HEALTH IMPACT ASSESSMENT

THE PINAL CREEK TRAIL

Gila County
Health & Emergency Management
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Paramount Public Health Services

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Arizona Department of Health Services

Health Impact Assessment
The Pinal Creek Trail

August 2015

Prepared for

The City of Globe and Gila County

Funded by

Funding for this project is provided by the National Centers for Chronic Disease Prevention and Health Promotion (CCDPH) under grant number U58DP004793.

Prepared by

Paramount Public Health Services, on behalf of the Gila County Division of Health and Emergency Management

Table of Contents

List of Tables

List of Figures

Executive Summary

Background

The creation of a trail in a portion of the Pinal Creek Basin that runs through the City of Globe has been a subject of community interest for many years. Two formal studies have been completed which identified potential trail beginning and end points, as well as issues which needed to be addressed prior to trail construction. This Health Impact Assessment (HIA) focused on the potential health impacts (both positive and negative) of the Pinal Creek Trail.

Pathways

During the HIA process, the HIA Project Team developed pathways by which the Pinal Creek Trail plan could have a long-term impact on health outcomes. These pathways were utilized to guide the assessment and recommendations phases. The pathways which were developed are:

Pathway 1	Increased physical activity
Pathway 2	Increased community enrichment and civic pride
Pathway 3	Increased social cohesion
Pathway 4	Reduced vehicle trips
Pathway 5	Increased public and personal safety
Pathway 6	Increased economic benefit

Assessment

During the assessment phase, stakeholder input was gathered through a series of meetings. Additionally, a community survey and open forums elicited community feedback. Through these mechanisms, numerous potential health impacts of the trail were identified. These included increasing physical activity, reducing chronic disease rates, reducing vehicle trips, reducing pedestrian/vehicle accidents, increasing community pride and tourism, and increasing social cohesion.

Key Findings

Health assessment

- Gila County has higher rates of chronic diseases than statewide averages
- Gila is the county in Arizona with the worst health outcomes

Pinal Creek Trail survey

- 81% would use the Pinal Creek Trail
- 87% believed the Pinal Creek Trail would increase physical activity rates
- 94% indicated that the Pinal Creek Area is difficult to use and needs improvements
- 79% would use the trail to access amenities that are within ¼ mile of the trail
- 86% supported the creation of the Pinal Creek Trail

Economic impact

- Parks and open spaces increase property values within 500 feet by an average of 5%
- The Pinal Creek Trail could increase property values in Globe $454,410 to $1,363,230
- Nearly 10% of visitors to Pinal County come specifically to visit parks and open spaces
- In 2009, tourists to parks in Pinal County contributed $36.5 million dollars to the local economy
- The Pinal Creek Trail could increase tourism dollars in Globe by $279,590 annually

Recommendations

In order for the Pinal Creek Trail project to continue to move forward, the HIA team makes the following recommendations:

Pathway 1

- Construct a pilot segment of Pinal Creek Trail to gauge usage, community support, and enthusiasm.
- Monitor number of users, purpose for use, and activity levels along the completed segments of the trail.
- Coordinate community events that promote physical activity.

Pathway 2

- Prepare a communitywide trail system plan.
- Establish a private non-profit organization to build community support, raise funds, and lead community efforts to implement the Pinal Creek Trail plan.
- Install signage that indicates historical landmarks, amenities, and informs user(s) of distance traveled.
- Determine the level of community support for construction of the trail.

Pathway 3

- Hold community events and activities at key locations along the trail to bring community members together and help increase social cohesion among Globe residents.
- Establish a property owners working group to bring owners together and troubleshoot issues involved with trail construction and maintenance.
- Identify key stakeholders with broad outreach capacity; determine support and identify how they can contribute to implementation of the trail.

Pathway 4

- Prepare a community inventory of existing pedestrian and bicycle infrastructure.
- Identify and prioritize improvements that will provide access to the trail.
- Coordinate with Cobre Valley Transit to add stops along the Pinal Creek Trail route.

Pathway 5

- Prepare an inventory of potential safety issues for trail users and identify potential mitigation responses.

Pathway 6

- Estimate the cost of construction and maintenance for each segment of the trail.
- Identify potential private, public, and non-profit funding sources to support trail construction and maintenance.
- Develop a promotional program that focuses on the positive contribution the trail will make to both resident health and economic health of the Globe community.

Conclusions

The Pinal Creek Trail HIA concludes that the creation of a trail in a section of the Pinal Creek Basin will have a positive impact on the health of Globe and Gila County residents. Specifically, the trail will increase the opportunities for physical activity, and will provide a safer route for pedestrians and bicyclists than what is currently available. Additionally, the creation of the trail and other recreational amenities will increase the community pride and tourism in the City of Globe. It is also likely that property values along the trail will increase. There were no negative health impacts identified as a result of this HIA. The recommendations presented can provide guidance and structure as the plans for the Pinal Creek Trail move forward.

Acknowledgments

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Funding

This project was funded in part by the National Centers for Chronic Disease Prevention and Health Promotion (CCDPH) under grant number U58DP004793. This grant is governed by the Arizona Department of Health Services. The grant aims to "fund projects that ensure health is considered in the decision making process(es), where it is not traditionally considered. The project will address access to places for physical activity through innovative solutions from broad policy, systems and environmental change perspective" (CDC, 2014).

Partners

The Gila County Division of Health and Emergency Services would like to express gratitude for the following individuals and agencies that were supportive in the collection of data, providing training opportunities, and sharing input and expertise.

Arizona Alliance for Livable Communities
Dean Brennan, FAICP

Arizona Department of Health Services
Anissa Jonovich, MPH, HPM III-Community Planner

Arizona Department of Transportation (ADOT)
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Miami School District
Sherry Dorathy, EdD, Superintendent

Jacob's Engineering
Richard Powers, PE, Project Manager

Introduction

Introduction to Health Impact Assessments

Health in All Policies is an approach which incorporates health considerations into decision-making, in order to improve the health of all people (Rudolph, Caplan, Ben-Moshe, & Dillon, 2013). Health in All policies encompasses a wide spectrum of activities, all which have the common goal of considering the health impact of policies. A Health Impact Assessment (HIA) is a tool of Health in All Policies which measures how a policy, plan, project or program will impact the health of the surrounding community (World Health Organization, 2015). Using scientific data, stakeholder input, and public participation, HIAs seek to maximize positive public health outcomes and minimize overall negative health impacts. The information generated by an HIA aids decision makers and promotes Health in All Policies. An HIA consists of 6 steps:

STEP 1
Screening

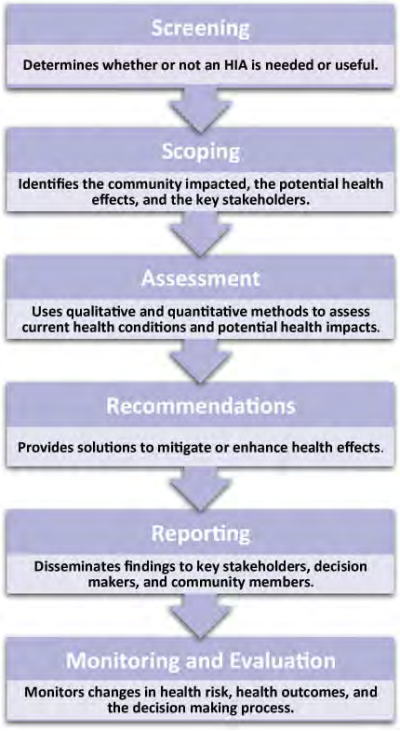
Determines whether or not an HIA is feasible, timely, and will aid the decision-making process. Essential tasks are to identify the policies, programs, plans, and projects that will be impacted by the HIA, decide who will be involved,

and make a decision about whether or not to proceed. Stakeholders must be notified of any decision made.

STEP 2
Scoping

Designs and plans the specific issues and demographic considerations when completing an HIA, including a logic pathway and written project plan. This step identifies all potential health effects, as well as process-essential stakeholders.

Figure 1 ▼
HIA process flow



STEP 3
Assessment

Determines how and which impacts will be informed by data. This includes benchmarking data for affected populations, gauging the effects of alternative decisions, and evaluating the certainty of those predictions. Assessment may be informed by other HIAs, and should be based on reliable data, and include the direction, magnitude, severity, and distribution of health effects, along with non-health effects.

STEP 4
Recommendations

Provides evidence-based recommendations for each impact identified. Recommendations can include alternative decisions or modifications to the proposal. Each recommendation should be tied to an indicator that can be monitored.

STEP 5
Reporting

The reporting step involves first developing and then disseminating the HIA report.

First, this written report serves to document the HIA participants, steps involved, and data collected and analyzed.

Second, circulating the findings to stakeholders and community members will be accomplished by emailing the final report to all stakeholders and all survey respondents who provided email addresses, posting the final report on the Gila County website and Facebook page, and finally hosting a public meeting to present the findings. The HIA Project Team decided it was not necessary to present the findings to the Gila County Board of Supervisors separately, because the Chairman of the Board of Supervisors, Michael Pastor, is a member of the HIA Project Team and has been serving as the project champion. It was also deemed unnecessary to present separately to the Globe City Council, because the City Manager, Brent Billingsley, and the Development Services Director, Chris Collopy, are stakeholders and have been involved with the HIA project from its onset. Consequently, relevant information has been relayed to the Gila County Board of Supervisors and the City of Globe throughout the HIA process. Additionally, given their meeting constraints, it would be difficult for these groups to allocate enough time to adequately present the findings of the HIA. Instead, the public forum will be open to all interested individuals, including County officials, City officials, stakeholders, The Pinal Creek Trail Committee, and community members. The public meeting is scheduled at the Globe City Hall on August 27, 2015 from 5 pm – 7:30 pm. The Pinal Creek Trail HIA Co-project Managers, Bethany Cheney and Dezirae Williams, will present the findings on behalf of the HIA Project Team. Additional presentations will be held as needed.

STEP 6
Monitoring and Evaluation

HIAs are most effective when a specific proposal is under serious consideration, and key decisions have yet to be made. HIAs are designed to incorporate many stakeholder and community perspectives while focusing on health impacts. In order to adequately inform policy makers and decision makers, it is important that sufficient resources and scientific data are available to support any assessment. Furthermore, HIAs have a particular position within the decision making process: they should only be used when public health impacts would not otherwise be addressed, and they occupy a specific time frame in order to best advise decision makers how exactly to execute a plan.

Ideally, HIAs should be a fusion of diverse stakeholder input, scientific data, and project-specific expertise. HIAs are meant to minimize negative health impacts, while maximizing positive health outcomes by recommending certain changes to a policy, plan, project, or program. In addition, HIAs should engage communities and stakeholders to encourage implementation of the recommendations to maximize positive health outcomes. In so doing, an HIA aims to maximize health benefits while acting as an inclusive process in which a community may lend its voice.

Background

Pinal Creek Trail

Pinal Creek Area

The Pinal Creek Basin is located in central Arizona, approximately 80 miles east of Phoenix. The Pinal Mountains form its southern boundary and the Apache Peaks and Globe Hills form the eastern boundary (Arizona Department of Environmental Quality, 2015). The cities of Globe and Miami are focal communities in the basin.

The Pinal Creek Trail corridor study area is an 8.2 mile section of the basin which includes the City of Globe and portions of Gila County. The study corridor area is adjacent to the Pinal Mountains and Tonto National Forest and offers visitors spectacular views, as well as access to community parks and other amenities. The center of the corridor is near the downtown district of Globe (Jacobs, 2012). Figure 2 depicts the location of the Pinal Creek Basin relative to the State of Arizona, and Figure 3 depicts the location of the Pinal Creek Basin relative to the City of Globe.

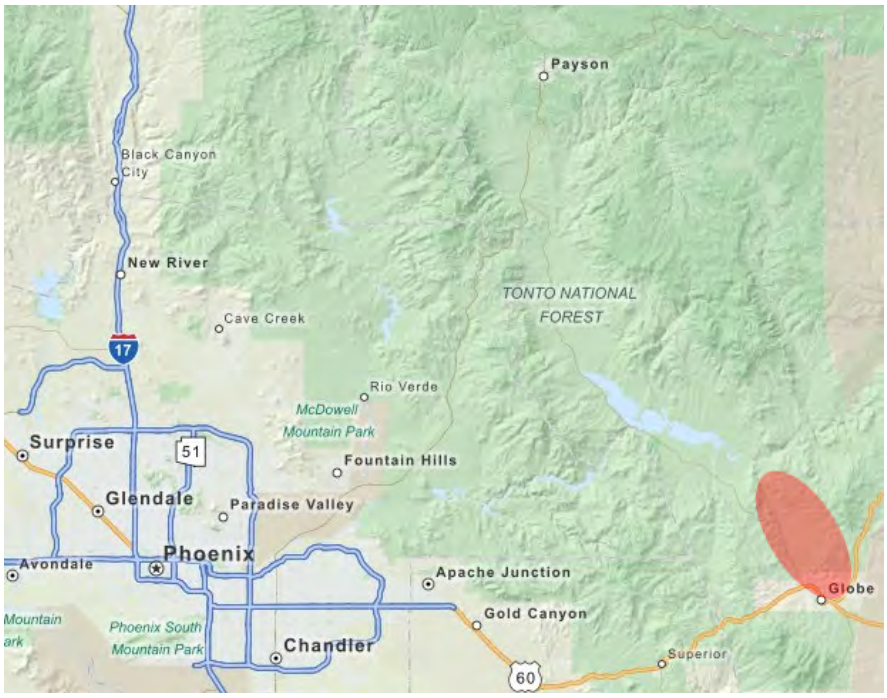


Figure 2 ◄
Pinal Creek Basin.
Note: map from AZDEQ.

Figure 3 ◄
Relation of Pinal Creek Basin to the City of Globe.
Note: map from Google Earth.

Pinal Creek Trail Concepts and Studies

The community has been focused on the creation of a multi-use trail along a portion of Pinal Creek that runs through the City of Globe for many years. Informal community discussion spurred two formal studies on behalf of the City of Globe and Gila County:

- The University of Arizona (UA) College of Architecture completed the first study of Pinal Creek Trail titled Pinal Creek Linear Park Concept Report in 1992 as requested by the City of Globe.
- In 2012, Jacob's Engineering prepared the Pinal Creek Trail Conceptual Plan in conjunction with the Cobre Valley Comprehensive Transportation Report.

