANNING COMMITTEE

Dennis Alvarez..... Arizona Department of Transportation
George Caria..... SunTran
Marilyn Celestine (ex-officio) Tohono O’odham Nation
Jim DeGroot..... Town of Marana
Katie Dusenberry..... State Transportation Board
Jaime Gutierrez (ex-officio) University of Arizona
Bill Jansen (Vice-Chair) Town of Oro Valley
Andra Juniel (ex-officio) Arizona Department of Environmental Quality
Brooks Keenan (Chair) Pima County Department of Transportation
Ursula Kramer Air Quality Control District Representative
Richard Maloblocki..... Town of Sahuarita
Jim Mazzocco..... Pima County Planning and Development Services
Jill Merrick..... Tucson Airport Authority
Dennis Mittelstedt (ex-officio)..... Federal Highway Administration
Tony Paez..... City of Tucson Transportation
Richard Salaz..... City of South Tucson
Thomas Spendiarian..... Pima County Planning & Zoning Commission
David Sumner (ex-officio)..... Davis Monthan AFB
Thomas Swanson (ex-officio) Pima Association of Governments
Mary Lynn Tischer Arizona Department of Transportation
William Vasko..... City of Tucson Planning
Joe Weidman..... Citizen Transportation Advisory Committee

PAG PRINCIPAL STAFF

Thomas L. Swanson
Executive Director

James D. Altenstadter
Deputy Director

Cherie L. Campbell
Transportation Planning Director

July, 2000

Regional Pedestrian Plan

TABLE OF CONTENTS

Acknowledgments	iv
Executive Summary.....	v
CHAPTER 1 – Introduction	
Role and Purpose of the Pedestrian Plan.....	1
Plan Vision	2
Plan Goals	2
Organization of Plan.....	2
CHAPTER 2 – Inventory/Data	
Literature Review	3
Existing Pedestrian Facilities	4
Existing Socioeconomic Factors	4
Existing Pedestrian Design Standards	5
Existing Funding Sources	6
Federal	7
State	7
Local.....	8
CHAPTER 3 – Plan Process	
Strategic Framework.....	10
Pedestrian Level of Service Measures.....	10
Technical & Citizen Advisory Committees	12
CHAPTER 4 – Pedestrian Plan	
Pedestrian Area Designations.....	13
Public Involvement.....	13
Implementation Plan	14
Action Plan.....	14
FHWA Pedestrian Road Show	18
Conclusion.....	18

APPENDICES

Appendix A – Public Involvement	
Bike/Ped. Open House Announcement	19
Pedestrian Travel Questionnaire	20
Questionnaire Results.....	22
Appendix B – Design Guidelines	
General Provisions & Sample Design Guidelines.....	25
ADA Design Policies.....	25
Shared Use Paths	31
Appendix C – Pedestrian Funding.....	34
Appendix D – Indicators of Neighborhood Stress	
Background	35
Caveats.....	36
Neighborhood Stress Elements	36

TABLES

Pedestrian Survey Results	22
ADA Transportation Accessibility Standards	25
Pedestrian Facility Funding Sources	34

FIGURES

1. Dimensions of Parking Spaces	26
2. Access Aisle at Passenger Loading Zones	27
3. Sides of Curb Ramps	27
4. Built-up Curb Ramps	28
5. Curb Ramps of Marked Crossings	29
6. Single Ramp Run and Single Ramp Run Dimensions	30
7. Shared Use Path	32
8. Paved Shared Use	32
9. Pedestrian / Equestrian Trails	33

MAPS

1. Pedestrian Activity Areas	Back Pocket
2. Tucson Metropolitan Area Composite Stress Map	6

ACKNOWLEDGEMENTS

Citizen’s Advisory Committee (CAC)

Joanna McCurdy Brunso Green Valley Coordinating Council (GVCC)
Rosemary Carmody Tucson/Pima County Bicycle Advisory Committee (TPCBAC)
Lou Getz Sahuarita Resident
Bill Katzal Pima County Resident
Mark Levine Tucson Resident
Gean Lloyd ADA Coordinating Council (& CTAC)
Rudy Van Renterghem Oro Valley Resident
Roy Schoonover Pima County Resident
Joe Weidman Citizen’s Transportation Advisory Committee (CTAC)

Technical Advisory Committee (TAC)

Steve Anderson Pima County Parks and Recreation.
Ken Cooper Arizona Department Of Transportation
Calvin Baker Vail School District
Richard Corbett Pima Association of Governments
Doug Crockett Tucson Unified School District
Patrick Dallabetta Tanque Verde School District
George Dudley Town of Sahuarita
Bob Earl Pima Community College
Kathy Esposito Amphitheater Public Schools
Tom Fisher City of Tucson
Charles Franz University of Arizona
Gary Hicks Altar Valley School District
Kim Holoway Marana Unified School District
Don Manspeaker Town of Oro Valley
Brenda Maynard Catalina Foothills School District
Walker Smith City of South Tucson
Bob Smead Sunnyside School District
Jay St. John Sahuarita Unified Schools
Jim Stahle Town of Sahuarita
Diahn Swartz Town of Marana
Keith Walzak Entranco, Consultant
Dan Yersavich Pima County Department of Transportation
Matt Zoll Tucson/Pima County Bicycle Advisory Committee (TPCBAC)

Project Manager

Richard G. (Dick) Schaffer, AICP Regional Bicycle & Pedestrian Coordinator

Document Production

Richard E. Corbett, AICP Intermodal Transportation Manager
Karen L. Lamberton, AICP Transportation Planner
Pat Tamarin Graphic Designer

EXECUTIVE SUMMARY

PAG REGIONAL PEDESTRIAN PLAN



This is the first Regional Pedestrian Plan compiled by Pima Association of Governments (PAG). It represents the commitment of PAG member jurisdictions to plan for pedestrian travel in a manner comparable to that previously dedicated to transit, roadway, air, and bicycle. This Plan presents a vision of a more accessible and safer pedestrian environment in the Tucson Region.

This Plan is a policy document, which will be used to help develop and improve a pedestrian system within the Tucson Metropolitan Area. The pedestrian system has not yet been fully inventoried or assessed, nor has an improvement plan been developed and prioritized. This Plan describes the needs of such a system, the population groups that such a system serves, recommends operating policies and describes how such a system is and could be funded and implemented.

Involvement by citizens and local government staff, as well as walking and disability advocates, have resulted in the development of a Plan that is both desirable and achievable. The direction and actions that should be pursued to improve walking within the Tucson Region, as well as the provision of elements by which the Plan's progress and success can be measured, are described. Respondents to the survey from the public input process for this Plan said the region is not pedestrian friendly and made many recommendations for improvements.

This Plan focuses primarily on urban and suburban pedestrian elements: sidewalks and other suitable pedestrian facilities; paved and unpaved shared use paths for pedestrians, bicyclists, rollerbladers and others; and pedestrian crossings of roadways leading to activity centers. While this Plan does not directly address backcountry trails it does consider and incorporate the interface of these trails with urban and suburban trails. Recommendations from both the 1996 Pima County River Parks Master Plan and the 1989 Eastern Pima County Master Trails Plan are incorporated in this Plan. Design guidelines referenced in this Plan include Americans with Disability Act (ADA) guidelines and American Association of State Highway and Transportation Officials (AASHTO) Shared Use Path Guidelines. These cover all pedestrian facilities considered in this Plan, from sidewalks and trails to transit facilities. Maintenance is addressed as an important factor in insuring suitable facilities in the future.

Conclusion & Recommendations: Pedestrian facilities are funded and implemented by a variety of sources, from subdivision and roadway development to neighborhood improvement zones, floodplain trail developments and transit service improvements. A regional inventory of pedestrian facilities is recommended, to provide a complete description of the region's pedestrian system, its condition, needs and priorities. Newly constructed and improved pedestrian facilities are planned to provide a continuous and connective pedestrian system of sidewalks and shared use paths.

CHAPTER 1 – INTRODUCTION

Walking is the most used transportation mode. Whether ultimately riding a bike or traveling in an automobile, bus, train or plane, we are first pedestrians. We walk to, in, and through our workplace, grocery store, homes and every place we frequent in our daily lives. Walking is not only a means of reaching a destination but also a favored form of exercise and recreation for many residents.

This is the first Regional Pedestrian Plan (referred to hereafter as the Plan) in the Pima Association of Governments (PAG) ¹ region. With walking being a part of virtually every trip made, and walking serving as the mode of travel for more trips than either transit or cycling, it is clear that emphasis on pedestrian facilities, and their system role, is critically important to the citizens of the PAG region. This Plan represents the commitment of member jurisdictions to plan for pedestrian travel in the same manner that has previously been dedicated to other modes of transportation like transit, aviation and bicycling. Construction and strengthening of policies and practices that are systematically improving and expanding the pedestrian system will enhance quality of life, economic and health opportunities and transportation choice.

¹ The PAG region consists of all of Pima County and includes six jurisdictions: City of Tucson, City of South Tucson, the Towns of Oro Valley, Marana, and Sahuarita, and Pima County. The Tohono O'odham and Pasqua Yaqui Tribes are also meaningfully involved in PAG's regional transportation planning & programming.

This Regional Pedestrian Plan was adopted by Regional Council on July 26, 2000.

Role and Purpose of the Pedestrian Plan

The major impetus for this Plan is the 2020 Metropolitan (Regional) Transportation Plan (MTP) ² which provides a 20-year vision for a balanced, multi-modal and sustainable transportation system for eastern Pima County. The MTP set the stage for the development of a pedestrian plan by establishing a major Mobility and Accessibility Goal: “...to improve the mobility of people and goods throughout the region by providing efficient, effective, convenient, accessible, and safe modes of transportation to employment, education, medical, and other desired destinations”. The MTP calls for a regional balance of transportation facilities and services by mode. This Plan represents the first step of a regional process to improve pedestrian travel area-wide, and thus increase the mobility of residents and visitors.

This Plan is primarily a Policy Plan. It concentrates on a comprehensive framework with which to enhance the region's pedestrian facilities more than on detailing specific pedestrian projects. An important purpose of this Plan is to raise awareness of the opportunities for the urban and suburban pedestrian system.

² The MTP addresses transportation facilities and services in eastern Pima County, including all six of the PAG member jurisdictions, the Arizona Department of Transportation (ADOT), and the Tohono O'odham and Pasqua Yaqui Tribes.

Identifying specific ways to interface the urban and suburban pedestrian system with the non-urban trails system is also an important purpose. The recommendations of both the 1996 Pima County River Parks Master Plan and the 1989 Eastern Pima County Master Trails Plan are incorporated in this Plan. This Plan supports a regional vision and provides guidance to PAG's member jurisdictions for the development, enhancement and improvement of pedestrian elements into the urban landscape.

Plan Vision

This Regional Pedestrian Plan envisions an integrated, pedestrian friendly environment in which pedestrian travel is provided for throughout the PAG region.

Plan Goals

The following goals (not in priority order) are recommended to achieve the Plan Vision:

- ◆ Educate officials and the public to be aware of pedestrian issues, and encourage walking.
- ◆ Promote the development and design of pedestrian facilities that are direct, safe, comfortable, interesting, and provide continuity.
- ◆ Improve pedestrian visibility and safety.
- ◆ Promote the enhancement, improvement and maintenance of the regional pedestrian system.
- ◆ Identify and secure funding sources to implement pedestrian programs and projects.

Organization of This Plan

The Tucson Regional Pedestrian Plan is divided into four chapters: first, this introduction; second, a summary of existing conditions; third, the Plan process and analysis; and fourth, an implementation plan.