Multiple partnerships were involved in the preparation of these studies: the Arizona Department of Transportation (ADOT) provided funding through the Planning Assistance for Rural Areas (PARA) Program, the Federal Highway Administration's (FHWA) State Planning and Research Program (administered through ADOT's Multimodal Planning Division), the City of Globe, Gila County, Jacob's Engineering, and local organizations, including the Globe/Miami Chamber of Commerce and the Southern Gila County Economic Development Group.

The UA study examined crucial steps the community must implement to successfully complete the trail/greenbelt, and suggested various studies be conducted before any construction take place. The Jacobs Engineering study focused on city planning and research for alternate modes of transportation, including walking and biking to key educational and recreational points of interest along Pinal Creek.

Comparatively, the two studies were not entirely uniform. The UA report divided the 3.5 mile trail into five reaches

(segments), whereas the Jacobs Engineering study expanded the trail length to 8.2 miles, which was divided into four segments. Although the UA report appeared to offer an advantageous starting point, further study offered a better location for the proposed trail. Additional analyses unveiled a number of complications with the trail project. Their reports proposed several trail-heads and trail-ends; the UA study suggested starting the trail at Besh-Ba-Gowah Pueblo Ruins and ending at the Globe Chamber of Commerce, while the Jacobs Engineering study recommended starting at Gila Community College and ending at Bixby Road. According to Jacobs Engineering, the trail start and end points were modified slightly from 1992 to 2012 to comply with the City of Globe's request as stated in the Globe 2035 General Plan.

Table 1 ▼
Comparison of the Two Formal Studies

	Trail length	Number of segments	Trail beginning point	Trail end point
University of Arizona	3.5 miles	5	Besh-Ba-Gowah Archeological Park	Globe Chamber of Commerce
Jacobs	8.2 miles	4	Gila Community College	Bixby Road

Table 2 ◀
Boundaries of the Five Reaches Proposed by the UA Study

Segment limits	ID
Besh-Ba-Gowah to Carico Street Bridge	Reach 1
Carico Street Bridge to Sycamore Pedestrian Bridge	Reach 2
Sycamore Pedestrian Bridge to Broad Street Crossing	Reach 3
Broad Street Crossing to US Highway 60	Reach 4
US Highway 60	Reach 5

Note: table from Jacobs 2012, p. 30

Figure 4 ▼
Map of the five reaches proposed by the UA study.

Note: map from Jacobs 2012, p. 5.

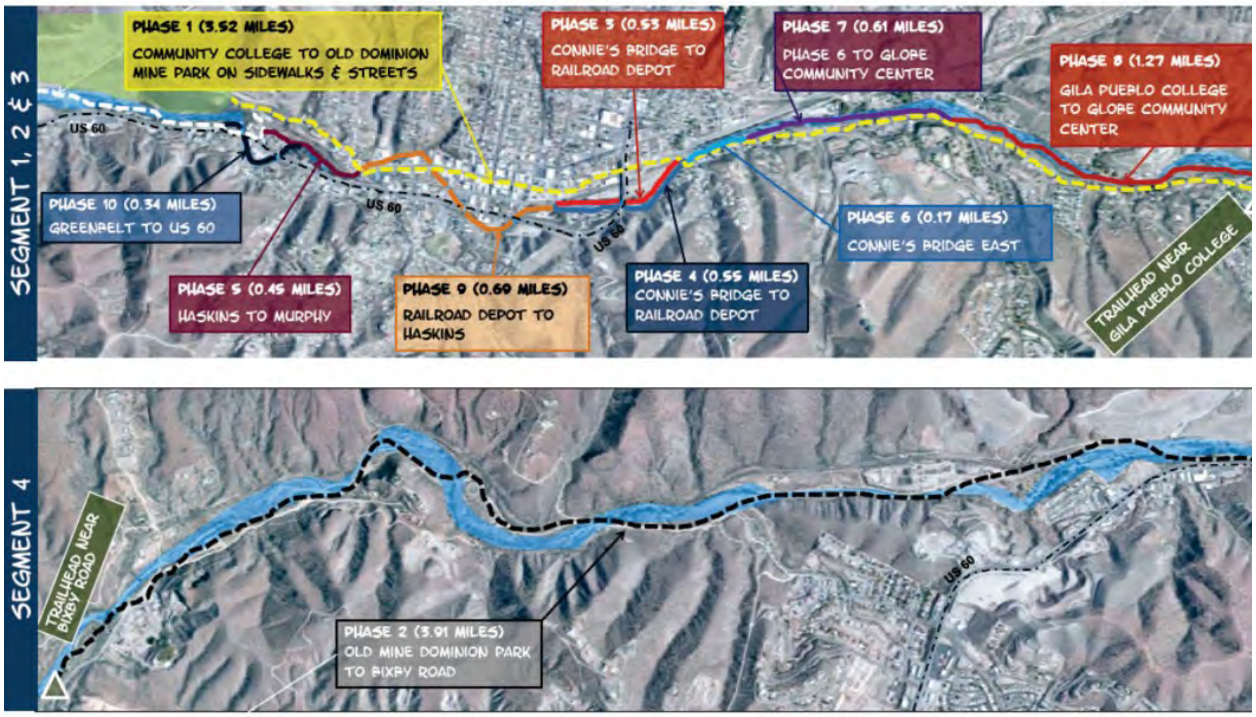
The following goals resulted from the UA study:

- Create a unifying greenbelt identity for the community
- Provide for the safety and convenience of pedestrians and bicyclists
- Promote environmental restoration by cleaning up Pinal Creek and planting trees and other native vegetation
- Create a continuous path for pedestrians and bicyclists
- Provide connections to parks, schools, downtown, and other adjacent activities and development
- Provide economic development opportunities for the community

Segment Limits	Approximate Distance	ID
Gila Community College to Globe Community Center	1.26 miles	Segment 1
Globe Community Center to Broad Street/Pinal Creek	1.77 miles	Segment 2
Broad Street/Pinal Creek to U.S. 60/Pinal Creek	1.34 miles	Segment 3
U.S. 60/Pinal Creek to Bixby Road	3.69 miles	Segment 4

Table 3 ◀
Boundaries of the Four Segments Proposed by the Jacobs Engineering Report

Figure 5 ▼
Maps of the four segments proposed by the Jacobs Engineering report.



Note: maps from Jacobs 2012, p. 30.

Although the community has offered consistent support for a multi-use trail system for more than 20 years, major issues pose a barrier to its progress:

1. The Section 404 permitting process
2. Multiple government jurisdictions
3. Multiple property owners
4. Absence of a champion to spearhead the project

SECTION 404 PERMITTING PROCESS

According to Section 404 of the Clean Water Act, p. 24, "If any developments or improvements, including bank stabilization and bridge abutments, require the deposition of fill material into the waters of the United States, then the party is responsible for the improvements and must apply for a 404 permit" (University of Arizona, 1992).

In the 2012 Cobre Valley Transportation Study, there were two options for the proposed trail: construct the trail in the creek-bed or construct it road-side. The creek-bed option is where 404 permitting becomes problematic.

MULTIPLE GOVERNMENT JURISDICTIONS

Portions of Pinal Creek Trail are within the corporate boundary of the City of Globe, and are subject to City of Globe regulations. Furthermore, the city is responsible for funding, maintaining, and policing these portions of the trail. For the sections of the trail not within the Globe city limits, Gila County regulations apply and the county assumes responsibility.

MULTIPLE PRIVATE PROPERTY OWNERS

Portions of the Pinal Creek bed are either privately owned, or require crossing of private property for access. Navigating private property owner rights is one of the biggest challenges facing the construction of the Pinal Creek Trail.

PROJECT CHAMPION

Despite considerable community interest in creating the Pinal Creek Trail, no one person or group has stepped forward to help move the project forward. The County can do much of the fundamental work on the project, but a community champion must help push the project forward and overcome the inevitable hurdles that will arise. The creation of a project-specific group could fill this need.

Application of an HIA to Pinal Creek Trail

Currently, the proposed Pinal Creek Trail is in the implementation stage of city policy published in the Globe 2035 General Plan. Concerning the trail system, the City aims to:

"Develop the Pinal Creek Trail...to enhance connectivity throughout the City and encourage alternative access and modes of travel. Work with ADOT and Arizona Eastern Railroad, as well as major local, regional and state agencies and stakeholders, to create multi-use paths along Pinal Creek near the historic railroad depot complex to enhance the character, connectivity, walkability and economic viability of the historic downtown." (Globe 2035 General Plan, 2014, p.4-15).

This Health Impact Assessment (HIA) will focus on the potential health outcomes of the Pinal Creek Trail. The Gila County HIA Team in consultation with stakeholders will develop a priority list of recommendations, which will provide direction for future project management. Recommendations will focus on:

1. Access to facilities that encourage physical activity
2. Access to community services
3. Decreasing the risk of chronic disease, such as obesity and mental health issues

Stakeholders' recommendations would suggest changes to proposals promoting positive health outcomes and mitigating adverse health effects. Upon completion, the HIA Team will deliver its findings and recommendations to the Gila County Board of Supervisors, the City of Globe City Council, stakeholders, and the public.

The overall goal of this HIA is to empower and engage stakeholders and the community during each step of the process, giving the project potential to become reality. The Gila County Division of Public Health and Emergency Services would like the City of Globe and surrounding communities to adopt a "Health in All Policies" approach to city planning, economic development, and beautification of the built environment, to improve the livability wherever residents live, work, learn and play. Adoption of "Health in All Policies" will create a livable, thriving community where healthy choices are easy choices (Arizona Alliance for Livable Communities, 2015).

Overview of the Globe and Gila County Areas

Gila County's 4,752 square miles are surrounded by 6 of the 15 counties in Arizona, including Coconino, Navajo, Graham, Pinal, Maricopa and Yavapai counties. Additionally, Gila County encompasses three Native American communities: the San Carlos Apache, a portion of the White Mountain Apache, and the Tonto Apache.

The geography of Gila County includes deserts, forests, mountains, and lakes, with elevations ranging from 2,000 to 7,000 feet. Land ownership in Gila County is unique in that individuals/corporations own only 3.7% of the land mass. The remaining land ownership is divided among the U.S. Forest Service, Apache Tribes, Bureau of Land Management, and the State of Arizona. In 2013 the county's population was estimated to be 53,053, including the Native American populations.

Gila County is divided into a Northern "Timber" region and a Southern "Copper" region, which are separated by Roosevelt Lake. The major industries in Gila County are mining, ranching, and forestry.

Gila County has three hospitals. The Northern region is served by Payson Regional Medical Center in Payson, while the Southern region is covered by Cobre Valley Regional Medical Center in Globe. Indian Health Services supports the San Carlos Apache Community. Gila County has six Long Term Care Facilities. Gila County has no Community Health Centers.

Demographic information for the City of Globe and Gila County are presented in Tables 4 and 5.

Table 4 ▼
Demographics for the City of Globe and Gila County

	Globe	Gila County
Population characteristics		
Population 2013	7404	53053
Population 2010	7536	53597
Population, percent change from 2010 to 2013	-1.8%	-1.0%
Percent female, 2010	50.4%	50.3%
Number of households, 2009-2013 average	2814	20601
Persons per household, 2009-2013 average	2.45	2.54
Percent of population under 5 years, 2010	6.0%	5.7%
Percent of population under 18 years, 2010	23.4%	21.4%
Percent of population 65 years and over, 2010	18.3%	23.2%
Number of veterans, 2009-2013 average	756	6166
Ethnicity		
White, 2010	79.6%	76.8%
Black or African American, 2010	0.9%	0.4%
American Indian and Alaska Native, 2010	5.7%	14.8%
Asian, 2010	1.1%	0.5%
Native Hawaiian and Other Pacific Islander, 2010	0.1%	0.1%
Two or More Races, 2010	3.0%	2.0%
Hispanic or Latino, 2010	36.8%	17.9%
White, not Hispanic or Latino, 2010	55.3%	65.9%
Percent foreign born, 2009-2013 average	4.0%	3.4%
Percentage 5+ with a language other than English spoken at home, 2009-2013 average	19.7%	14.4%
Education		
Percentage age 25+ with high school diploma, 2009-2013 average	84.6%	84.3%
Percentage age 25+ with bachelor's degree or higher, 2009-2013 average	17.8%	16.1%
Percentage under age 65 with a disability, 2009-2013 average	17.1%	12.4%
Workforce		
Percentage of population over 16 years of age in the workforce, 2009-2013 average	51%	48.3%
Percentage of workforce that is female, 2009-2013 average	47.2%	45%
Mean travel time to work, 2009-2013 average	16.9 min	20.8 min
Financial		
Median household income, 2009- 2013 average	44695	39954
Persons in poverty	16.2%	21.3%
Persons under age 65 without health insurance	14.1%	20.9%
Housing		
Median selected monthly owner costs -with a mortgage, 2009-2013 average	993	1182
Median gross rent, 2009-2013 average	737	743
Percentage of persons over 1 of age living in same house 1 year ago, 2013	79.0%	88.3%

Note: table adapted from http://www.census.gov/quickfacts/#table/PST045214/0428030,04007

Tribe	Population	Acres	Counties
San Carlos	10,900	1,826,541	Graham/Gila
Tonto Apache	137	85	Gila
White Mt. Apache	14,177	1,664,984	Apache/Navajo/Gila

Note: table adapted from http://www.census.gov/population/www/cen2010/cph-t/t-6tables/TABLE%20%281%29.pdf

Table 5 ▲
Demographics of Native American Communities in Gila County (2010)

Current Health Conditions

In 2012, a Community Health Assessment (CHA) measured health status in Gila County. It focused on physical, mental, and social health across a varied demographic. The data repeatedly indicated barriers to receiving health care. In addition to being a Medically Underserved Area (MUA), several areas within Gila County have been designated as Health Professional Shortage areas; these regions lack the practitioners required to serve populations in need. The fields of primary care, specialty medicine, mental and behavioral health and oral health services all suffer shortages (Gila County Department of Health and Emergency Services, 2012).

Respondents to the community survey portion of the CHA reported their perception that diabetes, unhealthy body weight (overweight) and hypertension (high blood pressure) were the top physical health concerns in the county. The top physical health issues based on medical diagnosis were unhealthy body weight (overweight), hypertension (high blood pressure) and high cholesterol. The top diagnosed mental health conditions were depression, panic disorder, and alcohol abuse (Gila County Department of Health and Emergency Services, 2012).