The **first chapter** introduces the Plan, describing the role and purpose of the Plan and laying out the Plan Vision and Plan Goals. The **second chapter** provides the foundation for the Plan by providing a description of the existing conditions of pedestrian facilities, socioeconomic factors, design standards and funding sources. The **third chapter** describes the strategic framework of the plan, the formation of the Technical Advisory and Citizen Advisory Committees, summarizes literature reviews and details the public involvement in this Plan. This chapter includes a variety of maps that illustrate the existing conditions of the PAG region, pedestrian areas, trail system and transit system. These three chapters provide the background for the **fourth chapter**, which describe the recommendations and strategies for the implementation of the Goals and Objectives of the Plan. This Plan also includes a number of **appendices** that describe in detail the findings of the Pedestrian survey, ADA and AASHTO design standards.

This Plan represents the collaborative work of the Technical and Citizen Advisory Committees, public input and both the PAG and City of Tucson Bicycle/Pedestrian Planners. This Plan is a working document that will be updated on an approximate five-year cycle to provide guidance to PAG's member jurisdictions, and to reflect the evolving and ongoing input of the public on pedestrian issues.

CHAPTER 2 – Inventory of Existing Conditions

Intensive work took place early in the Plan development process to identify existing facilities, identify relevant documentation of other plans, inventory other existing relevant conditions in the region, and conduct additional public outreach.

Literature Review

The first major effort in the development of this Plan was a literature review of current plans and studies related to pedestrian travel. Jurisdiction comprehensive plans were reviewed, as were design standards, pedestrian plans and pedestrian activities in other states and Metropolitan Planning Organizations (MPOs). These were considered throughout the preparation of this Plan. Several of these plans formed the foundation from which the vision, goals and objectives of this Plan were formed. They include:

The National Bicycling and Walking Study: This report, issued by the Federal Department of Transportation, Federal Highway Administration in 1991, presents a plan of action for enhancing the travel options of bicycling and walking. This Study has the dual goals of doubling the 1990 percentage of total trips made by bicycling and walking (from 7.9% to 15.8%), while simultaneously reducing by ten percent the number of bicyclists and pedestrians killed or injured in vehicular collisions.³

Pima County River Parks Master Plan: The 1996 Pima County River Parks Master Plan incorporated the recommendations of the

1989 Eastern Pima County Trails System Master Plan into one recreational river parks and trail system. Linkages between urban, suburban and rural trails were identified to provide cross-town walking connections, while maintaining their role as shared-use facilities.

University Circulation Study: The University of Arizona conducted a circulation study in 1997. Pedestrian circulation was a major component of this Study. The Study identified pedestrian zones on campus that serve as pedestrian places instead of simply routes. These areas are characterized by features such as plazas or small parks, and have pedestrian refuges like entries, porches, or courtyards. The Study urges the development of pedestrian amenities such as seating, shade coverage, drinking fountains, defensible space and night lighting to enhance and encourage the pedestrian experience on campus.

Downtown Pedestrian Plan: This Plan was developed by the City of Tucson's Transportation Department in conjunction with the Tucson Arts Partnership, and the Tucson/Pima Arts Council in 1996 to study opportunities for improving the urban environment in the downtown area. The Plan looked specifically at strategies to create a unique walking experience, through "an exciting urban environment on shaded sidewalks punctuated with public art and a cultural mosaic." Connectivity of pedestrian walkways, directional signage and shade features were identified as essential elements of a pedestrian friendly downtown.

³ Full report available at <http://www.bts.gov/ntl/DOCS/nbws.html>

Sidewalk Inventory Planning Project:

The City of Tucson completed an inventory of sidewalks along transit corridors in 1996. Nearly 190 miles of sidewalk gaps were identified. A ranking system prioritized sidewalk improvement needs and a long-range capital improvement program was developed. Total system surveyed was 400 miles.

Existing Pedestrian Facilities

A comprehensive evaluation of the status and condition of the existing regional pedestrian system has not been done in the PAG region. The current regional pedestrian system consists of facilities in roadway right-of-way locations such as sidewalks, and off-road facilities identified as shared-use paths or trails.

The City of South Tucson conducted a windshield survey in 1998. Most of their streets were found to be curbed, with sidewalks. Sidewalks in need of repair were also noted. The City of South Tucson has been installing curb cuts in compliance with ADA at intersections.

Other pieces of the pedestrian system have been evaluated in high pedestrian areas such as the University of Arizona and the downtown area. Off road paths and trails were inventoried and assessed by the 1989 Eastern Pima County Trails System Master Plan. An update to this Master Plan is in the beginning stages. The 1995 Pima County River Parks Plan incorporated those trails into a river parks system. The 2000 Plan, scheduled for completion later this year, will update this trails system.

Pedestrians often use the sidewalk and trails system to connect to transit and travel to their destination. Transit service provides pedestrians, including children, the elderly, commuters, low-income populations, and the handicapped, an economical means to travel to work, school, the store, the park and other places. Regional transit service is currently provided by the City of Tucson's SunTran transit system, Oro Valley's Coyote Run transit service, and Pima County's rural transit service (in both Marana and the Tohono O'Odham Nation, Tucson to Sells).

The Regional Pedestrian Activity Areas are shown in the Map 1 located in the back pocket of this document.

Existing Socioeconomic Factors

Title VI of the 1964 Civil Rights Act is a Federal mandate requiring that any programs receiving Federal-aid dollars be non-discriminating. Persons may not be excluded from participating; obtaining benefits or in any other way discriminated against on the basis of their race, color, national origin, gender, age or disability. It is recognized that Title VI applies equally to planning and public participation processes. The planning and programming process must collect and analyze relevant data such as the distribution and effects of transportation investments in the region on different socio-economic groups. The public participation process must ensure that minority and low-income population groups are engaged in the transportation decision-making process in a meaningful way.

This Plan reflects a pro-active approach by the Pima County region to provide for alternative

modes of transportation. The 2000 Regional Pedestrian Plan's development process specifically included review and consideration of Title VI factors in the Plan development process.

Data Collection and Analyses

A variety of demographic factors, including population density, income characteristics, ethnicity, and race and age factors were considered during the development of this plan.

The data set used in this analysis was the most comprehensive compilation of factors available and included all Title VI mandated factors. The 1992 City of *"Tucson's Indicators of Neighborhood Stress"* report analyzed 31 data items from the 1990 Census (See City of Tucson Neighborhood Stress Map and Appendix D) which were judged the best indicators of social dependency and housing need. There is a close interrelationship between income, minority status, age, and density with the desire and need to walk or bicycle. The report identifies the central and southern areas of the City of Tucson, the entire area of the City of South Tucson, the southern metropolitan area within Pima County, and the entire metropolitan area of the Pascua Yaqui Tribe, as having the highest social and housing related "stress" in the area. These areas also have the lowest incomes and the residents use alternative modes, such as walking, more than the rest of the population. Map 2 shows these high pedestrian use population locations.

Public Participation

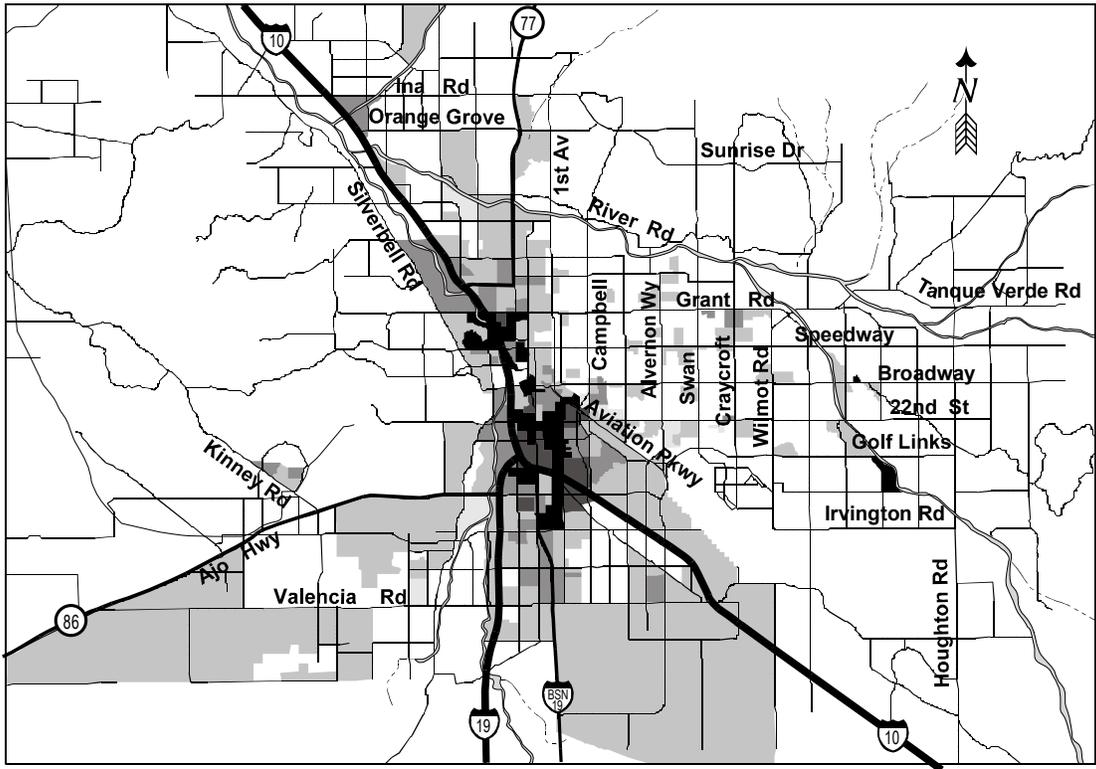
Surveys done as a part of the planning process revealed that each population has unique needs that this Plan should address. The elderly population, for example, has a greater need for facilities that are ADA accessible, whereas school-aged children need safe, well lit and identified crosswalks.

Existing Pedestrian Design Standards

No comprehensive National, State or local pedestrian design standards exist at this time (not withstanding ADA design policies and provisions in the Manual on Uniform Traffic Control Devices (MUTCD)). There are local ordinances that have set some development standards for pedestrian facilities. Currently local jurisdiction require four feet wide (1.22 meters) sidewalks in residential developments, and based on projected pedestrian traffic needs, and up to eight feet (4.44 meters) sidewalks for commercial and industrial developments. Within the greater Tucson metropolitan area, all subdivisions are currently required to construct sidewalks. AASHTO is expected to issue pedestrian guidelines (similar to their long-established bicycle guidelines) before the end of this year.

Several existing design standards, as mentioned above, have served as a model for the development of design guidelines for the PAG region. These Guidelines are described in Appendix B and are derived from the Transportation Accessibility Standards of the Americans with Disabilities Act (ADA), passed by Congress in 1990 and the Shared Use Path Design Guidelines of the 1999 AASHTO Guide for the Development of Bicycle Facilities.

Tucson Metropolitan Area Composite Stress Index



Source: City of Tucson; July 2000

- Highest stress
- High stress
- Medium high stress
- Medium stress
- Low stress
- No stress



Existing Funding Sources

Funding of pedestrian programs and projects is essential to the successful implementation of this Plan. No single source of funding will meet current and future needs; instead combinations of Federal, State, local, and private funds will be needed.

The PAG region has used a variety of funding sources for pedestrian improvements. Voters have previously approved general obligation bonds for park and shared-use trail facilities.

Federal transportation funds have been used, including Surface Transportation Program (STP) and Transportation Enhancement (TE) funds. Roadway and sidewalk improvements have also been funded through State Highway User Revenue Funds (HURF), and trails and parks through local property taxes. Roadway overlay and other maintenance projects provide not only a safer and more pleasing roadway environment for motorists, but selected pedestrian improvements as well. Some areas choose to assess themselves through a Special Improvement District tax

levy, in order to construct sidewalks and other public improvements within their neighborhoods. The land use development process has also been utilized, and developers of commercial, residential and industrial properties are required to provide sidewalks, in accordance local subdivision ordinances.