Community member focus groups provided further insight into their top health concerns. In descending order, the focus groups ranked the health priorities of the county as: diabetes, physical activity, access to and cost of healthy food, hypertension, depression, coronary heart disease, stroke, cancer, and anxiety (Gila County Department of Health and Emergency Services, 2012).

The identified health conditions that are relevant to the HIA are premature death, chronic disease, obesity, hypertension, heart disease, diabetes, physical inactivity and mental health.

PREMATURE DEATH

Death occurring before the age of 75 is considered premature. Many premature deaths are caused by chronic and preventable physical conditions, such as obesity, hypertension, heart disease, diabetes and stroke (Arizona Department of Health Services, 2015). Gila County has a disproportionate number of premature deaths when compared to statewide averages. According to the Arizona Department of Health Services (ADHS), Bureau of Public Health Statistics (2015), in 2013 Gila County had 10,843 years of potential life lost for every 100,000 in population, compared to the statewide average of 6,850 years of potential life lost for every 100,000 population. Years of potential life lost for Gila County and Arizona are depicted in Figure 6.

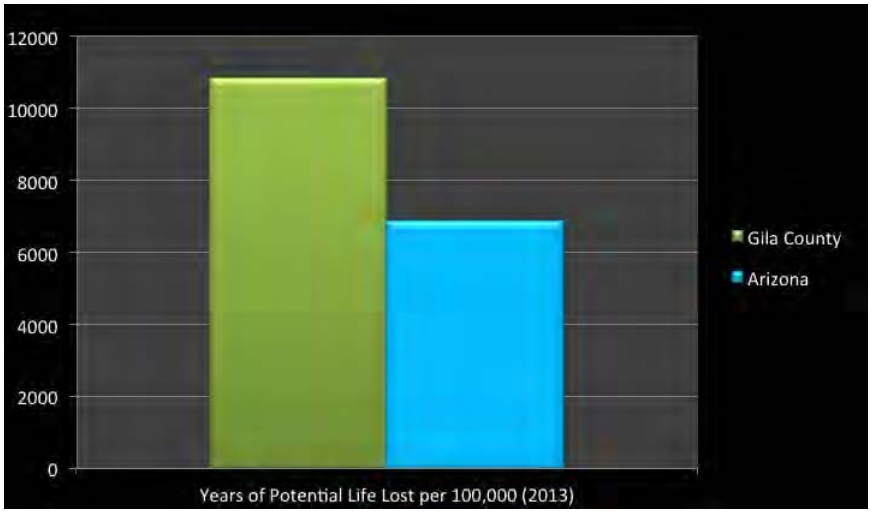


Figure 6 ◄
Years of potential life lost per 100,000 for Gila County and the State of Arizona

CHRONIC DISEASE RATES

The National Education Foundation (2015) describes chronic disease as a "long-lasting condition that can be controlled but not cured." They further state that "chronic disease is the leading cause of death and disability in the United States" (para. 1). Compared to statewide averages, Gila County has a disproportionate number of people suffering from preventable chronic diseases. According to 2015 data obtained from the ADHS Bureau of Public Health Statistics, Gila County has a chronic disease morbidity rate of 7,197.9 per 100,000 persons. In comparison, the morbidity rate for Arizona as a whole is 4,503.7 per 100,000 persons (Arizona Department of Health Services, 2015). Chronic disease rates for Gila County and Arizona are depicted in Figure 7.

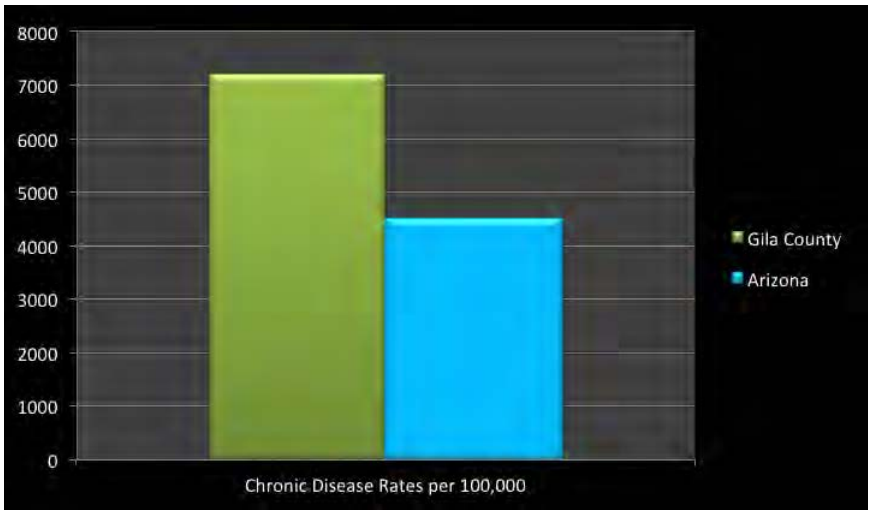


Figure 7 ◄
Chronic disease rates per 100,000 persons for Gila County vs. the State of Arizona

OBESITY/OVERWEIGHT

One way to quantify body weight is the Body Mass Index (BMI), or the ratio between height and weight. A normal or healthy BMI for adults falls within a range of 18.5-24.9%. Adults with a BMI in the range of 25-29.9% are classified as overweight and those with a BMI of greater than 30% are classified as obese (Centers for Disease Control and Prevention, 2015d). Obese individuals have a much higher risk for heart disease, stroke, type 2 diabetes, and some types of preventable cancer. The aforementioned chronic health conditions are among the leading causes of preventable death in the United States. Obesity and the resulting health conditions are

estimated to cost $147 billion annually (Centers for Disease Control and Prevention, 2015d). Gila County has higher obesity rates than statewide averages; 25% of adults in Gila County qualify as obese. Obesity rates for Gila County and Arizona are depicted in Figure 8.

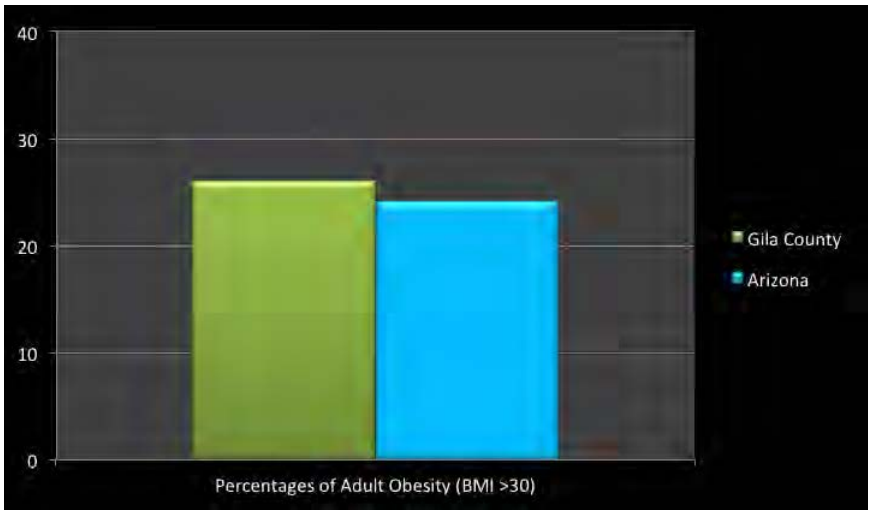


Figure 8 ◄
Percentage of obese adults in Gila County and the State of Arizona

HYPERTENSION

Hypertension is often called the "silent killer," as it has no obvious warning signs or symptoms (Centers for Disease Control and Prevention, 2015c). Gila County residents have more than twice the morbidity rate for hypertension than any other county in the state. According to 2013 data, Gila County has 610.7 hypertensive residents per 100,000 persons, while the statewide average is 299.5 hypertensive residents per 100,000 (Arizona Department of Health Services, 2015). Hypertension rates for Gila County and Arizona are depicted in Figure 9.

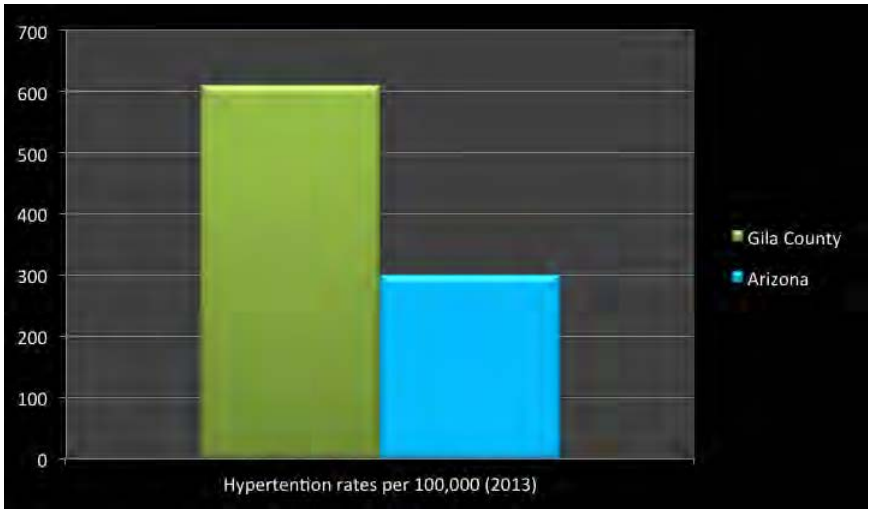


Figure 9 ◄
Hypertension rates per 100,000 persons in Gila County and the State of Arizona

HEART DISEASE

Heart disease encompasses several conditions of the heart. In the United States, coronary artery disease is the most common ailment of the heart, frequently causing heart attack, failure and arrhythmia (Centers for Disease Control and Prevention, 2015b). Coronary artery disease is caused when cholesterol is deposited along the walls of the coronary arteries (which supply blood to the heart), creating a buildup of plaque and narrowing the blood supply available to the heart. As the buildup of plaque continues and the heart muscle continues to get insufficient blood supply, the heart will eventually stop pumping. This condition is commonly called a heart attack (Centers for Disease Control and Prevention, 2015b). The rate of congestive heart failure in Gila County is over 4 times higher than the statewide average (Arizona Department of Health Services, 2015). Rates of congestive heart failure for Gila County and Arizona are depicted in Figure 10.

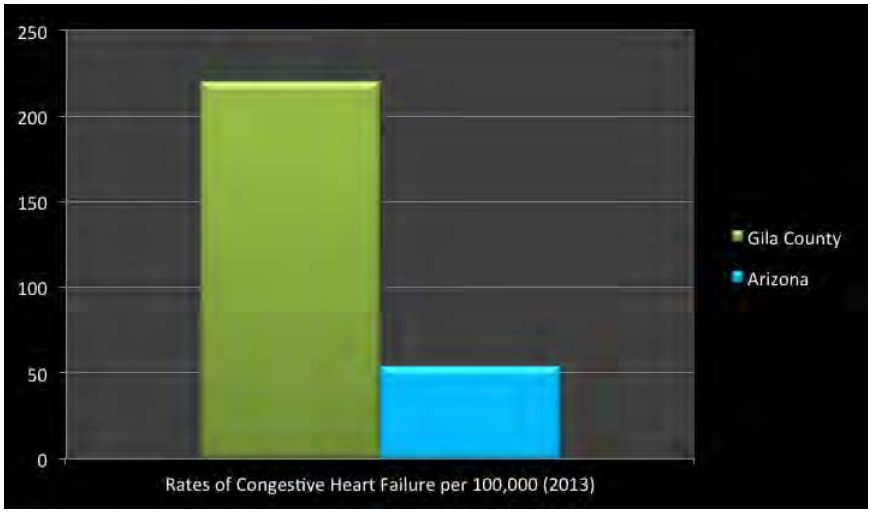


Figure 10 ◄
Congestive heart failure rates per 100,000 persons in Gila County and the State of Arizona

DIABETES

A person with diabetes has levels of blood glucose (sugars resulting from the breaking down of food) consistently in an elevated range (Centers for Disease Control and Prevention, 2015a). The hormone insulin serves to bring glucose into the cells for fuel, and controls the levels of glucose in the blood. Glucose levels can elevate because the pancreas (the organ responsible for creating insulin) either does not create enough insulin or the body no longer responds to it correctly.

In the United States, 9.3% of the population, or 29.1 million people have diabetes; 8.1 % are undiagnosed and unaware of their condition (Centers for Disease Control and Prevention, 2015a).

Uncontrolled diabetes is defined as fructosamine level > 126 mg/dl or A1C level > 7.0% on a fasting glucose test (American Diabetes Association, 2010). In the United States, uncontrolled diabetes is the seventh leading cause of death and is responsible for myriad health problems. Complications from uncontrolled diabetes include, neuropathy (nerve damage), problems with the eyes/ blindness, heart disease, kidney disease, high blood pressure, stroke and lower extremity amputation (American Diabetes Association, 2010). According to 2013 data, compared to statewide averages, Gila County has higher rates of uncontrolled diabetes (Arizona Department of Health Services, 2015). Rates of uncontrolled diabetes for Gila County and Arizona are depicted in Figure 11.

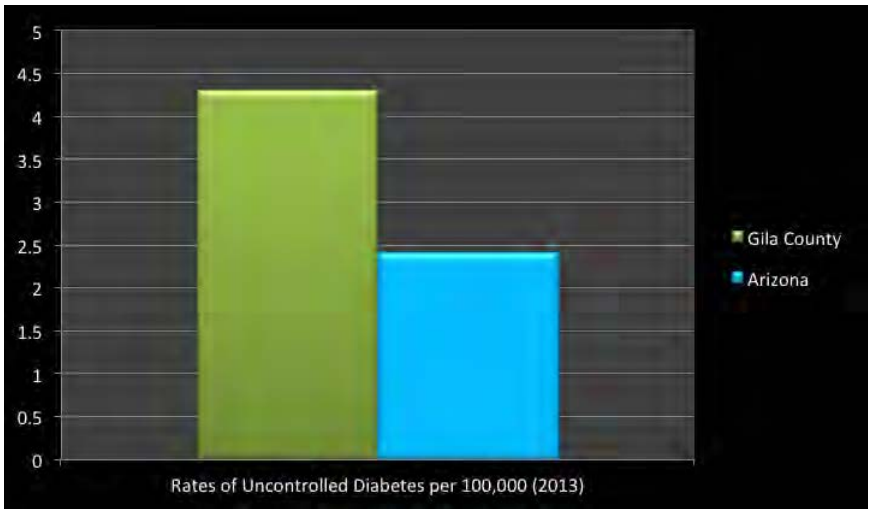


Figure 11 ◄
Uncontrolled diabetes rates per 100,000 persons in Gila County and the State of Arizona

PHYSICAL INACTIVITY

To promote and maintain health, the American College of Sports Medicine (ACSM) recommends that adults participate in a minimum of 30 minutes of moderate-intensity physical activity 5 days a week or 20 minutes of vigorous-intensity physical activity three days a week (Haskell et al., 2007). Physical inactivity can be defined as the failure to achieve the

recommended amounts of weekly exercise. Compared to statewide averages, Gila County has higher rates of physical inactivity. The percentage of adults who are physically inactive in Gila County and Arizona is depicted in Figure 12.

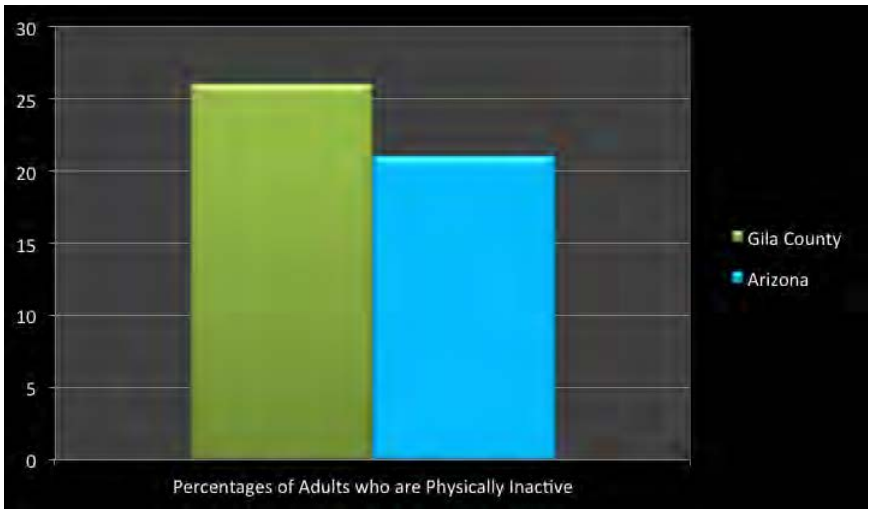


Figure 12 ◄
Percentage of adults who do not meet minimum weekly exercise recommendations

MENTAL HEALTH

Southern Gila County is a Medically Underserved Area and a Health Professional Shortage area. Shortages of Health professionals are especially prevalent in the mental and behavioral health fields; at present, no inpatient or outpatient substance abuse rehabilitation services exist in southern Gila County. Additionally, Globe does not have access to a psychiatrist, forcing residents to travel more than an hour to Phoenix or other urban areas to receive psychiatric care (Gila County Department of Health and Emergency Services, 2012).

County Health Rankings

The Robert Wood Johnson Foundation calculates measures of health outcomes and health factors that rank counties relative to other counties in their state. According to Catlin, Jovaag, Van Dijk, and Remington (2014) "[h]ealth outcomes represent how healthy a county is, and health factors represent what influences the health of the county" (p.4).

Health outcomes calculations equally weight health and quality of life, while health factors are "based on weighted scores for health behaviors, clinical care, social and economic factors, and the physical environment" (Catlin et al., 2014, pg 4). In 2014, Gila County was ranked 15th out of Arizona's 15 counties in health outcomes and 11th out of Arizona's 15 counties in health factors. A map of the county health rankings for health outcomes and health factors are depicted in Figures 13 and 14 respectively.

▼ Figure 13
Arizona county health outcome rankings. Note: a ranking of 1 is the best and a ranking of 15 is the worst.

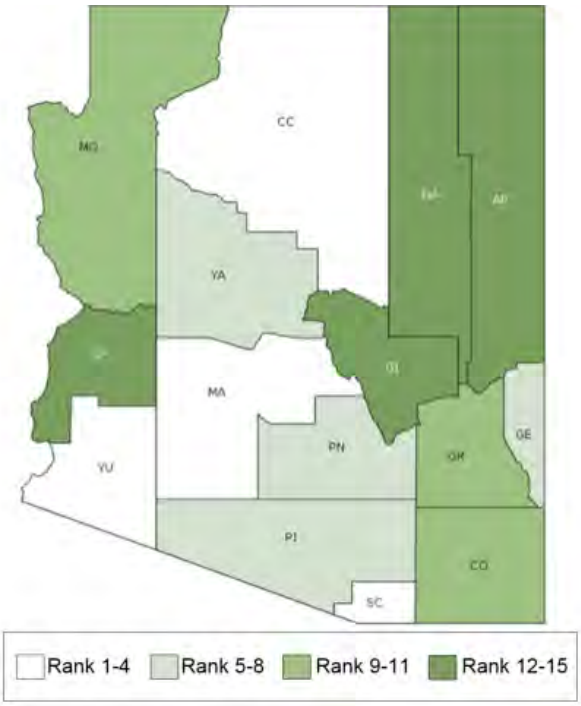
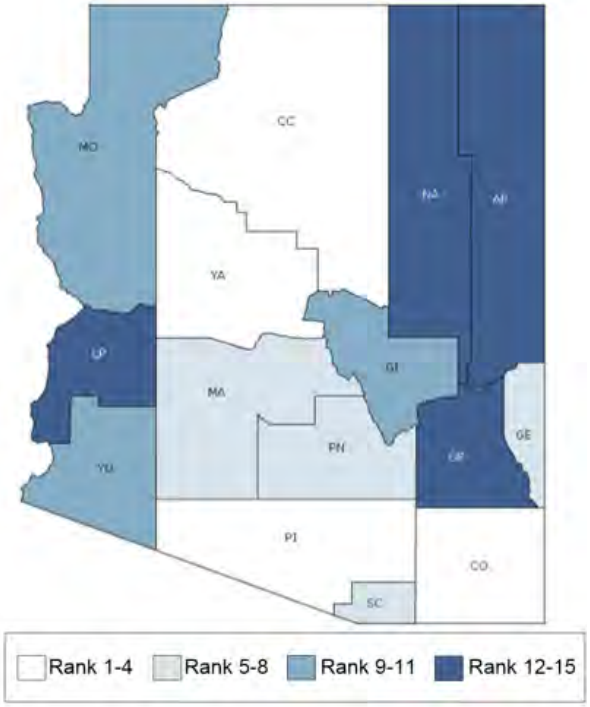


Figure 14 ▼
Arizona county health factor rankings. Note: a ranking of 1 is the best and a ranking of 15 is the worst.



Step 1: Screening

The screening stage determines whether or not an HIA is likely to succeed and whether or not it will add value to a proposed project. Gila County Division of Health Services and Emergency Management and the City of Globe explored the possibility of conducting an HIA as a way to continue the momentum established by the 2035 Globe General Plan and an earlier Pinal Creek Trail proposal. An HIA was considered as a mechanism to determine the level of community support for the Pinal Creek Trail, determine the positive health impacts (if any) of the trail, and determine the negative health impacts (if any) of the trail.

Despite anecdotal community support for the trail, the actual level of community support for the trail is unknown. Such knowledge could help generate momentum for the project, and can assist with funding applications. Although it was assumed that the creation of a trail would have a positive impact on the health of the community, the actual health impacts are unknown. Knowing the health impacts of the trail can generate more community support for the project, and provide a rationale for future funding applications. Additionally, it had been assumed that there would be no negative health impacts. Though not a specific goal of the HIA, through the process any potentially negative health impacts of the trail could also be elucidated.

The Gila County Division of Health Services and Emergency Management and the City of Globe collaborated to determine what data and resources would be needed for the HIA process. It was determined that the necessary data for the HIA could be gathered and that the HIA could contribute positively to the Pinal Creek Trail project. Thus the decision was made that the HIA was warranted and that it should move forward.

Step 2: Scoping

The scoping step is about designing and planning the HIA process, thus establishing the overall foundation upon which the HIA will be constructed. In order to do this, the particular issues which will be addressed must be defined. These issues include:

- Reviewing the determinants of health
- Identifying the potential health impacts of the proposal
- Assessing which impacts are likely to be important, and thus should be addressed
- Constructing a logical framework for the health impacts
- Identifying stakeholders

During the HIA Scoping process, the HIA Team and community stakeholders developed goals for the HIA, identified the primary health issues, prioritized research questions, selected the assessment methods, identified the geographic study area, and established the community participation process and assessment methods to be used.

Goals

The HIA Team agreed on the following goals to guide the HIA:

- Empower and engage stakeholders and the community during each step of the process
- Identify potential public health benefits and health outcomes impacted by the Pinal Creek Trail
- Seek community consensus about health benefits and health outcomes
- Develop recommendations to inform the decision makers
- Increase awareness of HIAs as a tool for identifying health impacts as an element of the decision making process
- Provide access to a recreation facility that will encourage residents to be active
- Provide access to community services and recreational opportunities
- Address the risk for chronic diseases such as obesity and mental health issues as identified in the Gila County Community Health Assessment (CHA)

Decision Timeline

Over the past 20 years, studies have been prepared in support of moving the Pinal Creek Trail concept forward. The University of Arizona School of Architecture prepared the Pinal Creek Linear Park Concept Report in 1992. This report served as the initial introduction of the Pinal Creek Trail concept to the Globe and Gila County communities. In 2012, Jacob's Engineering prepared the Pinal Creek Trail Conceptual Plan as part of an ADOT Planning Assistance for Rural Areas (PARA) Project. This report focused on the

physical opportunities to develop the trail, as well as expanded the length of the trail to include more of Pinal Creek. The HIA was prepared as an element of a new community effort to move forward with construction of portions of the proposed trail. The HIA had a deadline of June 30, 2015 for completion. An extension was granted making the final deadline August 3, 2015.

The next step will be a decision by the City of Globe City Council to incorporate the portion of the Pinal Creek Trail within the city limits into the Globe City Master Plan. A similar discussion and decision will be addressed by the Gila County Board of Supervisors. Timelines for the Globe City Council and the Gila County Board of Supervisors to take up the trail discussion have not been determined.

Health Issues

The health issues selected for the HIA were based on the Gila County Division of Health CHA findings. The CHA, conducted in September, 2012, determined the top perceived health concerns and the top conditions that residents were either diagnosed with or impacted by in Gila County. These are represented in Table 6 and Table 7 respectively.

Physical Health	Mental Health	Social Health
Diabetes	Substance Abuse	Substance Abuse
Overweight	Alcohol Abuse	Teen Pregnancy
Hypertension	Prescription Drug Abuse	Domestic Violence

Table 6 ◄
Top Perceived Health Concerns

Physical Health	Mental Health	Social Health
Overweight	Depression	Bullying
Hypertension	Panic Disorder	Domestic Violence
High Cholesterol	Alcohol Abuse	Teen Pregnancy

Table 7 ◄
Top Diagnosed or Impacted Health Conditions

Additional health Issues were identified by the HIA Team and addressed in the Assessment Section:

- Premature Death
- Chronic Disease Rate

Broad Based Community Issues

Conversations with stakeholders and community members identified the additional issues of traffic safety and safety from crime.

Traffic Safety

Pedestrian and bicyclist accidents with motor vehicles in the Globe area are a concern for residents. Information on pedestrian and bicyclist accidents, and the impact that the trail may have in reducing them is included in the assessment section.

Safety from Crime

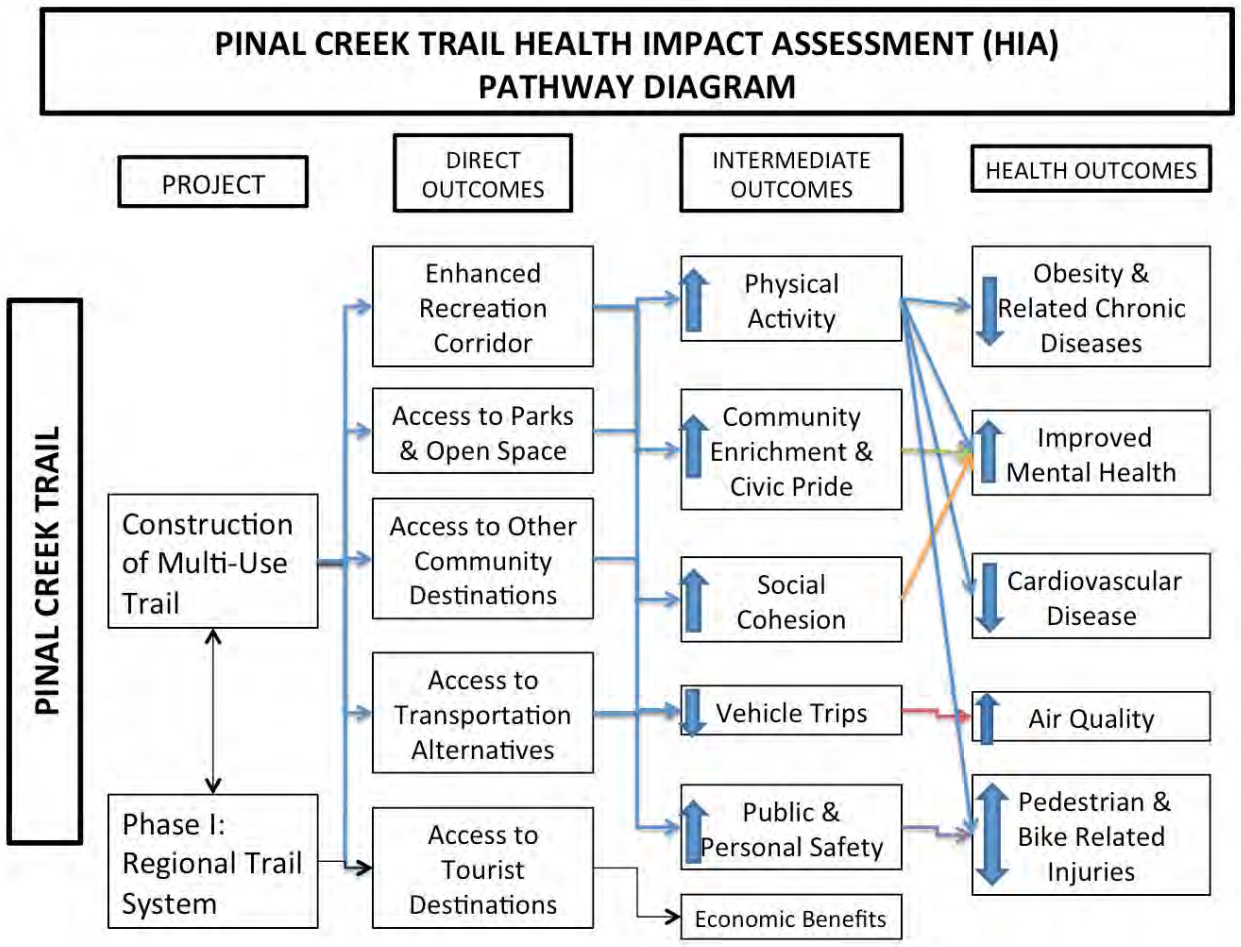
Safety features, including lighting, security cameras, and emergency telephones, will increase the number of users by providing a safe physical environment along the trail and in the areas adjacent to the trail. Clean-up and beautification of the Pinal Creek corridor could result in changes in community pride and cohesion and reduce crime or boost negative perception of crime. Preventing crime and building a perception of safety along the corridor are priorities identified through community meetings.