Funding Resource References

The National Parks Service has produced a National Trails System “*Sourcebook for Federal, State, and Foundation Assistance*” which describes all these trail funding sources. It was written in September 1999 and can be ordered through Steve Elkinton of the National Park Service at (202) 565-1177 or steve_elkinton@nps.gov See Appendix C for a matrix of the applications of all these funding resources.

The following funding sources are potential sources for the improvement and expansion of pedestrian facilities in the region:

Federal

Transportation

The Arizona Department Of Transportation (ADOT) administers Federal Transportation Equity Act for the 21st Century (TEA-21).

Transportation Enhancement Funds (TE), which can be used for roadway right-of-way facilities, or for a non-roadway trail, if it provides a transportation link (10% of total funds maximum). Transportation Enhancement Funds are allocated by regional and State committees.

TEA-21 Surface Transportation Program (STP) Funds (TEA 21) can be used for

pedestrian facilities that are part of a roadway Project. These funds are for the entire project, of which trails are a part. Administered by local Transportation or Public Works Departments, through ADOT.

Trails

Rivers, Trails & Conservation Assistance Program (RTCA) is administered by the National Parks Service. It is a public funded trails planning program which provides a maximum \$10,000 grant to recipients. It may be not be used for construction or maintenance.

Challenge Cost Share Program (NPS, BLM & USFS) provides planning and construction funds, up to a maximum of \$30,000, to recipients including all public agencies, and private groups.

Federal Recreation Trails Program (RTP) is administered by the Arizona State Parks Board. \$967,000 is available each Fiscal Year from 2000 to 2003. This is Program is 30% for non-motorized trails, 30% for motorized trails, and 40% for diverse use.

State

State Heritage Fund

Local, Regional, and State Parks (LRSP): The purpose of this Program is to support land acquisition and the development and improvement of outdoor recreational facilities. Municipalities, counties, State agencies, and Tribes are welcome to apply for assistance. The annual program budget is \$3.5 million.

Historic Preservation: This program supports historic preservation efforts, including rehabilitation of historic properties and preservation education. This program has an

annual budget of \$ 1.7 million. Trails and paths as an integral part of an historic project are eligible.

Non-Motorized Trails: This program supports trail acquisition and construction. Municipalities, counties, State agencies, Federal agencies, and Tribes may apply for assistance from this Program, which has an annual budget of \$500,000 per year, with a maximum of \$95,000 per grant recipient. \$25,000 of the \$500,000 is allocated to State Parks for administration of the Program.

State Off-Highway Vehicle Fund is derived, by law, from a portion of the Arizona State gas tax. Arizona State Parks administers the \$ 1.5 million yearly budget. Grants may only be made to public agencies.

Arizona Game & Fish Public Lands

Access Program: provides funds to plan and construct trails leading to public lands. These funds are available to public agencies only (including Tribes). The total annual budget is \$ 150,000.

Local

Local Bond Program

General Obligation Recreation Bonds are used by Pima County to fund Parks, River Parks, and trails. These are limited to specific projects that were approved by the electorate when the bonds were approved. These bonds are paid back with local property taxes, which is the reason voter approval is required. The County Parks Department is the responsible agency for administering these funds.

City of Tucson Back to Basics are grants of \$800,000 awarded to one neighborhood in

every City Ward (there are 6 City of Tucson Wards). These grants can cover improvements in Parks, Drainage, Traffic Mitigation, and Roadway right-of-way facilities that include sidewalks. The source of these funds is 1/3 Federal Community Development Block Grant (CDBG) funds, 1/3 Highway User Revenue Funds (HURF) revenues and 1/3 General Funds from the City of Tucson. This program will be expanded in the 2001 Budget Year by one additional neighborhood, which will be picked at the discretion of the Mayor.

Improvement Districts are special taxing districts to construct improvements within the public roadway right-of-way (i.e. lighting, sidewalks, streetscape improvements). It is a majority rule process. Property owners that benefit from these improvements are charged semi-annual fees by the local government whose policies, based upon state law, govern the districts. These costs are generally assessed over a 10 year period to pay principal and interest charges associated with the design and construction of the project.

Private

American Hiking Society (AHS) National Trails Endowment provides grants to trails organizations working to establish, protect and maintain America's foot trails. Grants are typically limited (except in unusual situations) to \$1,000 - \$10,000 amounts. 1999 grants totaling nearly \$54,000 were awarded to 13 trail organizations. Projects that American Hiking Society will consider include:

- Start-up money for new trails;
- Improvements to existing trails which will result in visible and substantial improvement of access, safety for hikers, and/or avoidance of on-going environmental damage;

- Securing trail lands, to include land acquisition for trails and trail corridors, purchase of conservation easements, and transactions securing access to trails, such as the purchase of trail-heads and access easements or rights-of-way;
- Constituency building on trail projects, to include building public support for specific trail projects, as opposed to general public awareness of trails.

National Foundations

There are 18 national foundations, which fund trail projects. There are many foundations serving multi-state areas, yet only one serves Arizona. The Prudential Foundation, located in Phoenix, gives out grants to both private and public agencies.

CHAPTER 3 – Plan Process

Strategic Framework

After the completion of the 1998 MTP, the PAG Overall Work Program (OWP) was amended to enhance regional bicycle and pedestrian coordination and information work. Preliminary work was begun in 1998 to develop a regional pedestrian plan. At that time only the City of Tucson had a full time staff member dedicated to the bicycle and pedestrian issues in the region. Together, PAG and the City of Tucson Bicycle and Pedestrian Coordinator, in conjunction with public information and community relations departments, designed a pedestrian survey to begin public outreach. This survey was followed by the formation of a Technical Advisory Committee (TAC) and a Citizen's Advisory Committee (CAC) in 1999.

An intensive effort was initiated to identify relevant documentation of previous plans, analyze existing conditions in the region and conduct additional public. Goals and objectives were then formulated and were reviewed by the TAC and the CAC. Action items and recommendations were suggested and the Plan was then drafted and reviewed by both committees as well as PAG and jurisdiction staff.

Pedestrian Level of Service Travel Measures

Level of Service (LOS) measures of pedestrian travel should express the quality of service as pedestrians move from their origin to their destination. However, unlike standardized automobile and transit LOS methodologies, national standards (or guidelines) for pedestrian LOS measures do not yet exist. The

following LOS measures and thresholds are identified as a regional example that could be used for assessing the quality of pedestrian facilities and service.

Proposed Level of Service Measurements

Transportation facilities used by pedestrians include sidewalks, crosswalks and shared use trails. It is through the use of these facilities that pedestrians travel along roadway corridors, across roadways and within river and other drainage corridors. Five LOS measures are recommended, including:

1. Directness. Directness is critical to pedestrian trips. Directness measures how undeviated pedestrian connections are to destinations such as transit stops, schools, parks, commercial, or activity areas. The grid street pattern typifies a system where one can go directly to most chosen destinations. The common subdivision, with curvilinear streets, including cul-de-sacs backing up to commercial centers, transit stops, schools, or parks, does not have directness, but instead requires a circuitous route, which deters pedestrians. The directness LOS is based on a ratio of the actual distance (A) from a trip origin to trip destination divided by the minimum distance (M) between those two points. An actual/minimum (A/M) ratio of 1.0 to 1.2 would be LOS A; 1.21 to 1.4 would be LOS B; 1.41 to 1.6 would be LOS C; 1.61 to 1.8 would be LOS D; 1.81 to 2.0 would be LOS E; and 2.0 or more would be LOS F.

2. Continuity. Continuity is the measurement of the completeness of the pedestrian system without gaps. LOS A (the

highest) is achieved when the pedestrian walkway directly and continuously connects with major activity areas or public open spaces. LOS B exists when a continuous stretch of pedestrian facilities does not connect to major activities areas or public open spaces. LOS C exists when there is a continuous sidewalk that connects to a major activity area, but the sidewalk(s) is not constructed to current standards. LOS D exists when there is not a continuous sidewalk, and it does not connect to a major activity area. LOS E reflects areas where there are significant gaps in the system. LOS F is a complete lack of pedestrian facilities where each pedestrian selects a different route because there are no pedestrian facilities.

3. Street Crossings. Street crossings may be the “Achilles Heel” of the pedestrian system. Because street crossings place the pedestrian temporarily in the middle of the street with the automobile, the measurement of a street crossing is complex, and the achievement of a high level of service typically requires significant investment. If one cannot safely cross a street to get to one’s destination, there is a decreased likelihood that walking will be the mode of choice. There are four basic types of street crossings. Each has its own inherent problems:

- **Signalized Intersections:** Signalized intersections have major pedestrian crossing problems including: high traffic volumes; turning vehicles; vehicles that stop in the crosswalk; a significant number of lanes to cross; signal indicators that may be difficult to read or understand; lack of pedestrian signal(s); lack of vehicle driver respect for pedestrians; lack of raised median protection; no median or corner ramps; and non-existent or inconvenient pedestrian buttons.

- **Unsignalized Intersection Crossing of Major Street:** Problems are similar to signalized intersections with even greater concern for the number of lanes to cross, speed of vehicles, turning vehicles, and lack of marked crosswalks with good lighting, raised median, visibility, and corner and median ramps.
- **Unsignalized Intersection Crossing of Minor Street:** The problem at these locations is the vehicle traveling along the arterial turning right or left onto the minor street.
- **Mid-block Crossing:** Similar to an unsignalized major street crossing, including number of lanes to cross, lack of crosswalk presence, lighting, raised median, and median and corner ramps.

Key elements that need to be examined when measuring the LOS of a street crossing are:

- **Number of Lanes:** The greater the number of lanes to cross, the greater the exposure of the pedestrian to vehicles. In addition, wider streets tend to carry traffic at higher speeds.
- **Crosswalks:** Are there crosswalks, and how well are they marked?
- **Signal Indication:** Are they present? Are the signal heads easily visible to the pedestrian and motorists?
- **Lighting Levels:** Is the intersection and crosswalk well lit so that the pedestrian is visible at night?
- **Pedestrian Signal Activation:** Some signals have the walk phase automatically included in each signal cycle. This is desirable for all activity areas, as it reflects the importance of the pedestrian. An alternative is the pedestrian actuation button, where the pedestrian presses a button, then waits for the cycle to provide

a walk phase. Signals without a pedestrian phase are unacceptable.

- **Median Refuge Area:** Painted medians offer little refuge, other than getting out of a traffic lane. Substantive raised medians of significant width provide some increase in security for the crossing pedestrian. The Tucan Crossings, used by the City of Tucson, offer a refuge area and a pedestrian actuation button to activate the signal for each side of the roadway.
- **Amenity:** Amenity includes such elements as signing and design features that strongly suggest or identify the presence of a pedestrian crossing.
- **Sight Distance.** Unobstructed view between the motorist and the pedestrian. This is especially important when a vehicle driver intends to make a left turn under the permissive left turn phase, and it is difficult to see around traffic queued at the opposing left turn signal.

4. Visual Interest and Amenity. To promote pedestrian activity (and use of transit), the pedestrian system needs to be aesthetically appealing. The attractiveness of the pedestrian network can range from visually attractive with environmental enhancements, such as pedestrian street lighting and transit shelters that shield users from the sun, to an experience of discomfort and intimidation, associated with absence of amenities such as these.

5. Security. Pedestrians need a sense of security. Both a visual line of sight with other pedestrians, and vehicle operators, as well as separation from vehicles, is important to pedestrians. Major portions of the Tucson region's arterials have narrow or non-existent sidewalks adjacent to the street, along strip

commercial development, with high volume, high-speed travel lanes just feet away.