Developing the Scope: The Pathway Diagram

The HIA Project Team considered ways in which the Pinal Creek Trail plan could have a long-tern impact on health outcomes. To do this, a visual representation of the likely connections between the specifics of the Pinal Creek Trail plan and the proposed health outcomes, called a Logic Pathway Diagram, was developed.

Figure 15 depicts the immediate health-related impacts of constructing the Pinal Creek Trail, the secondary and intermediate health-related impacts that result from the primary effects, and the health outcomes resulting from the intermediate health-related effects of the Pinal Creek Trail. These hypotheses address the relationships between the proposed trail and health outcomes, and are informed by public health and other research; they guide the research

Figure 15 ▼
Pinal Creek Trail HIA pathway diagram



questions, data and analysis methods of the HIA. Based on the hypotheses outlined in the Pathway Diagram, the potential impacts that the Pinal Creek Trail could have on long-term health outcomes, and feedback from community, the HIA Team selected six categories or logic pathways to guide the HIA process. These pathways are presented in Table 8.

Table 8 ▼
Logic Pathways

PATHWAY	CATEGORY	DESCRIPTION
1	Increased Physical Activity	Enhanced Community Recreation Amenity, Increased Positive Mental Health, Decreased Obesity & Chronic Disease, Increased Culture of Health
2	Increased Community Enrichment & Civic Pride	Increased Civic Pride, Increased Positive Mental Health, Increased Culture of Health
3	Increased Social Cohesion	Increased Social Cohesions, Increased Culture of Health, Increased Positive Mental Health
4	Reduced Vehicle Trips	Increased Resident Access to Trail, Increased Resident Walking & Biking, Respiratory Illness/Health, Injury
5	Increased Public & Personal Safety	Increased Operations Costs Safer Physical Environment
6	Increased Economic Benefits	Increased Community Economic Activity, Increased Economic Activity for Local Businesses

Scoping Research Questions

Once the Logic Pathway Diagram was completed, the HIA Team began crafting the scoping research questions that would identify the research necessary for assessing the impact of the Pinal Creek Trail proposal. Indicators, data sources, and analytical methods to answer scoping research questions were also identified. Input from stakeholders refined the questions and assigned priorities. Scoping research questions focused on two domains: the current state of health determinants and outcomes, and potential impacts on health determinants and outcomes.

Following are examples of the questions included in scoping research questions. The full list of Scoping Research Questions is presented in Appendix B.

PATHWAY 1
Increased Physical Activity

- What are current physical activity levels of community residents?
- What is the current level of recreational use of the Pinal Creek basin?
- Will levels of physical activity change?
- Will this project encourage increased activity and use?

PATHWAY 2
Increased Community Enrichment & Civic Pride

- What is the level of community support for the trail project?
- What is the current level of interaction/collaboration between community-based organizations to support trail development?
- Will the community continue to be supportive of the Pinal Creek Trail?
- Will the level of collaboration increase as a result of the trail project?

PATHWAY 3
Increased Social Cohesion

- What is the current sense of social cohesion or sense of belonging in Globe?
- Will residents gather at new spaces along the PCTC?
- What is the current environment for recreational facilities/parks within the study area?

- If there was access from the PCTC, would the public use the PCTC to access those facilities?

PATHWAY 4
Reduced Vehicle Trips

- What are the current modes of transportation?
- What will be the additional modes of transportation available if the trail is constructed?
- What is the current prevalence of respiratory illness?

PATHWAY 5
Increased Public & Personal Safety

- What are the current safe places for exercise in Globe?
- Is the number of Globe police officers adequate to handle current activity levels in the PCTC?
- What opportunities will exist to provide safe places along the trail?
- Will this project create a need for additional police?

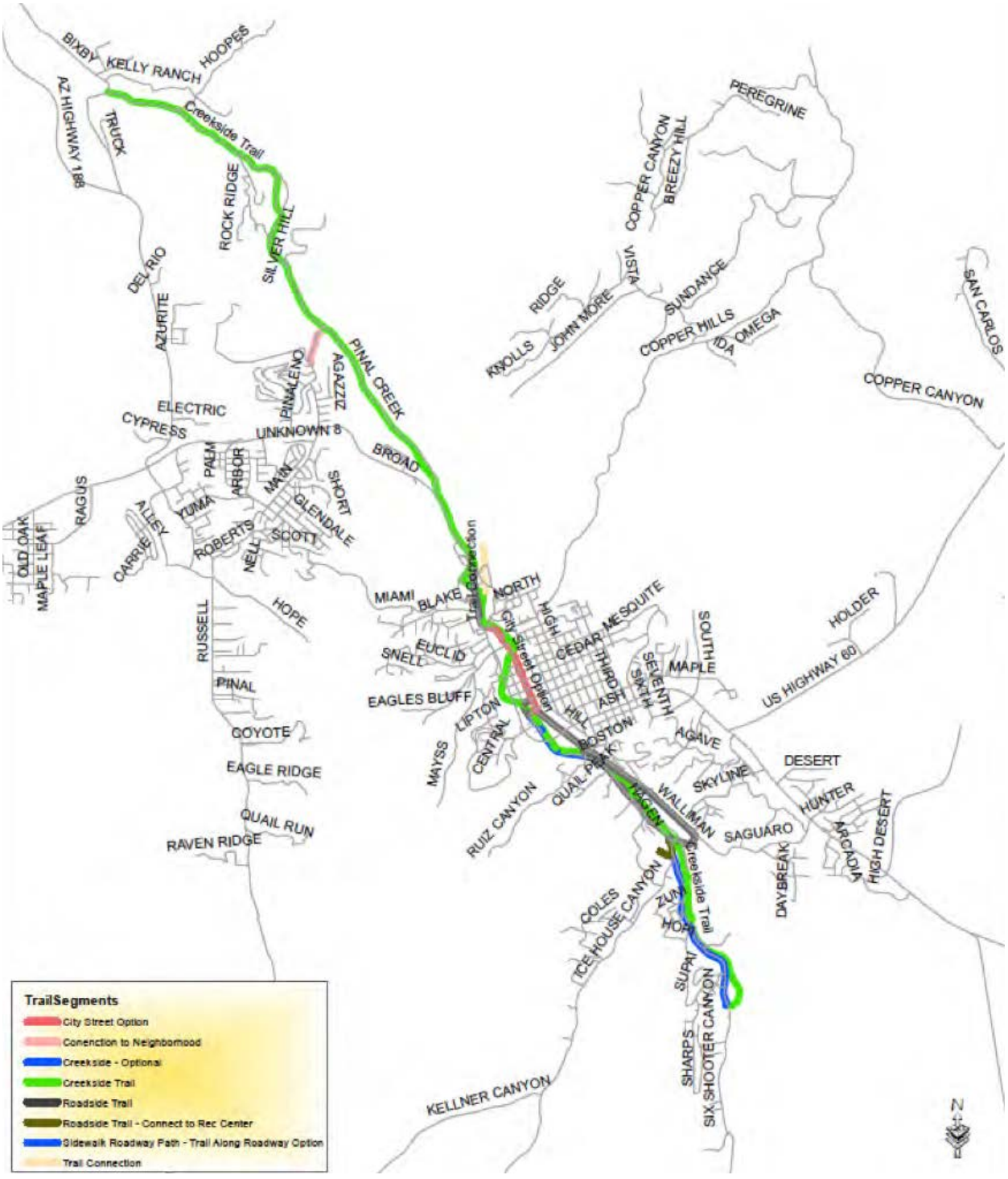
PATHWAY 6
Increased Economic Benefits

- What is the level of support for the trail by adjacent property owners?
- What is the level of commitment from the local business community?
- Is there an understanding of the potential positive impacts on property values?
- Will that commitment increase as the project moves forward?

Geographical Area of Analysis

The specific geographic study area for the Pinal Creek Trail HIA is ¼ mile on each side of the Pinal Creek. This results in a ½-mile-wide study corridor. The study area is depicted in Figure 16.

Figure 16 ▼
Pinal Creek Trail study area



Step 3: Assessment

As part of the assessment process, a community survey was conducted. The community survey was distributed via mixed modes: the survey link was posted on the Gila County Facebook page, the survey link was distributed to all County employees, and printed copies of the survey were distributed to community members at public events. A total of 350 people answered the survey. Community participation for the survey was likely increased by the mixed method distribution, and the overwhelming community support for additional recreational options in the Globe area. The survey assisted with the assessment phase by determining the sense of community, determining current access issues for the Pinal Creek Trail, and determining public support for the Pinal Creek Trail project.

The community survey and relevant additional data were analyzed across the identified pathways of increased physical activity, increased community enrichment and civic pride, increased social cohesion, reduced vehicle trips, increased public and personal safety, and increased economic benefit.

Increased Physical Activity

Walkability and bikeability scores apply a standard methodology to assess how easy it is traverse a city on foot or on a bike. According to walkscore.com, the

city of Globe has a walkscore of 64, which ranks as somewhat walkable, meaning some errands can be accomplished on foot, but many still require a vehicle (walkscore.com 2015). An overall bike score was not available for the City of Globe.

As part of the HIA process, an assessment of the walkability and bikeability was conducted of the Pinal Creek Trail area in its current state. The assessment consisted of a series of questions concerning the area, each of which was ranked on a scale from 0 to 6, with 6 being highly walkable. The overall walk score and bike score were 1.6 and 1.4 respectively, which indicates that in its current condition the trail has many barriers to walking and biking. The complete walkability and bikeability assessments are included in Appendix C and D respectively. The major issues identified were:

Access to Pinal Creek

Much of the Pinal Creek Corridor is privately owned property and access to the creek requires crossing private property. There are points of access from the public right-of-way, but once leaving the street right-of-way the creek bed once again becomes private property. At one point during the assessment, the HIA Team conducting the assessment was contacted by the representative of a property owner and asked to leave the area.

Walkability

Depending on the location along the creek corridor, the creek bed was difficult to walk because of natural debris, such as large rocks, tree limbs, and vegetative growth. Piles of man-made debris, such as chunks of concrete, wood, and fencing made the corridor impassable in some locations.

Because of these limitations, walking along the creek was very challenging. Consequently the decision was made for team members to attempt to walk along the streets parallel to the creek corridor, however, this approach faced its own challenges in terms of infrastructure and pedestrian safety challenges.

Pedestrian Infrastructure

Although streets were available for walking, only those in Globe's Historic Downtown have consistent pedestrian infrastructure in place. In some cases, pedestrians could walk along an unimproved area bordering the edge of the street, but in many areas the width of the "shoulder" area was minimal, forcing pedestrians to walk close to the vehicle travel lane, or for brief periods in the travel lane when no vehicles are present.

Pedestrian Safety

The lack of pedestrian infrastructure makes it difficult and unsafe for pedestrians to walk along the corridor, and contributes to an unsafe environment for both pedestrians and bicyclists. This is of particular concern for children, the elderly and persons with disabilities.

Bicycling

There is no bicycle infrastructure in place along any of the streets that run parallel to Pinal Creek.

The conditions of each proposed segment of the trail were noted and photographed by the HIA team.

Segment 1

Figure 17 ▼
Segment 1

Much of the land along this Segment is developed with a mix of low-density residential and small retail land uses. Segment 1 has minimal accessibility and few opportunities for a trail to be constructed in the creek bed. It will be necessary to invest in pedestrian and bicycle infrastructure along the streets running parallel to the creek.

Segment 2

The assessment of Segment 2 found that it had similar issues to Segment 1, namely limited access and difficulty walking in the creek bed. A portion of Segment 2 offers the opportunity to walk parallel to the creek on sidewalks.

Figure 18 ▼
Segment 2

Segment 3

Much of Segment 3 is in the portion of Pinal Creek that passes through Globe's Historic Downtown. Although this portion of the creek is relatively wide with a sandy soil bottom, the creek banks are steep and access is challenging. The homeless congregate and sleep under the bridges, causing a number of health and safety risks.

The pedestrian environment infrastructure is available through the Historic Downtown on Broad Street and other streets, and depending on private owners, there could be a walking/hiking trail identified in the creek bed.

Figure 19 ▼
Segment 3

Segment 4

This segment is located in a generally undeveloped area, with minimal urban development at the south end. The primary limitation to this segment is that a business that owns a portion of the property indicated that the trail will

not be allowed to pass through its land. This issue must be addressed through the trail planning process. This segment has the greatest potential to create a natural hiking/walking/equestrian trail.

Figure 20 ▼
Segment 4

The results of the walkability and bikeability assessment mirrored the findings of the community survey. Half of survey respondents reported using the Pinal Creek area for recreation. The need for improvement to the trail was noted by 94% of survey respondents, with 50% indicating that the trail was difficult to use and needed many improvements, and 44% indicating that the trail was difficult to use and needed some improvements.

When asked whether or not they would use the trail, 81% indicated that they would and 13% reported being unsure. Only 6% reported that they would not use the trail. More than half of respondents (55%) indicated that they would use the trail 1-2 times per week, while 31% indicated they would use the trail 3-4 times per week, and 9% indicated they would use the trail 5-7 times per week. Consistent with the previous question, 6% reported they would never use the trail. The vast majority of respondents (87%) believed that the trail would increase physical activity rates among Globe residents. These results of the community survey demonstrate the impact that the trail can have on physical activity rates in Globe. In light of the results from the community survey and studies evaluating public recreation areas, it is reasonable to conclude that the Pinal Creek Trail would increase rates of physical activity in Gila County.

> *"I would use the trail a lot depending on visibility lighting and safety"*
>
> - Survey Respondent

Increased Sense of Community

When asked if they felt a sense of community in the City of Globe, 59% of survey respondents indicated that they do feel a sense of community. Additionally 75% of survey

respondents indicated that the Pinal Creek Trail would make Globe a more desirable place to live. Approximately 20% believed that the trail might make Globe a more desirable place to live, and only 6% reported that the trail would not make Globe a more desirable place to live. Although the majority of survey respondents already felt a sense of community within the Globe area, it is clear that the trail will have positive impact on residents' satisfaction with Globe as a place to live.

The majority of survey respondents supported the creation of the trail, with 36% reporting a medium level of support and 50% reporting a high level of support for the project. Only 5% indicated a low level of support or no support for the project. An additional 10% needed more information prior to being able to determine their level of support. Additionally, close to 25% of respondents provided personal information so they could receive updates on the project. The findings from the community survey demonstrate the community interest and support for the Pinal Creek Trail.

Increased Social Cohesion

The survey did not distinguish social cohesion as a separate concept from sense of community and desirability as a place to live, however, the findings on these concepts are similar enough that they also apply to social cohesion. Additionally, parks and green spaces are neutral places that are utilized by people from all ethnic and socioeconomic groups. As a neutral location to congregate, parks and green spaces become places where different groups of people can mingle and interact, which stimulates social cohesion (Peters, Elands, & Buijs, 2010). The addition of a trail, with its resulting recreation areas, in the Pinal Creek Basin will provide space for formal and informal interactions that can stimulate and strengthen the social cohesion of the community.

Reduced Vehicle Trips

Approximately 80% of survey respondents indicated that they would use the trail instead of driving to access services that were in close proximity to the trail. If their destination was within a half mile of the trail, 55% of survey respondents reported that they would use the trail as an alternative mode of transportation. Only 20% of survey respondents indicated that they would prefer to drive, regardless of the proximity of amenities to the trail. The percentage of respondents who reported that they would use the trail instead of driving demonstrates the potential for the trail to reduce vehicle trips in the Globe area.

> *"I would use the trail to walk to work"*
>
> - Survey Respondent

Increased Public and Personal Safety

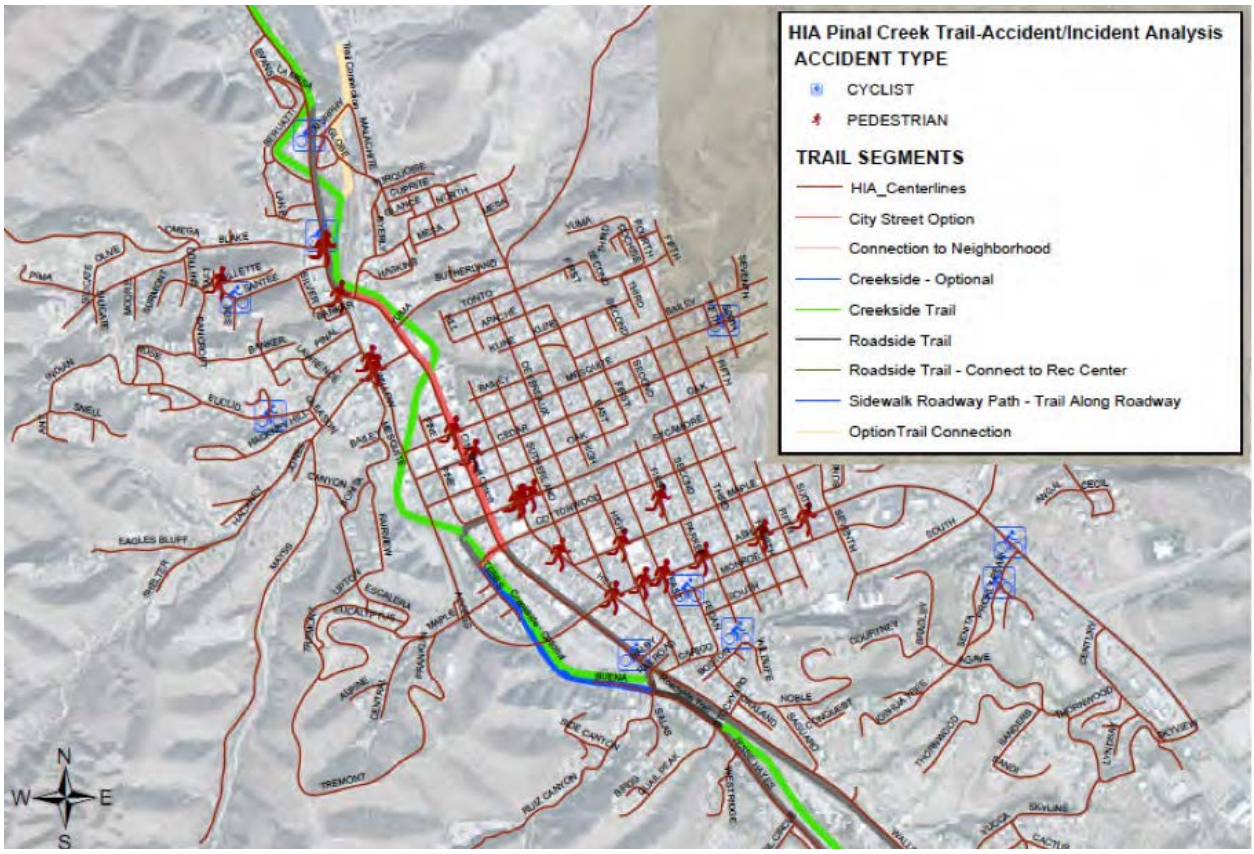
The assessment of increased public and personal safety focused two main domains: pedestrian/bicyclist safety and the safety of trail users.

Decreased pedestrian accidents

There is limited pedestrian infrastructure in the city of Globe. The current access for the downtown area requires pedestrians and bicyclists to traverse Highway 60. Traffic on Highway 60 travels at a high rate of speed, and there are few safe places for pedestrians and bicyclists to cross the highway. Between 2005 and 2014, there were 63 pedestrian accidents and 12 bicyclist accidents with motor vehicles in Globe. The majority of pedestrian and bicyclist collisions with motor vehicles in the Globe area occur in this corridor. Figure 21 depicts the pedestrian and bicyclist accidents along the downtown corridor.

The creation of a trail that run parallels to the downtown corridor could reduce pedestrian and bicycle accidents with motor vehicles by providing an alternative route to access key points downtown.

Figure 21 ▼
Pedestrian and bicycle accidents with motor vehicles in the downtown Globe corridor (2005-2014)



Safety of trail users

In order to have widespread trail usage, it is imperative that trail users feel safe. To ascertain current feelings of safety, participants were asked how safe they would feel using the trail and if safety precautions were needed along the trail. A little less than half (40%) of respondents indicated that they would feel safe enough to use the trail alone, while 43% reported that they would feel safe enough to use the trail with one person, and 12% were unsure. More than half (52%) indicated that some sort of safety features were needed along the trail, while 28% were unsure, and 20% felt that no safety features were needed. The survey did not ask about specific safety

> *"How about having park rangers/police on bikes or ATV type vehicles?"*
>
> - Survey Respondent

features that might be added, although some respondents volunteered ideas in the available text box. Several respondents suggested volunteer or staff rangers to patrol the trail, and several others expressed safety concerns around the Connie's Bridge are due to vagrants that frequent the area. Some respondents suggested the use of call boxes, but many others said they were unnecessary because most everyone has a cell phone.

Increased Economic Benefit

Increasing the economy of a community can have more than just a fiscal impact, it can increase the sense of community and social cohesion. For example, increasing tourism in Globe's Historic Downtown area can lead to more community events, such as monthly art walks or music events. These events in turn can increase the quality of life and sense of community among residents. Thus the economic impact of health policies should also be considered.

Although the science of determining the economic value of parks is still an emerging discipline, several methods have been developed to estimate the economic impact (Harnik & Welle, 2009). These methods have focused on the way that parks and open spaces can contribute to the local economy through increased property values, increased tourism, and increased tax revenue.

Increased property values

Parks and open spaces have a dramatic effect on the properties located within a 500 feet radius. Undeveloped or poorly improved land can reduce property values by 5%, while areas with good improvements can increase property values by 15% (Harnik & Welle, 2009). It is possible to determine the economic value of a park by

calculating the effect on the value for each individual house, however, this method is cost and time prohibitive. Instead, The Trust for Public Land has developed a method for averaging the increase in property values within 500 feet of a park or open space that consists of one acre or more (Harnik & Welle, 2009). Under this method, average property values for properties with 500 feet of the park are multiplied by a conservative estimate of 5%. Using this process, it was estimated that parks and open areas in Pinal County, Arizona increased property values by 190 million dollars (The Trust for Public Land, n.d.).

Since the Pinal Creek study area corridor is currently undeveloped, and much of it has impediments (such as man-made debris), it is likely that property values in the area will increase more than the conservative average of 5%. Projected increases in property values within 500 feet of the trail were calculated using an assumed park value of 5, 10, and 15 percent. These values are presented in Table 9.

Table 9 ▼
Projected Property Value Increases

Total value of properties within 500 feet of trail	$9,088,200	$9,088,200	$9,088,200
Assumed value of a park	5%	10%	15%
Projected increase in property values*	$454,410	$908,820	$1,363,230
Projected value of properties within 500 feet of trail*	$9,542,610	$9,997,020	$10,451,430
Effective annual residential tax rate	0.006	0.006	0.006
Projected annual increase in property tax capture	$2,726	$5,453	$8,179

**Note: projections based on formula by Trust for Public Land*

Increased Tourism

Although not always recognized, parks and recreation areas play a significant role in tourism. Cities with well-developed park systems experience a great deal of tourism, and the majority of tourism in these areas involve the park spaces in some way. Signs, websites, guides, maps, and special events can attract tourists to park and trail spaces (The Trust for Public Land, n.d.). The tourist dollars spent at park spaces and surrounding business are a significant contribution to the economies of these areas. In the neighboring Pinal County,

Arizona, nearly 10% tourists came for the purpose of accessing outdoor recreation areas. In 2008 alone, tourists to outdoor recreation areas contributed $36.5 million to the local economy (The Trust for Public Land, n.d.).

Gila County currently has several tourist attractions, these include Besh-Ba-Gowah, the Art Center, and Round Mountain. The number of daily visitors and percentage of visitors from out of town is known for these attractions. The potential tourist impact of the Pinal Creek Trail was estimated by using information from existing local attractions and figures for average spending by day visitors (Harnik & Welle, 2009). Because the Pinal Creek Trail will be an outdoor recreation space like Round Mountain, the percentage of out of town visitors for Round Mountain was used for the Pinal Creek Trail estimates. The tourism information for known recreation areas in Gila County, and projected values for the Pinal Creek Trail are presented in Table 10.

Table 10 ▼
Tourism Values

Attraction	Besh-Ba-Gowah	Art Center	Round Mountain	Pinal Creek Trail
Number of daily visitors	55	70	40	50
Percentage of visitors from out of town	90%	90%	40%	40%
Number of daily out of town visitors	49.5	63	16	20
Average daily spending for visitors	$42.50	$38.30	$38.30	$38.30
Total daily spending for out of town visitors	$2,107	$2,413	$613	$766
Total yearly spending for out of town visitors	$767,869	$880,709	$223,672	$279,590

**Note: projections based on current local tourism numbers and The Trust for Public Lands' figures for average daily spending by day visitors*

Increased tax revenue

Increased tax revenue near park spaces is a function of increased property tax owing to increased property values and increased sales tax on tourism dollars. In Pinal County, Arizona in 2009, the increase in property values effected by parks and open spaces generated an additional 2.7 million dollars in property tax revenue (The Trust for Public Land, n.d.). Additionally, the increase in sales tax

dollars owing to recreation areas is not an insignificant amount. In 2008 alone, visitors to Pinal County, Arizona outdoor recreation areas generated an additional $672,000 in sales tax dollars (The Trust for Public Land, n.d.).

The projected tax capture resulting from the creation of the Pinal Creek Trial was estimated by multiplying the estimated tourist spending by the current Gila County sales tax rate. The projected tax capture is presented in Table 11.

Table 11
Projected Tax Captures

Projected annual increase in property tax capture	$2,726 - $8,179
Project additional yearly spending by out of town visitors*	$279,590
Sales tax rate	6.60%
Projected annual sales tax capture by out of town visitors	$18,453

**Note: projections based on formula by Trust for Public Land*

Step 4: Recommendations

Recommendations were developed across the identified pathways of increased physical activity, increased community enrichment and civic pride, increased social cohesion, reduced vehicle trips, increased public and personal safety, and increased economic benefits by the HIA team in conjunction with stakeholders. Once recommendations had been identified and refined, a vote was held among stakeholders to assign priority to the recommendations. All recommendations which were ranked by 60% or more of stakeholders as a top priority are presented in Table 12. The remaining recommendations are presented in appendix E.

Table 12 ▼
HIA Recommendations

PATHWAY	RECOMMENDATION	RATIONALE
1.1	Construct a pilot segment of Pinal Creek Trail to gauge usage, community support and enthusiasm. Due to unresolved trail access issues, segment 4 should be designated with the lowest priority.	It will be easier to fund and construct one trail segment, rather than the entire trail. The excitement surrounding the construction of an initial trail segment can be used to spur funding and creation of future segments.
1.2	Monitor number of users, purpose for use, and activity levels along the completed segments of the trail.	Monitoring the usage and purpose of use along completed segments can provide information to inform future trail improvements. Additionally, demonstrating trail support and usage can be instrumental in acquiring future grants.
1.5	Prepare a communitywide trail system plan.	A communitywide trail system plan is the first step in developing a plan to connect the Pinal Creek Trail to other trails and recreational areas in the community. Improving the trail system of the community will provide more physical activity options for the residents, and attract more tourists.
1.6	Coordinate community events that promote physical activity.	The promotion of physical activities will increase the culture of health in the community, which can in turn improve overall mental health and decrease obesity and chronic disease rates.
2.1	Establish the Pinal Creek Trail Committee, a private non-profit organization, to raise community support, raise funds, and lead community efforts to implement the Pinal Creek Trail plan.	Although the City of Globe and Gila County can assist with many of the endeavors, both organizations have additional priorities. A private organization which can devote its efforts to the construction and maintenance of the trail is essential to the success of the project. The Pinal Creek Trail Committee can serve as the project champion that is needed to continue to move the project forward.
2.4	Install signage that indicates historical landmarks, amenities and informs user(s) of distance traveled.	Signage with relevant information can add visual interest to the trail and encourage usage by engaging users. Additionally it can act as an educational piece for tourists and locals.
2.2	Identify the level of community support for construction of the trail.	Trail construction is a long-term process that will require community support. Knowing the current level of community support can be useful to maintain the project momentum and secure funding.
3.1	Hold community events and activities at key locations along the trail, i.e., downtown, to bring community members together to help increase social cohesion among Globe residents.	Hosting community events and activities at locations along the trail will increase community cohesion by bringing together business owners, community members, and civil servants. These events will also help keep the trail construction as a focal point for the community.