Technical and Citizen Advisory Committees (TAC & CAC)

Support and oversight of this Plan's development was provided by a Technical Advisory Committee (TAC), and a Citizen's Advisory Committee (CAC). Members of these committees were solicited from announcements of the Committees' formation and need for members at the PAG Transportation Planning Committee (TPC), regional interest groups like GABA, and CTAC, as well as jurisdiction transportation departments. In addition, letters requesting appointment to both committees were sent to jurisdiction elected officials, and to all of the local school boards. The TAC has representation from all member jurisdictions and nine local school districts. The CAC consisted of a nine residents throughout the region and included a representative from the Tucson/Pima County Bicycle Advisory Committee and the Citizen's Transportation Advisory Committee.

TAC and CAC meetings were held regularly for a period of 6 months in 1999 to formulate the Plan vision, goals and objectives. Committee members also provided review of the final Plan and contributed to the Plan recommendations and strategies. A cross section of the region's ethnic diversity was represented on both committees and included members of both genders, varied age ranges, and the disabled community. All of the TAC and CAC meetings were open to the public consistent with PAG's policy of an open and non-discriminating process.

CHAPTER 4 – Pedestrian Plan

Pedestrian Area Designations

Four **pedestrian area designations** were identified for pedestrian planning purposes:

1. Pedestrian District: This type of area reflects high intensity pedestrian use areas. Examples of this are in the Tucson downtown, 4th Avenue, University of Arizona, Sabino Canyon, and regional Mall areas, which individually, and collectively, have the highest current pedestrian activity in the region.

2. Activity Corridors: This type of area is defined as the primarily commercial corridors along the Region’s arterial, and in many cases, collector streets. Currently these areas have a very high automobile dependency. By providing linear connections between retail uses, and from adjacent residential areas, pedestrian activity could be increased. In highly-congested corridors, increase in the pedestrian mode share would provide a significant benefit.

3. Activity Centers: This type of area is within one-half mile of a neighborhood, and is a recreation center, activity center, or community retail area. These have a higher probability to attract walkers, if a higher pedestrian level of service is provided.

4. Transit Routes: This type of area is within one-quarter mile of a transit stop.

Public Involvement

Public input into the planning process for this Plan began in the fall of 1998 with the advent of a new pedestrian survey. This survey was

designed by PAG and the City of Tucson in order to determine what opinions the general public had about the existing pedestrian system; and, determine where the general public perceived pedestrian improvements to be needed. The survey was placed on the PAG web-site, distributed in all Tucson-Pima Library locations, and at regional bicycle shops.

Although only 84 surveys were returned from the regional outreach effort, the feedback was consistent with comments received at open houses held later in the process. Survey respondents were from locations throughout the region, but were primarily from central Tucson. Respondents indicated a pattern of walking and bicycling at higher rates than the general population. Respondents indicated the following overall opinions and concerns:

- Most felt that that walking was important for health, environment and efficiency reasons.
- Nearly 9 out of 10 felt that the region is not pedestrian friendly.
- Lack of sidewalks, poor maintenance of sidewalks, and not being safe were three reasons why the region is not considered pedestrian friendly.
- Over 75 percent felt that they would walk more if there were more sidewalks, street lighting , safer streets, and safer street crossings.
- Over 75 percent felt that local government should provide more sidewalks, street lighting, safer streets , safer street crossings and better pedestrian connections.

In addition to the survey results and advice received from citizens and jurisdiction representatives, this Plan incorporated public

comments received at seven open houses held during the Plan's development. (See Public Involvement, Appendix A). PAG's Regional Bicycle and Pedestrian Coordinator, and the City of Tucson Bicycle and Pedestrian Planner, met with the public. Future plans and improvements to bicycle and pedestrian facilities were discussed at each of these open houses, and ideas solicited for making the region and its jurisdictions more bicycle and pedestrian friendly. These open houses were held throughout the region and included locations easily accessible by transit and for the disabled.

Implementation Plan

With the data on existing conditions as background, analysis by the TAC and CAC, along with public input, goals and objectives were formulated. A method to assess pedestrian facilities and level of service is recommended, and specific strategies are identified to form an Action Plan for implementing the Plan's Vision of a pedestrian friendly region.

The goals formulated for this Plan are:

1. Educate officials and the public to be aware of pedestrian issues, and encourage walking.
2. Promote the development and design of pedestrian facilities that are direct, safe, comfortable, interesting, and provide continuity.
3. Improve pedestrian visibility and safety.
4. Promote the enhancement, improvement and maintenance of the regional pedestrian system.
5. Identify and secure funding sources to implement pedestrian programs and projects.

These goals are broad expressions of the major components of the Plan Vision. The following objectives identify measurable elements of each Plan goal. Specific strategies, or tasks, have been identified to accomplish each objective.

Action Plan

GOAL 1: Educate officials and the public to be aware of pedestrian issues, and encourage walking

Objective 1: Promote the education and public awareness of the general public on pedestrian issues.

- Develop materials and a specific approach to provide information to the public on the need to clear privately installed or grown obstacles from public walkways.
- Develop materials to educate neighborhoods on how to achieve pedestrian friendly walkways in front of private properties (along public and private streets).
- Work with Neighborhood Associations to increase understanding of the benefits of walking as a mode of transportation by providing information in associations' newsletters.
- Develop a regional pedestrian safety program in order to provide educational information to the public.
- Conduct workshops and presentations to showcase pedestrian friendly ideas and practices.
- Build liaisons with different user communities and agencies.
- Develop a uniform set of shared-use trail guidelines to encourage safe and predictable behavior by all shared-use trail users. Display these guidelines using

signage and trail markings at regular intervals.

Objective 2: Develop databases useful for pedestrian planning, prioritization of pedestrian improvements and collision prevention.

- Conduct periodic community-wide public opinion surveys to assess the general public's perceptions on pedestrian issues.
- Develop jurisdiction inventories of pedestrian facilities, sidewalks and trails. Compile into a regional report. Use inventories as a basis to update this Plan in the future, with emphasis on more specificity.
- Develop a regional pedestrian collision database to assist in educational and roadway improvement planning and prioritization.

Objective 3: Support regional pedestrian advocacy.

- Strengthen the role of all jurisdictions in regional programs such as the FHWA Pedestrian Road Show.
- Promote the concept of pathways and walkways interconnecting as a way to improve neighborhood safety.

Objective 4: Develop a Public Information Campaign

- Publicize the environmental and health related benefits of walking both as an exercise and as a transportation mode.
- Develop and broadcast Public Service Announcements (PSA) on the benefits of walking.
- Sponsor events such as a "Walk Your Child to School" or "Walk to Work" day.
- Encourage, participate in, and help publicize walking events such as historic walking tours in neighborhoods.

- Continue to produce materials and brochures to promote walking to the general public.

GOAL 2: Promote the development and design of pedestrian facilities that are direct, safe, comfortable, interesting, and provide continuity

Objective 1: Strengthen linkages with transit, bus stops, activity centers, schools, and other major destinations.

Objective 2: Provide direct pedestrian connections by developing a completely integrated sidewalk and shared-use trail system.

- Carefully establish mid-block crossings & paths to reduce distances and promote walking
- Follow trail location recommendations in the 1989 Eastern Pima County Trails System
- Master Plan, and the 1996 Pima County Trails Plan. Support future Pima County Trails Planning efforts.
- Identify the locations of interfaces between the sidewalk network and the river parks and other shared-use trails, and promote linkages between these systems.
- Promote the retrofitting of existing streets to add sidewalks.

Objective 3: Promote pedestrian friendly land use planning and development.

- Make development regulations more pedestrian and transit friendly.
- Develop a uniform set of standards for the design and construction of pedestrian facilities.

- Provide for internal and external pedestrian access with all land use developments.
- Provide direct, safe pedestrian access from neighborhoods to adjoining shopping centers, retail areas, and schools.
- Monitor other uses of the sidewalk area, such as landscaping and cafes, to ensure that they support rather than obstruct a continuous pedestrian network.
- Locate signal poles, signage, utility appurtenances and so forth so that they do not conflict with safe pedestrian circulation and access for the mobility impaired.
- Design and support traffic calming measures to reduce speeds and potential conflicts with alternative modes of transportation, as indicated.

Objective 4: Construct all pedestrian facilities in compliance with American with Disabilities Act (ADA) standards and AASHTO guidelines.

- Construct paved or hard packed dirt shared-use pathways (minimum 12 feet wide) along at least one side of river park watercourses.
- Construct pedestrian bridges across large gaps that prevent convenient, safe, and direct pedestrian travel.
- Encourage the construction of grade-separated pathways at appropriate major roadway crossings.

GOAL 3: Improve pedestrian visibility and safety

Objective 1: Promote region-wide accessible sidewalks and street crossings.

- Install ADA accessible walkways and ramps on both sides of the street.
- Provide barrier-free wide shoulders along uncurbed roadways.
- Install pedestrian-actuation buttons or other user-friendly devices at all major signalized intersections.
- Install signalized pedestrian crossings and lighting in high pedestrian activity zones.
- Provide accessible and convenient wheelchair loading areas at all public transit stops.

Objective 2: Improve safety and convenient access for pedestrians around construction zones.

- Provide clear access through, or marked detours in, construction zones.
- Provide signage to direct pedestrian traffic safely through or around construction zones.

Objective 3: Design for pedestrian safety and provide for direct and visible pedestrian connections across major barriers such as bridges, railroads, rivers, major roadways and other features that impede pedestrian travel.

- Continue to expand arterial street lighting.
- Install curb/sidewalk treatments at arterial-street crossings to reduce the distance pedestrians need to cross.
- Provide a median refuge when crossing distances cannot be reduced for safe crossing in a single signal phase.

- Install stop bars on all approach legs at signalized intersections.
- Install safety lighting at intersections.
- Minimize curb radius at intersections and driveways at specific high pedestrian activity locations, to reduce speed of right-turning vehicles .
- Provide automatic pedestrian phases at high demand intersections, and pedestrian actuation buttons in lower demand areas.
- Consider the installation of exclusive pedestrian signal phases where traffic volumes are unusually heavy and where unusual, particularly risky conditions exist.
- Design well marked, well lit crosswalks.
- Provide audible signal indicators for visually impaired pedestrians, where warranted.

Objective 4: Improve the understanding of motorists, bicyclists, and pedestrians regarding traffic laws and proper ways to share the right of way.

- Encourage the creation of a traffic unit within all law enforcement agencies whose primary focus is to increase safety for alternative modes.
- Reduce conflicts between vehicular traffic and alternative modes of travel.
- Reduce the number of pedestrian related traffic collisions.

GOAL 4: Promote the enhancement, improvement and maintenance of the regional pedestrian system

Objective 1: Develop a maintenance request program to ensure routine maintenance of walkways, trails, street crossings and other pedestrian facilities.

- Promote a higher level of maintenance on existing sidewalks, crosswalks, and pedestrian signals and controls, through easier reporting of, and response to, defects.

Objective 2: Enhance the regional pedestrian environment.

- Provide amenities that improve the character of the pedestrian environment such as shade, landscaping, seating, and drinking fountains.
- Install human scale lighting improvements, such as varied light spacing and heights, and add to the character of pedestrian spaces using features such as luminaries.
- Develop and install way-finding devices for providing directions to pedestrian travelers.
- Form partnerships with the Arts Community to develop streetscape art to add character and interest to pedestrian pathways.
- Develop target goals for the placement of trees and seating along major pedestrian routes throughout the region.
- Set target goals for the development of walkway and streetlight improvement districts.
- Develop pedestrian places to provide breaks from adjacent vehicular movement.
- Develop human scale gateways and thresholds for pedestrian travelers.

- Enhance walkways by installing interpretive signage with information about history, culture, nature or other relevant features of the area.
- Construct shade structures such as arcades where appropriate within the urban area.

GOAL 5: Identify and secure funding sources to implement pedestrian programs and projects

Objective 1: Establish an aggressive program for the funding of new pedestrian facilities and the improvement and maintenance of existing facilities.

- Support the establishment of a dedicated funding source for alternative modes of travel.
- Encourage local jurisdictions to establish and/or increase their budgets for pedestrian facilities.

Objective 2: Provide neighborhoods with pedestrian improvement funding options from Federal, State, and local funds.

- Encourage the formation of Special Improvement Districts (SID) for pedestrian facility construction in neighborhoods.

FHWA Pedestrian Road Show

The Federal Highway Administration (FHWA), working together with the National Highway Traffic Safety Administration (NHTSA), have developed a new community/neighborhood oriented program referred to as the “Pedestrian Road Show”. PAG and the PAG member jurisdictions have been asked to participate in this program in the year 2001. The Program is designed to assist local leaders in making their communities more pedestrian friendly and in addressing their particular safety needs. The Pedestrian Road Show is designed to motivate the formation of a local group of pedestrian advocates, whether within a public agency or an organized external group. This group’s focus will be to identify and advocate for solution of problems that affect pedestrian safety and walkability.

Conclusion

This Plan provides an overview of existing conditions, and establishes goals, objectives and strategies to achieve the Plan’s Vision for a pedestrian friendly community. It is an ongoing Plan and will evolve as the region develops and implements these Plan strategies. Opportunities, such as the upcoming Pedestrian Road Show, have been actively sought to enhance the adoption of this Plan. There are many opportunities for individual citizens, neighborhoods and other groups to help the Tucson Region become pedestrian friendly. It will take dedicated funding to achieve the degree and extent of improvements that will be needed to do this.

APPENDIX A – PUBLIC INVOLVEMENT



Open House



for the

Metropolitan Tucson

Bicycle and Pedestrian Plans

Sponsored by City of Tucson & Pima Association of Governments (PAG)

Meet with City and PAG planners to discuss future plans and improvements to bicycle and pedestrian facilities. Give us your ideas for making your city a bicycle and pedestrian-friendly community.

◆ Free bike maps, refreshments, and prizes ◆

Schedule of Open Houses:

- Saturday, November 7th, 4 to 8p.m.
Armory Senior Citizen Center (downtown), 220 S. 5th Avenue
- Saturday, November 14th, 8a.m. to 12p.m.
GABA Bike Swap Meet, Pima Community College (parking lot), 2202 W. Anklam Rd.
- Sunday, November 15th, 1 to 5p.m.
Park Mall Shopping Center (in the mall area), 5870 E. Broadway
- Tuesday, November 17th, 4 to 8p.m.
El Pueblo Neighborhood Center, 101 W. Irvington
- Wednesday, November 18th, 4 to 8p.m.
Foothills Mall (in the mall area), 7401 N. La Cholla
- Thursday and Friday, November 19th and 20th, 9a.m. to 5p.m.
El Tour de Tucson Bike Festival, Tucson Convention Center, Grand Lobby

For more information contact:

Dick Schaffer, Pima Association of Governments at 628-5313

Or see PAG's website www.pagnet.org

Para información en español, llame a 791-4372 y hable con la recepcionista

Pedestrian Travel in Metropolitan Tucson Questionnaire

Thank you for taking the time to fill out this questionnaire. Your input is very important to us. The purpose of this questionnaire is to find out what we need to do to encourage more pedestrian travel in our community, and where we need to make improvements to the pedestrian/walkway system.

(Optional)

Name: _____

Mailing Address: _____

What is your zip code? _____

How long have you lived in the Tucson area? _____

How do you usually* travel to work or school?

a) car b) bus c) bike d) walk e) other _____

How do you usually* travel to go shopping, out to dinner, or for other personal purposes?

a) car b) bus c) bike d) walk e) other _____

Do you walk mainly for recreation or for commuting? _____

How many days per week? _____

Do you have a physical disability that makes it difficult to walk? _____

Is walking important to you? _____ Why? _____

Do you think your city is a pedestrian-friendly community? _____ Why? _____

Which of the following would encourage you to walk to work or school? Rank them according to level of importance. Most important = 1

If you lived closer to work or school _____

More connecting sidewalks and wheelchair ramps _____

If it was safer along busy streets/ less perceived risk _____

Better lighting along your route _____

Safer and more convenient street crossings (signals, bridges) _____

Facilities at work to shower or dress _____

If there were other people to walk with you _____

Nothing _____

Something else _____

What should your local government do to encourage more pedestrian travel? Rank them according to level of importance. Most important = 1

Provide more connecting sidewalks and wheelchair ramps _____

Provide lighting along roadways and pathways _____

Provide safe and convenient street crossings (signals, bridges) _____

Provide amenities such as bus shelters, shade trees, benches _____

Provide better pedestrian connections between neighborhoods,

shopping centers, and employment centers _____

Educate motorists and pedestrians to share the road safely _____

Provide better traffic enforcement of pedestrians and motorists _____

Reduce street crime activity and other threats to pedestrians _____

Something else _____

Where should your local government make improvements to the walkway system? _____

Please return questionnaires to:
your local bikeshop, public library or . . .

Pima Association of Governments
177 N. Church Ave., #405
Tucson, AZ 85701

PEDESTRIAN SURVEY RESULTS

Total Pedestrian Surveys: 84

How long have you lived in the Tucson area?

Average	14.8
Median	11

1-2 years	15	18%
3-5 years	7	8%
6-10 years	19	23%
11-15 years	10	12%
16-20 years	10	12%
Over 20 years	22	26%
No response	1	1%
Total	84	

Zip Codes

85701	2	2%
85704	6	7%
85705	6	7%
85710	12	14%
85711	7	8%
85712	11	13%
85713	3	4%
85715	3	4%
85716	2	2%
85718	2	2%
85719	13	15%
85730	2	2%
85737	1	1%
85741	2	2%
85742	1	1%
85743	1	1%
85745	6	7%
85748	2	2%
85750	2	2%
Total	84	

Travel to Work or School

Car	40	48%
Car/bus	1	1%
Car/bike	2	2%
Car/walk	3	4%
Car/bus/bike/walk	2	2%
Bus	11	13%
Bus/bike	4	5%
Bike	13	15%
Walk	4	5%
Other	1	1%
No response	3	4%
Total	84	

Travel to Shop/Personal

Car	53	63%
Car/bus	2	2%
Car/bike/walk	8	10%
Car/bus/bike/walk	1	1%
Bus	2	2%
Bus/bike	1	1%
Bus/walk	7	8%
Bike	4	5%
Bike/walk	2	2%
Walk	3	4%
No response	1	1%
Total	84	

Walk for Commuting or Recreation?

Commuting	15	18% (4.3 days avg.)
Recreation	51	61% (3.7 days avg.)
Both	16	19% (4.4 days)
No response	2	2%
Total	84	

How many days per week do you walk?

None	9	11%
1 day	5	6%
2 days	14	17%
3 days	7	8%
4 days	10	12%
5 days	13	15%
6 days	7	8%
7 days	19	23%
Total	84	

Is walking important to you?

Yes	77	92%
No	4	5%
No response	3	4%
Total	84	

Why? (only those that said Yes from above)

Numbers based on frequency of response for each category.

Health/fitness	61	63%
Good for the environment	11	11%
Cost effective	5	5%
More efficient than driving	13	13%
No response	6	6%
Total	97	

Is Tucson Pedestrian-Friendly?

Yes	12	14%
No	67	80%
No response	5	6%
Total	84	

Numbers based on frequency of response for each category.

Yes because...

Good pedestrian facilities	8	
Relatively safe	2	
No response	2	
Total	12	9%

No because...

Lack of sidewalks	37	
Poor maintenance of sidewalks	32	
Not safe	29	
Lack of education/enforcement	8	
No response	11	
Total	117	91%
Grand Total	129	

What would encourage you to walk more?

Numbers based on frequency of response for each category.

Lived closer to work	41	18%
More sidewalks	35	15%
Safer streets	46	20%
More street lighting	31	13%
Safer crossings	54	23%
Shower facilities at work	15	6%
Others to walk with	10	4%
Total	232	

What could local government do to encourage more walking?

Numbers based on frequency of response for each category.

More sidewalks	45	14%
More street lighting	41	13%
Safer crossings	55	17%
More streetscape amenities	41	13%
Better pedestrian connections	48	15%
Educate motorists	37	12%
Better enforcement	24	8%
Reduce street crime	27	8%
Total	318	

APPENDIX B - Design Guidelines

General Provisions & Sample Design Guidelines

These design standards are identified in the Uniform Federal Accessibility Standards of 1988 and govern:

- Accessible Route – Section 4.3
- Parking and Passenger Loading Zones – Section 4.6
- Curb Ramps – Section 4.7
- Ramps – Section 4.8

ADA Design Policies (From Chapter 4, Transportation Accessibility)

4.3 Accessible Route

4.3.1 General. All walks, halls, corridors, aisles, and other spaces that are a part of an accessible route shall comply with 4.3

4.3.2 Location.

- (1) At least one accessible route within the boundary of the site shall be provided from public transportation stops, accessible parking, and accessible passenger loading zones, and public streets or sidewalks to the accessible building entrance they serve.
- (2) At least one accessible route shall connect accessible buildings, facilities, elements, and spaces that are on the same site.
- (3) At least one accessible route shall connect accessible building or facility entrances with all accessible spaces and elements and with all accessible dwelling units within the building or facility.
- (4) An accessible route shall connect at least one accessible entrance of each accessible dwelling unit with those exterior and interior spaces and facilities that serve the accessible dwelling unit.

4.6 Parking and Passenger Loading Zones

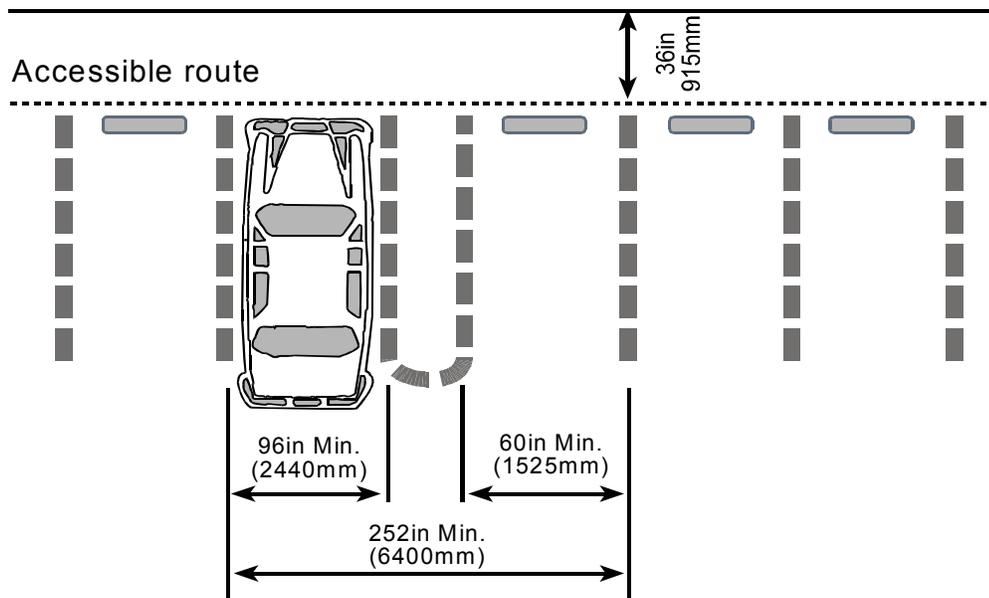
4.6.1 Minimum Number. Parking spaces required to be accessible by 4.1 shall comply with 4.5.2 through 4.6.4 Passenger loading zones required to be accessible by 4.1 shall comply with 4.6.5 and 4.6.6

4.6.2 Location. Parking spaces for disabled people and accessible passenger loading zones that serve a particular building shall be the spaces or zones located closest to the nearest accessible entrance on an accessible route. In separate parking structures or lots that do not serve a particular building,

parking spaces for disabled people shall be located on the shortest possible circulation route or an accessible pedestrian entrance of the parking facility.