PATHWAY	RECOMMENDATION	RATIONALE
3.5	Establish a property owners working group to bring owners together and troubleshoot issues involved with trail construction and maintenance.	There are numerous property access and other issues that need to be resolved before the trail can be constructed as currently designed. A property owners group can serve to give its members a voice and engage them in the process. Having the support of property owners will be instrumental to the success of the project.
3.6	Continue to foster stakeholder relationships; determine support and identify how stakeholders can contribute to implementation of the trail.	The construction of the trail is an endeavor that will require support from many organizations. As such, bringing together stakeholders and establishing partnerships will be instrumental to the project success. The collaborations made through these partnerships can help locate funding sources and other resources necessary for the trail construction.
4.1	Prepare a community inventory of existing pedestrian and bicycle infrastructure. Identify and prioritize improvements that will provide access to the trail.	Knowledge of existing pedestrian and bicycle infrastructure will encourage walking and bicycling within the community. Increasing access to the trail will also encourage trail usage.
4.3	Coordinate with Cobre Valley Transit (CVT) to add stops along the Pinal Creek Trail route.	The ability to access the trail is crucial to trail usage. Coordinating with CVT to provide public transit stops along the trail will assist with trail access for residents and tourists. Expanding public transit options so that the trail can be accessed via CVT stops will reduce the need to drive a private vehicle in order to access the trail.
5.1	Prepare an inventory of potential safety issues for trail users and identify potential mitigation responses.	Users must feel safe in order to continue to utilize the trail. Additionally, any safety issues could represent liabilities for the entities tasked with monitoring the trail. In order to ensure the safety of trail users, potential safety issues must be identified and mitigated.
6.1	Estimate the cost of construction and maintenance for each segment of the trail. Identify potential private, public, and non-profit funding sources to support trail construction and maintenance.	Funding the construction and maintenance of the trail is one of the biggest barriers to implementation. It is crucial to estimate the costs and locate funding sources for trail construction and maintenance.
6.3	Develop a promotional program that focuses on the positive contribution the trail will make to both resident health and economic health of the Globe community.	A promotional program that highlights the positive contribution that the trail will make to the mental, physical, and economic health of Globe will help to create "buy-in" within the community. Highlighting the economic benefits of the trail (such as an increase in business revenue from tourism and increase in property values along the trail) will also be important to ensure business and property owner support for the trail.

Step 5: Reporting

The reporting step involves first developing and then disseminating the HIA report.

First, this written report serves to document the HIA participants, steps involved, and data collected and analyzed.

Second, circulating the findings to stakeholders and community members will be accomplished by emailing the final report to all stakeholders and all survey respondents who provided email addresses, posting the final report on the Gila County website and Facebook page, and finally hosting a public meeting to present the findings. The HIA Project Team decided it was not necessary to present the findings to the Gila County Board of Supervisors separately, because the Chairman of the Board of Supervisors, Michael Pastor, is a member of the HIA Project Team and has been serving as the project champion. It was also deemed unnecessary to present separately to the Globe City Council, because the City Manager, Brent Billingsley, and the Director of Planning and Zoning, Chris Collopy, are stakeholders and have been involved with the HIA project from its onset. Consequently, relevant information has been relayed to the Gila County Board of Supervisors and the City of Globe throughout the HIA process. Additionally, given their meeting constraints, it would be difficult for these groups to allocate enough time to

adequately present the findings of the HIA. Instead, the public forum will be open to all interested individuals, including County officials, City officials, stakeholders, The Pinal Creek Trail Committee, and community members. The public meeting is scheduled at the Globe City Hall on August 27, 2015 from 6 pm – 7:30 pm. The Pinal Creek Trail HIA Co-project Managers, Bethany Cheney and Dezirae Williams, will present the findings on behalf of the HIA Project Team. Additional presentations will be held as needed.

Step 6: Monitoring and Evaluation

As with any program or intervention, evaluation is an important component of the HIA process. Evaluation determines whether or not the HIA has influenced the decision making process (and the subsequent proposal). Evaluation of the HIA process is also useful to answer why the process did or did not HIA work as intended. There are 3 steps in the monitoring and evaluation phase: evaluation of the process, evaluation of recommendations, and evaluation of implementation.

Evaluation of the Process

Evaluation of the process identifies what worked and what didn't. The purpose of this step is not to criticize, but rather to be insightful so that lessons learned can inform future HIAs.

One particular part of the process that was successful was the community survey. The community survey was distributed through mixed modes: the link was posted on the Gila County Division of Health and Emergency Management Facebook page, the link to the survey was sent out by email to all county employees, and paper copies were made available at community events. In addition to being heavily promoted, the community was eager to participate, because they could see the value of the project.

On the other hand, engaging the stakeholders proved to be challenging. There were four stakeholder meetings, the first of which had the greatest attendance. The same stakeholders did not attend the entire series of meetings. Some were at the first meeting, but not subsequent meetings and others joined the meetings midway through the process. This resulted in having to cover background information to bring new stakeholders up to speed. Potential reasons for the difficulty engaging stakeholders were competing projects (several community projects were taking place simultaneously) and the timing (meetings took place in spring and summer, and could have coincided with vacations. Providing food at meetings increased attendance, and providing materials for review ahead of time reduced the amount of the meeting time that was spent on background information.

Evaluation of Recommendations

Because the HIA was evaluating a project which has not yet begun, there are many steps which need to be completed in order for the project to be realized. This resulted in a lengthy list of recommendations. Shaping the list down to a reasonable number of recommendations was a complicated process.

After the HIA team refined the recommendations, the decision was made to have the stakeholders vote for the items they perceived as top priorities. The stakeholders were presented with the list of recommendations that had been developed and they voted on the recommendations that they perceived as a priority. With so many recommendations developed, the voting process was helpful to establish the order in which the recommendations should be addressed.

Although the voting process was very successful, the recommendations could have been further refined by the HIA team prior to the voting. Some of the recommendations were duplicative, and had to be combined after the voting process. Conducting this synthesis prior to the voting could have assisted with streamlining the voting process.

Evaluation of Implementation

Evaluation of implementation involves monitoring over a period of time to determine whether or not the recommendations identified in the HIA have been completed. This is a long-term process that may take weeks, months, or even years. The process for monitoring the implementation phase is detailed in Table 13.

Table 13 ▼
Evaluation of Implementation Matrix

PATHWAY	RECOMMENDATION	INDICATOR	AGENCY RESPONSIBLE	TIMING	
				Short-Term	Long-Term
1.1	Construct a pilot segment of Pinal Creek Trail to gauge usage, community support & enthusiasm.	Completion of trail segment	Lead: Pinal Creek Trail Committee Gila County City of Globe	Immediate construction of trail	Annual review of trail usage
1.2	Monitor number of users, purpose for use and activity levels along the completed segments of the trail.	Number of residents using the trail Number of non-residents using the trail	Lead – City of Globe: Parks Gila County Globe-Miami Chamber of Commerce	Immediate as each segment is completed	Annual survey
1.5	Prepare a communitywide trail system plan.	Completed report	Lead: Gila County Globe-Miami Chamber of Commerce	Immediate inventory of existing trails Immediate report	Annual review of plan to incorporate updates or changes
1.6	Coordinate community events that promote physical activity.	Number of community events	Lead: Gila County Globe-Miami Chamber of Commerce	Immediate events	Annual review of events

PATHWAY	RECOMMENDATION	INDICATOR	AGENCY RESPONSIBLE	TIMING	
				Short-Term	Long-Term
2.1	A private non-profit organization should be established to raise community support, raise funds and lead community efforts to implement the Pinal Creek Trail plan.	Establishment of group First meeting for group	Lead: Gila County City of Globe Globe-Miami Chamber of Commerce	Immediate creation of group	Annual organization meeting/ review
2.2	Identify the level of community support for construction of the trail.	Percent of residents supporting the trail	Lead: Pinal Creek Trail Committee Gila County Globe-Miami Chamber of Commerce	Immediate number of residents supporting trail	Annual survey, assess change in level of support
2.4	Install signage that indicates historical landmarks, amenities & informs user(s) of distance traveled.	Development of text for signage Installation of signage	Lead: Pinal Creek Trail Committee Gila County City of Globe Globe-Miami Chamber of Commerce	Immediate development of text for signage Immediate identification of potential signage locations	Installation of signage Annual review and maintenance of signage
3.1	Hold community events and activities at key locations along the trail, i.e., downtown, to bring community members together to help increase social cohesion among Globe residents.	Number of events held	Lead: Gila County City of Globe Globe-Miami Chamber of Commerce	Immediate	Annual event
3.5	Establish a property owners working group to bring owners together and troubleshoot issues involved with trail construction and maintenance.	Establishment of group First meeting for group	Lead: Pinal Creek Trail Committee City of Globe Globe-Miami Chamber of Commerce	Immediate meeting of group	Annual meeting of working group

PATHWAY	RECOMMENDATION	INDICATOR	AGENCY RESPONSIBLE	TIMING	
				Short-Term	Long-Term
3.6	Continue to foster stakeholder relationships; determine support and identify how stakeholders can contribute to implementation of the trail.	Number of stakeholders identified Meetings with stakeholders	Lead: Pinal Creek Trail Committee Globe-Miami Chamber of Commerce Gila County City of Globe	Immediate meetings of stakeholders	Quarterly and annual stakeholder meetings
4.1	Prepare a community inventory of existing pedestrian and bicycle infrastructure. Identify and prioritize improvements that will provide access to the trail.	Existing pedestrian and bicycle infrastructure Access infrastructure projects constructed annually	Lead: City of Globe Streets Department Gila County	Immediate inventory of existing infrastructure Immediate report	Annual review and update CIP Projects
5.1	Prepare an inventory of potential safety issues for trail users and identify potential mitigation responses.	Completed inventory of safety issues Completed report of mitigation responses	Lead: Pinal Creek Trail Committee City of Globe Gila County	Immediate identification of potential safety issues	Annual review of trail safety
6.1	Estimate the cost of construction and maintenance for each segment of the trail. Identify potential private, public, and non-profit funding sources to support trail construction and maintenance.	Cost estimates for construction Cost estimates for maintenance Identification of funding sources	Lead: Pinal Creek Trail Committee City of Globe Gila County	Immediate cost estimates for construction and maintenance	Annual review of trail expenses Funding applications to external organizations
6.3	Develop a promotional program that focuses on the positive contribution the trail will make to both resident health and economic health of the Globe community.	Development of promotional program message Development of promotional materials	Lead: Pinal Creek Trail Committee Globe-Miami Chamber of Commerce City of Globe Gila County	Immediate creation of promotional materials	Annual review of promotional program to adjust message

Discussion

Compared to statewide averages, Gila County has higher rates of chronic diseases. Rates of disease are influenced by various social determinants. "The social determinants of health are the circumstances in which people are born, grow up, live, work, and age, as well as the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces: economics, social policies, and politics. (Centers for Disease Control and Prevention, 2015e) para. 1)

The health and wellness of Southern Gila County is greatly influenced by region-specific social determinants of health. Contributions to chronic disease rates can be attributed to income disparities, race, lack of physical activity, absence of places to safely exercise, lack of access to healthy foods, and cultural barriers to healthful outcomes.

An individual's likelihood of becoming obese is influenced by three main factors: genetic characteristics, individual behaviors, and their living and work environments (Centers for Disease Control and Prevention, 2015d).

Genetics

Although a person can be genetically predisposed for obesity, research shows that their individual behaviors and living and work environments have a much

more profound effect on health. Obesity rates are not distributed evenly across all race demographics. Non-Hispanic blacks have the highest age-adjusted rates of obesity (47.8%) followed by Hispanics (42.5%), non-Hispanic whites (32.6%), and non-Hispanic Asians (10.8%) (Centers for Disease Control and Prevention, 2015d).

Individual Behaviors

Individual health behaviors, such as what one eats, how much and how often they exercise, and where they choose to be employed all have a profound effect on a person's overall physical health (Centers for Disease Control and Prevention, 2015d).

Living Environments

Health outcomes are also influenced by an individual's living environment. Environmental factors, such as whether or not a person has access to grocery stores with healthy food or safe places to exercise influences the health decisions that one is able to make (Centers for Disease Control and Prevention, 2015d).

Although some individuals are predisposed to heart disease, many cases can be prevented by eating a healthy, high fiber diet that is rich in fruits and vegetables, and low in sodium and saturated fat. An equally important component to the prevention of heart disease is regular physical activity. Those engaging in the recommended 2.5 hours of physical activity per week have significantly lower risk of developing heart disease (Centers for Disease Control and Prevention, 2015b). Gila County is ranked 2nd out of

the 15 counties in Arizona for the number of residents with congestive heart failure (Arizona Department of Health Services, 2015). Insufficient access to safe exercise locations and healthy food contributes to the high rates of congestive heart failure in Gila Count.