4.6.3 Parking Spaces. Parking spaces for disabled people shall be at least 96 inches (2.44 meters) wide and shall have an adjacent access aisle 60 inches (1.525 meters) wide minimum (see Fig. 1). Parking access aisles shall be part of an accessible route to the building or facility entrance and shall comply with 4.3. Two accessible parking spaces may share a common access aisle. Parked vehicle overhangs shall not reduce the clear width of an accessible circulation route. Parking spaces and access aisles shall be level with surface slopes not exceeding 1:50 in all directions.

Figure 1. Dimensions of Parking Spaces

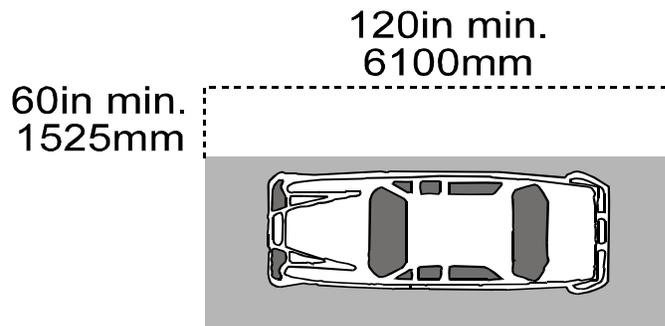


EXCEPTION: If Accessible parking spaces for cars designed for handicapped persons are provided, each should have an adjacent access aisle at least 96 in (2.44 meters) wide complying with 4.5 ground and floor surfaces

4.6.4 Signage. Accessible parking spaces shall be designated as reserved for the disabled by a sign showing the symbol of accessibility (see 4.30.5). Such signs shall not be obscured by a vehicle parked in the space.

4.6.5 Passenger Loading Zones. Passenger loading zones shall provide an access aisle at least 60 in (1.525 meters) wide and 20 feet (6.1 meters) long adjacent and parallel to the vehicle pull-up space (see Fig. 2). If there are curbs between the access aisle and the vehicle pull-up space, then a curb ramp complying with 4.7 shall be provided. Vehicle standing spaces and access aisles shall be level, with surface slopes not exceeding 1:50 in all directions.

Figure 2. Access Aisle at Passenger Loading Zones



4.7 Curb Ramps

4.71 Location. Curb ramps complying with 4.7 shall be provided whenever an accessible route crosses a curb.

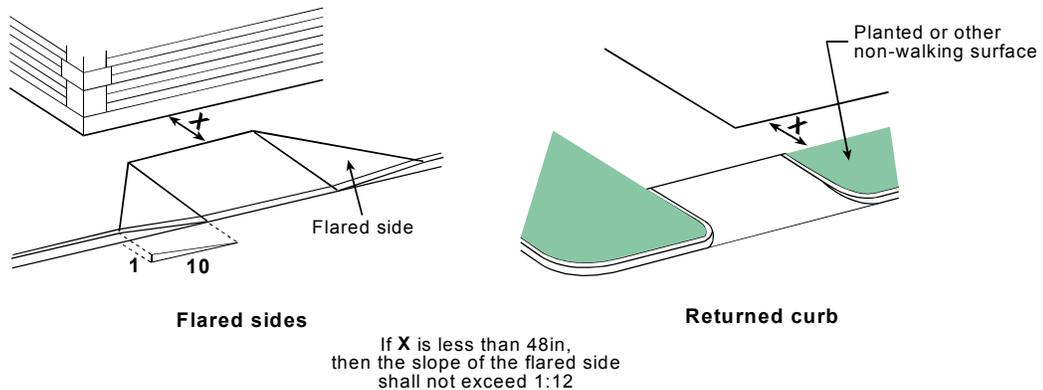
4.72 Slope. Slopes of curb ramps shall comply with 4.82. Transitions from ramps to walks, gutters, or streets shall be flush and free of abrupt gutters, road surfaces immediately adjacent to the curb ramp, or accessible route which exceed 1:20.

4.73 Width. The minimum width of a curb ramp shall be 36 inches (.915 meters), exclusive of flared sides.

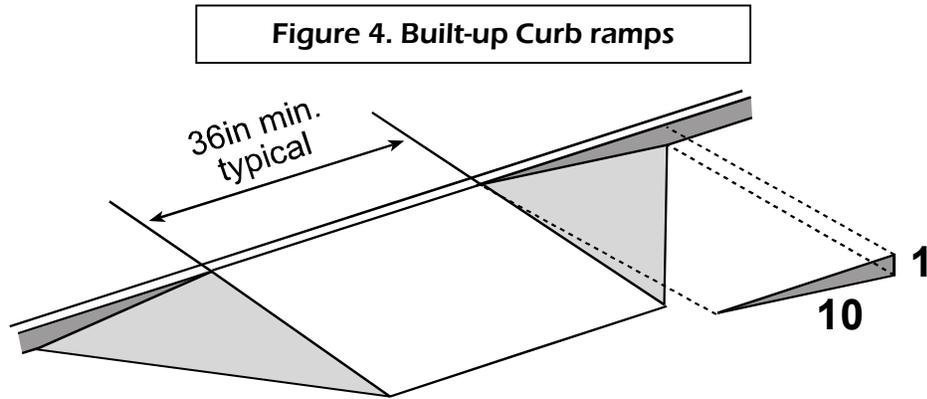
4.74 Surface. Surfaces of curb ramps shall comply with 4.5.

4.75 Sides of Curb Ramps. If a curb ramp is located where pedestrians must walk across the ramp, or where it is not protected by handrails or guard rails, then it shall have flared sides, the maximum slope of the flare shall be 1:10. Curb ramps with returned curbs may be used where pedestrians would not normally walk across the ramp (see Fig. 3).

Figure 3. Sides of Curb Ramps



4.76 Built-up Curb Ramps. Built-up curb ramps shall be located so that they do not project into vehicular lanes (see Fig. 4).



4.77 Warning Textures. (Removed and reserved).

4.78 Obstructions. Curb ramps shall be located or protected to prevent their obstruction by parked vehicles.

4.79 Location of Marked Crossings. Curb ramps at marked crossings shall be wholly contained within the marking, excluding any flared sides (see Fig. 5).

4.80 Diagonal Curb Ramps. If diagonal (or corner type) curb ramps have returned curbs or other well defined edges, such edges shall be parallel to the direction of pedestrian flow. The bottom of diagonal curb ramps shall have 48 inches (1.22 meters) minimum clear space as shown in Fig. 5(c) and (d). If diagonal curb ramps are provided at marked crossings, the 48 inch (1.22 meters) clear space shall be within the markings [see Fig. 5(c) and (d).] If diagonal curb ramps have flared sides they shall also have at least a 24 inch (.61 meters) long segment of straight curb located on each side of the curb ramp and within the marked crossing [See Fig. 5 (c)].

4.710 Islands. Any raised islands in crossings shall be cut through level with the street or have curb ramps at both sides and a level areas at least 48 in (1220 mm) long in the part of the island intersected by the crossings [see Fig. 5(a) and (b).]

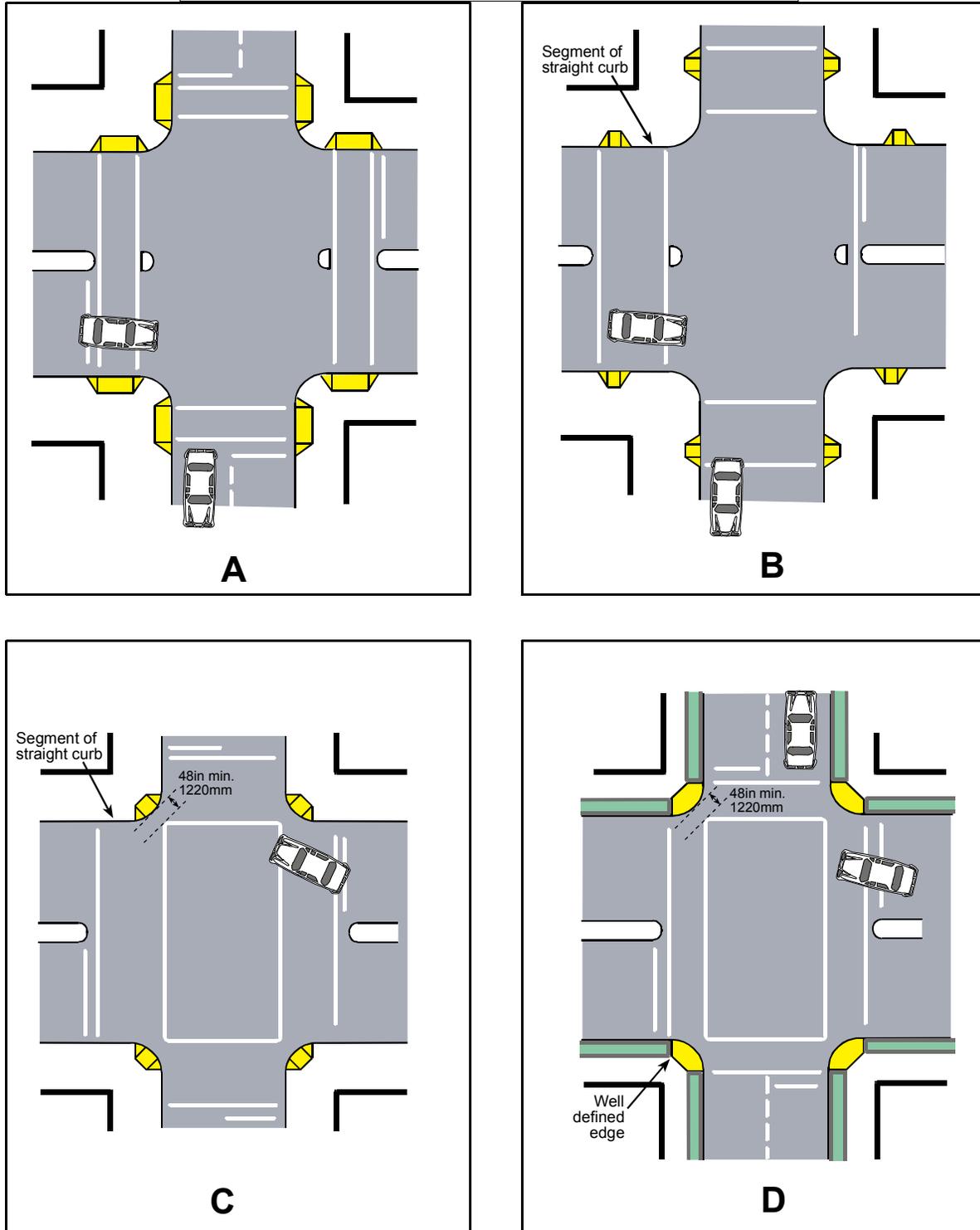
4.711 Uncurbed Intersections. (Removed and reserved).

4.8 Ramps

4.8.1 General. Any part of an accessible route with a slope greater than 1:20 shall be considered a ramp and shall comply with 4.8.

4.8.2 Slope and Rise. The least possible slope shall be used for any ramp. The maximum slope of a ramp in new construction shall be 1:12. The maximum rise for any run shall be 30 inch (.76 meters) (see Fig. 6).

Figure 5. Curb Ramps at Marked Crossings



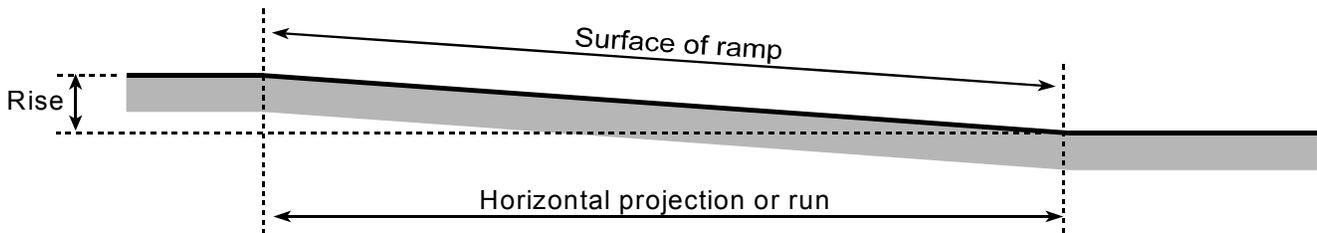
4.8.3 Clear Width. The minimum clear width of a ramp shall be 34 inches (.86 meters).

4.8.4 Landings. Ramps shall have level landings at the bottom and top of each run. Landings shall have the following features:

- (1) The landing shall be at least as wide as the ramp run leading to it.
- (2) The landing length shall be a minimum of 50 inches (1.27m meters) clear.
- (3) If ramps change direction at landings, the minimum landing size shall be 60 inches by 60 inches (1.52 meters by 1.52 meters).

If a doorway is located at a landing, then the area in front of the doorway shall comply with 4.13.6.

Figure 6. Components of a Single Ramp Run and Sample Ramp Dimensions



Slope	Maximum rise		Maximum horizontal projection	
	in	mm	ft	m
1:12 to < 1:16	30	760	30	9
1:16 to < 1:20	30	760	40	12

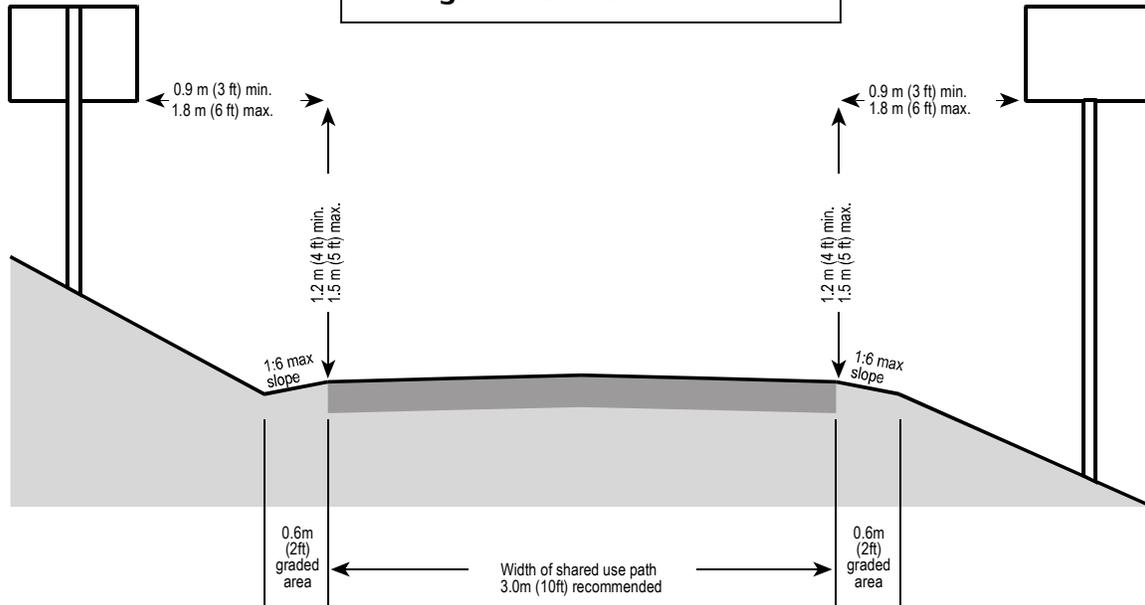
Shared Use Paths

Shared use paths are facilities on exclusive right-of-way with no or very minimal cross flow by motor vehicles. Users may include, but are not limited to: bicyclists, in-line skaters, roller skaters, wheelchair users (both non-motorized and motorized) and pedestrians, including walkers, runners, people with baby strollers, or people walking dogs. These facilities are most commonly designated for two-way travel and the guidance herein assumes a two-way facility is planned unless otherwise stated. Shared use paths should not be used to preclude on-road bicycle facilities, but rather to supplement a system of on-road bike lanes, wide outside lanes, paved shoulders and bike routes.

Paths along highways are permissible, given no or virtually no driveways or cross streets, and appropriate separation between facilities. Some problems with paths located immediately adjacent to roadways are as follows:

1. Unless separated they require one direction of bicycle traffic to ride against motor vehicle traffic, contrary to normal rules of the road. (Wrong-way riding contributes to more bicycle-motor vehicle collisions than any other single act of conduct by bicyclists.)
2. When the path ends, bicyclists going against traffic will tend to continue to travel on the wrong side of the street. Likewise bicyclists approaching a shared use path often travel on the wrong side of the street in getting to the path. (See prior note regarding collision potential this behavior creates.)
3. At intersections, motorists entering or crossing the roadway often will not notice bicyclists approaching from their right, as they are not trained or conditioned to expect contra-flow vehicles.
4. Signs posted for roadway users are backwards for contra-flow bike traffic; therefore these cyclists are unable to read the information.
5. When the available right-of-way is too narrow to accommodate both highway and shared use path features, the separation between the two or the width of the path may be improperly reduced.
6. Many bicyclists will use the roadway instead of the shared use path because they have found the roadway to be more convenient, better maintained or safer. Bicyclists using the roadway may be harassed by some motorists who feel that in all cases bicyclists should be on the adjacent path.
7. Although the shared use path should be given the same priority through intersections as the parallel highway, many motorists falsely expect bicycles to stop or yield at all cross street and driveways. Shared use paths should be merged into regular pedestrian crosswalks at intersections in order to avoid this problem.

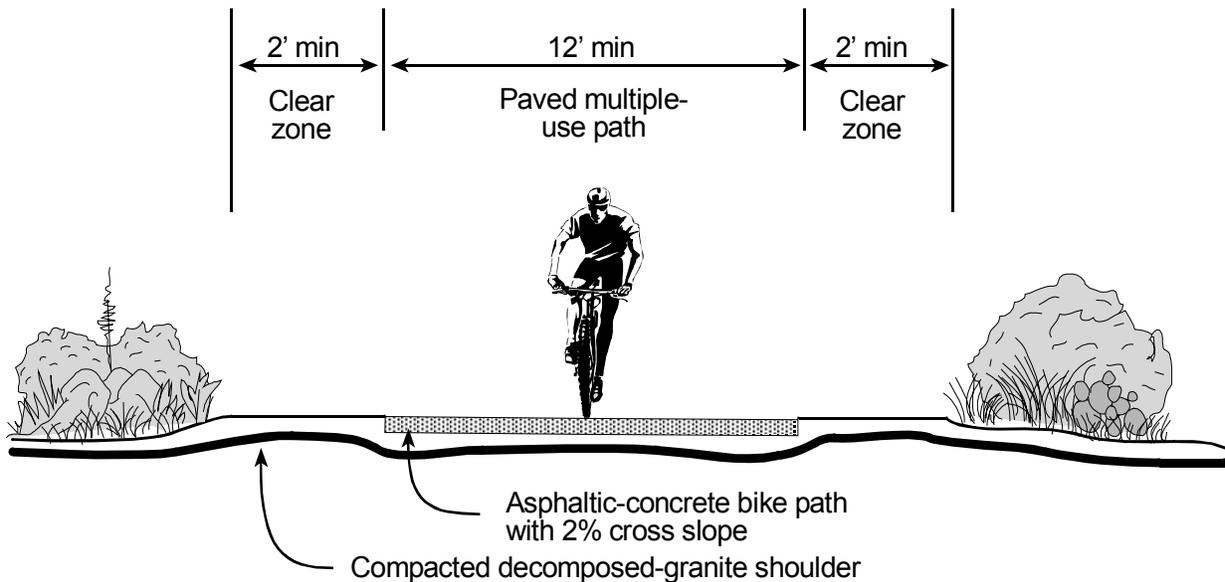
Figure 7. Shared Use Path



8. Stopped cross-street motor vehicle traffic or vehicles exiting side streets or driveways may block the path.
9. Because of the proximity of motor vehicle traffic to opposing bicycle

traffic, barriers are often placed to keep motor vehicles out of shared use paths and bicyclists out of traffic lanes. These barriers present an obstacle to both bicyclists and motorists.

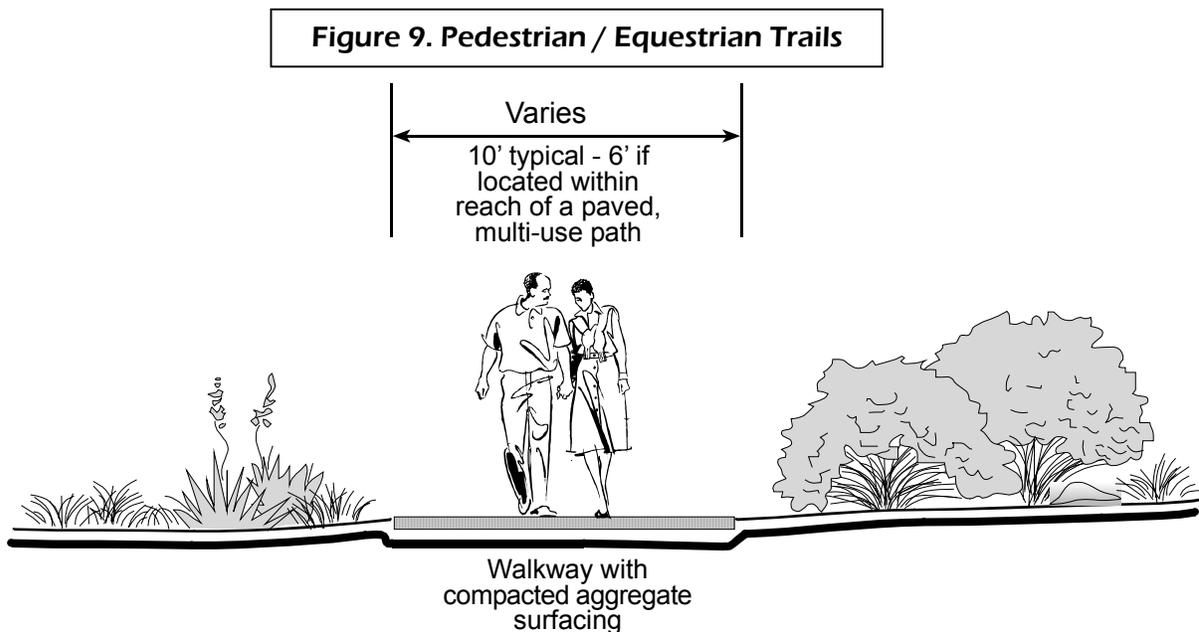
Figure 8. Paved Shared Use



The paved width and the operating width required for a shared use path are primary design considerations. Figure 7 depicts a shared use path on a separated right of way. Under most conditions, a recommended minimum paved width for a two-directional shared use path is 10 feet. In rare instances, a reduced width of 8 feet can be used. Under certain conditions it may be necessary or desirable to increase the width of a shared use path to 12 feet, or even 14 feet, due to substantial use by bicyclists, joggers, skaters and pedestrians, and/or steep grades and clearance for maintenance vehicles. A minimum 2-foot wide graded area with a maximum 1:6 slope should be maintained adjacent to both sides of the path.

Design Standards for Shared Use Path and Pedestrian Trails

Design guidelines have been established for both Shared Use Paths (Fig. 8) and Pedestrian/Equestrian Trails (Fig. 9) in the Pima County River Parks Master Plan. These guidelines are referenced by the Pima County-City of Tucson Standard Specifications and Standard Details and other applicable guidelines.



APPENDIX C – PEDESTRIAN FUNDING

	Arizona State Park's Board's Grants		Federal Recrea- tion Trails Pro- gram (Adminis- tered by Arizona State Parks)	Arizona Game & Fish, Public Land Access Program.	River, Trails & Conservation Assistance Pro- gram (RTCA)	Challenge Cost Share Program, BLM & USFS.	Federal TEA-21 Transportation Enhancement Funds	TEA -21 Transportation Funds	American Hiking Society/National Trails Endow- ment	National Foundations	Recreation Gen- eral Obligation Bonds	Improvement Districts	COT Back to Basics	
	State Heri- tage Fund- Local, Re- gional & State Parks (LRSP)	Historic Preserva- tion Fund												
Sidewalk Construction & Improvement	No	No	No	No	No	No	Yes Construction Only	Yes, Construction only & as part of a roadway project.	No	No	Yes, Construction only & as part of projects	Yes	Yes	
Motorized or Non-Motorized Trails	Both	Both	Non- Motorized (NM)	Both	Both	Both	NM	NM	NM	Both	Both	Both, de- pending on local ordi- nance.	Both, depending on local ordi- nance.	
Land Acquisition	Yes	No	Yes	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	
Construction	Yes	No	Yes	No	No	Yes	Yes	Yes, if part of the roadway right-of-way	Yes	Yes	Yes	Yes	Yes	
Rehabilitation	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes, if part of the roadway right-of-way	Yes	Yes	Yes	Yes	Yes	
Planning	No	No	No	Yes	Yes	Yes	No, Design, Engineering & Construction	No, Design, Engi- neering & Construc- tion	No	No	Staff selects projects. Voters approve / defeat entire list.	No	No	
Recreation or Transportation	Rec.	Either	Rec.	Rec.	Either for plan- ning purposes only.	Either	Transportation	Transportation	Generally Rec- reation	Either	Recreation	Either	Either	
Multimodal	Yes	Yes	Only Non- Motorized	Yes	Yes, for planning purposes only.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Historic Preservation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Education/ Outreach	No	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No	No	
Loans, Grants, Matching Funds Re- quired?	Grants, Matching Required	Grants, Matching Required	Grants, Matching Required	Trail maine- nance crew services.	Grants, matching funds or in-kind services	Grants, matching funds or in-kind services	Reimbursement program, not a grant. Local match required.	Reimbursement program, not a grant. Local match required.	Grants	Both	Grants	Loan, Prop- erty owners assessed cost.	Grant to neigh- borhood. No matching re- quired.	
Funded only as part of com- munity facilities	No	No	No	No	No	No	No	Yes, Must be part of a roadway project.	No	Prudential Foundation - Phoenix Area	Stand alone or as part of park devel- opment	No	No	
Annual Budget	Up to \$3.5 Million - State Lottery	Up to \$1.45 Million - State Lottery	Up to \$475,000 - State Lottery	App. \$460,000	\$150,000	\$10,000 maximum grant	\$30,000 maximum grant	\$500,000 limit per project	No limit. Must be part of overall transporta- tion project.	Up to \$10,000	Not available	Local funds	Neighor- hood funds.	\$800,000 per grant
Availability to cities, counties, state agencies, tribes, private groups	All, except private	All	All, except private	All, except private	All, except private	All	All	All, except private	All, except private	Trail Organi- zations	All	All, except tribal and private.	All, except tribal and private.	
Current Appli- cation Dead- line, Awarded	February September	March September	February September	To be determined	November May	Open	March 1 every year	June, locally, Awarded January by the state.	Must be in Regional Transportation Plan & Improvement Pro- gram. Awarded to local jurisdiction.	Varies	Varies	NA	NA	November May

APPENDIX D - Indicators of Neighborhood Stress

Background

The individual data items that comprise the Composite Stress Index were selected after an extensive literature review on social indicators as predictors of community needs. The variables selected reflect the physical and social conditions indicative of dependency and need and are related to economic status, shelter costs and conditions, as well as possible social dependency (i.e., youth, old age, disability).

This approach is unique to the City of Tucson, so far as we know, as it did not exist in the literature. The City of Tucson planning staff developed this approach 15 years ago. These variables were originally selected in 1983 for their utility in assisting the Community Development Block Grant process, especially in prioritizing needs: that is, variables were limited to information reflective of housing and family needs typically addressed by CDBG programs. Each variable contributed equally to the overall composite score - there was no theoretical basis for differential weighting that we found credible.

Our review of the literature did not reveal any National standards or thresholds upon which neighborhoods might be judged or weighed. We did not find theory or practice, attractive to us, which might tell leaders when an area needed assistance. These decisions are innately political in that they involve the distribution of public monies and goods. We found no mathematical substitute for human judgement.

Given these facts, staff decided that all one could do was measure the City's

"neighborhoods" against the average condition of the City as a whole. Thus, the statistical method used simply measures areas in standard deviation units from the mean of the City. Because of this, it is difficult to say from one decade's census to the next whether or not an area "improved" other than to say that its rank may have changed up or down relative to the City average for these factors.

Individual scores were standardized or normalized to remove differences in scale and variation among the variables. This process created variables whose means are zero and whose standard deviations are +/- 1.0. An overall or composite score was obtained by averaging all 31 scores. The higher the score, the greater the social and housing related "stress" in the area. Areas with scores greater than the average for the City were deemed to be "stressed." The degree of stress is indicated by the score, that is, the standardization process gives scores in standard deviation units. A score of +1.5 indicates that, on average, over 31 measures, the area's composite score was 1.5 standard deviation units greater than the mean score of the City. There is no consideration of whether the City's condition is good, bad, or indifferent. These data reflect only population and housing variables. Highly relevant matters such as nutritional status, health status, recidivism, crime, etc., were not included in this approach as used in 1983 and 1992 following the release of census data from the sample portion of the census at block group level.

Caveats

Caution must be exercised in the use of these data and interpretations of their meaning. The indicators of neighborhood stress are provided to assist in fuller assessments of areas to be supported by community resources. These scores have no agenda. The scores and rankings of “neighborhoods” [actually census block groups which are of neighborhood scale but might not be neighborhoods *per se*] are intended to be used as supporting facts and are not intended to be used as a substitute for human judgment. Areas scored as having very low need or dependency may in fact have serious problems concerning issues or subjects outside the scope of this study. Conversely, areas with very high scores indicative of great need and dependency may have healthy, vital households. These scores are not qualitative assessments of an area’s spirit or vitality; rather, these scores are simple, mathematical indicators of population and housing facets indicative of need. This instrument is only one factor to be considered in evaluation of an area. Depending upon the program in question, other factors should also be considered, such as health, nutrition, crime, other programs in place, and the organizational resources or assets of any neighborhood group.

Neighborhood Stress Elements

Neighborhood Stress scores are based on information obtained from the 1992 City of Tucson Indicators of Neighborhood Stress report. The Report provides an index of population and housing characteristics that can be used as supporting information in targeting areas for housing rehabilitation and implement programs to support and nourish those in need. The Report identified

31 data items from the 1990 Census which were judged the best indicators of social dependency and housing need. The specific factors identified in the Report include the following:

1. Minor Population

Persons 18 years old or less as a percentage of the total population.

2. Elderly Population

Persons aged 65 years or more a percentage of the total population.

3. Minority Elderly Population

Persons aged 65 years or more who are not White, non-Hispanic as percentage of the total population.

4. Pre-School Index

Children 5 years or less as a percentage of the total youth population aged 18 years or less.

5. Dependency Index

Ratio of youths (18 years or less) and elderly (65 years or more) to working age persons (19 – 64 years)

6. Fertility Index

Number of children less than 5 years of age per 1,000 women aged 15 to 44 years of age.

7. Language Disability

Persons 18 years and over who do not speak English well or at all as a percentage of the population aged 18 years and over.

8. Mobility Disability

Civilian, noninstitutionalized persons 16 years and over with a disability limiting mobility and self-care as a percentage of all civilian, noninstitutionalized persons 16 years and over.

9. Work Disability

Persons aged 16 to 64 years of age with a work disability as a percentage of all persons 16 to 64 years of age.

10. Poverty Status - Persons

Persons below the poverty level as a percentage of all persons for whom poverty status is ascertained.

11. Poverty Status - Families

The number of families below the poverty level as a percentage of all families for whom poverty status is ascertained.

12. Poverty Status - Elderly Persons

Persons 65 years or over who are below the poverty level as a percentage of all persons 65 years or over.

13. Educational Attainment

Persons aged 25 years and over who have completed less than 4 years of high school as a percentage of all persons 25 years and over.

14. Unemployment Rate

Unemployed persons 16 years and over who are in the civilian labor force as a percentage of all persons 16 years and over in the labor force.

15. Not Working in 1989

(replaces a variable used in 1980 which is no longer available) Persons 16 years and over with no employment in 1989 as a percentage of all persons 16 years and over.

16. Working Mothers

Females 16 years and over who are in the labor force and have children under 5 years of age as a percentage of all females 16 years and over with children under 5 years of age.

17. Female Householder

Families who have a female householder with related children under 18 with 18 years of age.

18. Family Dependency Index

Families that have related children under 18 years and families that have

19. Crowding

Housing units which have more than 1.01 persons per room as a percentage of all occupied housing units.

20. Sanitation/Crowding

Housing units that lack plumbing for exclusive use and which have more than 1.01 persons per room as a percentage of all occupied housing units.

21. Plumbing

Housing units that lack plumbing for exclusive use as a percentage of all housing units.

22. Housing Age

Housing units built before 1940 as a percent of all housing units.

23. Kitchen Facilities

Housing units which lack complete kitchen facilities as a percent of all housing units.

24. Sewage Disposal

Housing units which are not connected to either a public sewer or septic tank as a percentage of all housing units.

25. Source of Water

(Replaces a variable used in 1980 which is no longer available) Housing units whose source of water is either dug wells or some source other than public/private water companies and drilled wells as a percentage of all housing units.

26. Heating Fuel

Occupied housing units lacking adequate heating fuels, i.e., that use fuel oil or kerosene, wood, coal, or no fuel at all, as a percentage of all occupied housing units.

27. Vacancy Rate

Vacant housing units as a percentage of all housing units.

28. Owner Costs

Owner households with incomes less than \$20,000 with owner costs exceeding 34% of their income as a percentage of specified owner occupied housing units.

29. Renter Costs

Renter households with incomes less than \$20,000 with gross rent exceeding 34% of their income as a percentage of specified renter occupied housing units.

30. Communications

Occupied housing units with no telephone and with a householder aged 65 years or over as a percentage of all occupied units.

31. Access

Occupied housing units with no vehicle available as a percentage of all occupied units.

Information about population and housing characteristics is central in the assessment of community needs. These data are necessary but not sufficient in forming a comprehensive strategy for community development and betterment. These data can be used as supporting information in targeting areas for rehabilitation and renewal of the physical housing stock and for implementing programs to support and nourish persons in need.