Although each county receives funding for health services, the current method of distribution leaves rural counties at a disadvantage. Gila County is currently ranked the worst county in Arizona in terms of health outcomes. However, funding is often distributed by state and federal sources through formula grants which are calculated based on a county's population. This manner of dissemination puts rural areas, such as Gila County, at a disadvantage. Although Gila County's population is low in comparison to other counties, the morbidity rates are some of the highest in Arizona. The low funding level coupled with high morbidity rates, puts a strain on the public health and healthcare resources in rural counties. Conversely, public health systems serving larger populations have proportionately larger funding sources in addition to a well-developed infrastructure, which makes success in reaching their populations more likely to begin with. For example, Maricopa County (Arizona's most populous county, with a population of approximately 4 million) ranked second of 15 counties in Health Outcomes and first of 15 in Health Factors for 2014. If other factors besides population (such as morbidity rates) were considered in formula grants, rural counties with high disease burdens might be able to receive more funds, which would give them a better chance of impacting the health and wellness of residents. However, if grant funds continue to be disseminated in this manner, it will be near impossible for rural counties to develop the infrastructure necessary to reach their target populations and impact chronic disease rates.

The distribution of funds for health services is beyond the control of Gila County. However, the creation of the Pinal Creek Trail has the potential to positively impact the health of Gila County by providing a safe place for recreation and increasing sense of community and social cohesion.

The Pinal Creek area is currently plagued with walkability issues, including lack of access and physical impediments. The pedestrian infrastructure in the rest of Globe is also lacking, and in many areas pedestrians must share space with vehicle traffic. In addition to walkability and bikeability issues, the relative lack of parks, trails and public recreation areas could partially explain the lower than average rates of physical activity in Globe. Cohen et al. (2006) found that persons who lived within one mile of a park were four times more likely to visit the park at least once a week. Cohen also found that 8 out of 10 park users lived within a mile of the park. Additional studies demonstrated that access to parks increases physical activity (Brownson et al., 2000), and that individuals who use trails are 50% more likely to achieve weekly recommendations for physical activity (Huston, Evenson, Bors, & Gizlice, 2003). Increasing parks and green spaces in a community can also increase the sense of community and social cohesion. The recent opening of a disc golf course in Gila County was attended by over 200 residents. This event was a gathering of community residents in support of a recreation space that is needed by the community. Pictures from the event are included in appendix G. The community support for the disc golf and public sentiment expressed on the Pinal Creek Trail survey indicate that Gila County is in need of safe recreation areas, and that the community supports the creation of more safe recreation areas.

"Many areas & neighborhoods don't have parks or places for physical activity. Kids are playing in streets."

- Stakeholder comment

"There are limited safe places to exercise in Globe."

- Stakeholder comment

Conclusion

The Pinal Creek Trail has the potential to positively impact the health of Globe and Gila County residents by providing a safe recreation space, which can increase physical activity rates. Increasing physical activity rates can in turn reduce rates of hypertension, heart disease, and diabetes. Increased rates of physical activity also decreases health care expenditures.

The recommendations made by the HIA project team provide direction to assist the project in moving forward. Because of the number of steps that need to be undertaken compared to other projects, numerous recommendations were identified. In order to provide direction and focus, the recommendations were divided into priority and non-priority items and a lead agency was assigned to each priority item. The lead agency assigned to each item should begin working on the highest priority recommendations first.

Funding for the trail and private property owner rights represent the largest obstacles to trail completion. Funding can potentially be located through government sources and private sector companies in Gila County. Additional funding may be located through grants. Private property rights may be resolved through the establishment of a property owners group. This group can give a voice to the property owners while working to resolve the private property rights that are impeding trail completion.

The Pinal Creek Trail HIA concludes that the creation of a trail in a section of the Pinal Creek Basin will have a positive impact on the health of Globe and Gila County residents. Specifically, the trail will increase the opportunities for physical activity, and will provide a safer route for pedestrians and bicyclists than what is currently available. Additionally, the creation of the trail and other recreational amenities will increase the community pride and tourism in the City of Globe. It is also likely that property values along the trail will increase. There were no negative health impacts identified as a result of this HIA. The recommendations presented can provide guidance and structure as the plans for the Pinal Creek Trail move forward.

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Appendices

Appendix A: Glossary

Bikeability

A term used to describe how friendly an area is to biking. Factors influencing bikeability include street connectivity, topography, land use, crime, weather, and the presence and quality of bicycle facilities.

Body Mass Index (BMI)

A screening tool for overweight or obesity; BMI is calculated by dividing weight in kilograms by height in meters. BMI can be used as a screening tool, but is not diagnostic of an individual's health.

Density

How much of something occurs over a given time or geographic area. For example, residential density is the number of housing units in a given area, and job density is the number of jobs divided by the population.

Depression

A mood disorder characterized by a persistent feeling of sadness, lack of interest in activities, and fatigue.

Design

Trail availability per 1,000 residents, bicycle path availability per 100 residents, and number of intersections per square kilometer.

Diversity

A range of different things. In terms of walkability, diversity pertains to the number of resources and attractions available within walking distance.

Health Impact Assessment (HIA)

A systematic process that uses an array of data sources and analytical methods, input from stakeholders and input from the public to determine the potential health impact/effects of a proposed policy, plan, program or project. An HIA also provides recommendations on monitoring and managing those effects.

Health

A state of physical, mental, and social well-being within an individual.

Health Impact

A change in the health of a population or any change in the physical, natural, or social environment that has a bearing on public health.

Health Determinant

The range of personal, social, economic and environmental factors which determine the health status of individuals or populations. For example, access to healthy foods.

Health Disparity

Differences in the overall rate of disease, morbidity or mortality between population groups. Many personal, social, economic and environmental factors contribute to health disparities. Populations affected by disparities include racial and ethnic minorities, residents of rural areas, women, children, elderly and persons with disabilities.

Health in all Policies

The practice of considering health, well-being and equity in the development and implementation of policies, projects and programs in non-health sectors. It involves a range of activities, such as HIA, to achieve better health outcomes and reduce health disparities.

Health Outcome

The health status of an individual, group or population which is attributable to a number of determining factors such as behaviors, social and community environments, health care services and genetics. For example, diabetes and obesity.

Obesity

Complex disorder involving an excessive amount of body fat (usually 20% or more over an individual's ideal body weight). Obesity is associated with increased risk of chronic diseases, such as heart disease, high blood pressure, and diabetes. BMI can be used as a screening tool for obesity.

Rapid, Intermediate and Comprehensive HIAs

Rapid HIA involves collection and analysis of existing data only. An Intermediate HIA is the most common type and entails a more thorough investigation of health impacts as well as the collection of some new data. A Comprehensive HIA involves the collection and analysis of new data using multiple methods and sources and is the most costly and time-consuming of the three.

Stakeholder

A person or entity with an interest or concern in a project or organization.

Type I Diabetes

Chronic condition where the pancreas does not produce enough insulin to process glucose. It is also called juvenile diabetes or insulin dependent diabetes. Although it usually appears in childhood or adolescence, it can begin or be diagnosed initially in adults.

Type II Diabetes

A chronic condition where the body resists the effects of insulin, this is called insulin resistance. Initially the pancreas compensates by making extra insulin, however, over time the pancreas isn't able to make enough insulin to keep blood glucose at normal levels. It is also called adult onset or non-insulin dependent diabetes. Type II diabetes is the most common type and accounts for about 90% of cases of diabetes.

Walk Score

A measure of walkability that assigns a score to an area based on an algorithm that considers the distance between relevant amenities. The walk score doesn't take into other factors, such as sidewalks, lanes of traffic, crime or factors.

Walkability

A term used to describe how friendly an area is to walking. Factors influencing walkability include street connectivity, land use type, residential density, the presence of trees and vegetation, air quality, traffic, and access to mass transit.

Appendix B: Scoping Research Questions

Scoping Step - Pathway Questions				
Research Questions: Existing Conditions (of health determinants and health outcomes)	Research Questions: Potential Impacts (on health determinants and health outcomes)	Possible Indicators	Data Sources	Methodology
PATHWAY #1 – Increased Physical Activity				
What are current physical activity levels of community residents?	Will levels of physical activity change?	Minutes per day/ week MODE OF EXERCISE INTENSITY	Community residents Local sports organizations	Surveys Focus groups Interviews
What is the current level of recreational use of the PCTC?	Will this project encourage increased use?	Number of residents using the corridor for walking and biking.	ADOT Pinal Creek Trail Design Workshop	Field observations Community survey
Are there any current recreation activities and/or programming available in the PCTC study area?	Will this project increase or decrease participation and programming?	Identification of existing activities and programming. Number of residents participating in existing recreation programs. Frequency of events	Community Centers Recreation Centers Senior Centers Surveys	Key Informant Interviews Attendance/visitor logs Community surveys
What is the demand of residents to utilize the PCTC?	What community groups are willing to partner or participate in this project? How does this project rank among other possible projects in importance?	Number of community partners interested? Number of people at committee meetings, events.	Community Partners Sign in sheets Surveys	Key Informant Interviews Surveys – Chamber of Commerce Community Survey Focus Groups
What is the current obesity and chronic disease levels in the community?	Will these levels be affected by the PCTC?	Obesity rates Diabetes rates Cardiovascular disease rates # of people meeting the weekly PA guidelines	Hospital discharge data Emergency room data BMI data Surveys	Secondary analysis Community Surveys On-line surveys

Scoping Step - Pathway Questions				
Research Questions: Existing Conditions (of health determinants and health outcomes)	Research Questions: Potential Impacts (on health determinants and health outcomes)	Possible Indicators	Data Sources	Methodology
What is the demand of residents to utilize the PCTC?	What community groups are willing to partner or participate in this project?	Number of community partners interested?	Community Partners	Key Informant Interviews Surveys – Chamber of Commerce
What is the current prevalence of physical activity related injuries?	Will physical activity related injury increase or decrease?	Pedestrian and bike injuries Park injuries	Hospital discharge data Emergency room data	Secondary analysis
What is the existing physical infrastructure within the Pinal Creek corridor?	Will this project improve the infrastructure or make it worse?	Lighting Crosswalks Transportation routes Indicators of blight	Globe Public Works Google Earth	Secondary analysis Mapping Walkability assessments Neighborhood condition audits
What is the existing ped/bike physical infrastructure in the community?	Will existing infrastructure be improved as a result of the trail construction?	Repair of existing sidewalks Sidewalks constructed Bike paths constructed Bike lanes added to existing streets	Globe Public Works Google maps	Field surveys/walkability assessments Review existing Neighborhood condition audits
What trail surface would best meet the needs of the community?	What trail surface will contribute to the highest level of use?	Number of people using the trail User feedback	Surveys Literature review Secondary data from other trail projects	Research existing data sources Contact other communities in Arizona
PATHWAY #2 – Increased Community Enrichment & Civic Pride				
What is the level of community buy-in/support for the trail project?	Will the community continue to be supportive of the PCTC?	Community buy-in/approval of the project Long-term commitment	ADOT Pinal Creek Trail Design Workshop	Surveys Focus groups Public outreach

Scoping Step - Pathway Questions				
Research Questions: Existing Conditions (of health determinants and health outcomes)	Research Questions: Potential Impacts (on health determinants and health outcomes)	Possible Indicators	Data Sources	Methodology
What is the current level of interaction/collaboration between community-based organizations to support trail development?	Will the level of collaboration increase as a result of the trail project?	#of organizations that get involved with raising money and helping with trail construction and long-term maintenance	Community survey Stakeholder interviews Chamber of Commerce	Surveys Interviews
What is the current level of satisfaction for recreational opportunities in Globe?	Will the level of satisfaction increase if the trail is constructed?	Positive feedback from community residents	Community surveys On-line surveys Personal interviews	On-line surveys Interviews with recreation users
What is the current level of community empowerment?	Will community residents feel more empowered if the trail is constructed?	More active community groups New neighborhood groups are formed	Chamber of Commerce City of Globe	On-line surveys Interviews with representatives of local organizations
What is current condition of the PCTC and adjacent area?	Will the condition of the properties affect utilization and safety in the PCTC?	Pedestrian amenities Shade Impervious surfaces Access to drinking water	Walking audits User/ observational audits Google Earth	Surveys with users Resident walking audits Observational audits Playground audits
PATHWAY #3 – Increased Social Cohesion				
What is the current sense of social cohesion or sense of belonging in Globe?	Will residents gather at new spaces along the PCTC?	Community Interest Volunteer hours	Residents Businesses	Focus groups Surveys Literature review

Scoping Step - Pathway Questions				
Research Questions: Existing Conditions (of health determinants and health outcomes)	Research Questions: Potential Impacts (on health determinants and health outcomes)	Possible Indicators	Data Sources	Methodology
What is the current environment for recreational facilities/parks within the study area?	If there was access from the PCTC, would the public use the PCTC to access those facilities?	Parks School playgrounds Vacant lots Gyms/sports fields/ courts	City of Globe Parks Dept. Senior Centers GUSD	GIS mapping Field surveys Secondary analysis Surveys
What are current opportunities for communitywide activities?	How will construction of the trail enhance existing recreation opportunities?	# of users Organized activities using the trail # of organizations supporting the trail	Users Residents Visitors Sports related organizations	On-line surveys Interviews Focus groups
What is the current "quality of life" in Globe?	Will construction of the trail enhance the quality of life?	# of users # of planned activities which use the trail	Users Residents	On-line surveys Interviews Focus groups EuroQol or Euro-Qual survey
PATHWAY #4 – Reduced Vehicle Trips				
What are the current modes of transportation?	What will be the additional modes of transportation available if the trail is constructed?	Additional pedestrian infrastructure constructed	City of Globe	Review available data Field surveys
What is the current prevalence of respiratory illness?	Will respiratory illness increase or decrease?	Asthma rates	Hospital discharge data Emergency room data	Secondary analysis Parent interviews of school age children
What are current options for walking & biking that are separate from vehicle traffic?	What will be the additional options for walking and biking to supplement trail construction?	Miles of sidewalks Miles of separated bike paths	City of Globe Walk Score	Review existing resources

Scoping Step - Pathway Questions				
Research Questions: Existing Conditions (of health determinants and health outcomes)	Research Questions: Potential Impacts (on health determinants and health outcomes)	Possible Indicators	Data Sources	Methodology
What is the current number of traffic incidents between motor vehicles and peds/ bikes in the area?	How will the trail help decrease the number of incidents?	Decrease in the number of pedestrian/vehicle incidents Decrease in the number of bike/ vehicle incidents	Globe PD Cobre Valley Regional Hospital ADHS ADOT	Review of existing resources
PATHWAY #5 – Increased Public & Personal Safety				
What are the current safe places for exercise in Globe?	What opportunities will exist to provide safe places along the trail?	# of safe spaces created	Trail designer Users	Review proposed trail plans Interview users
Is the number of Globe police officers adequate to handle current activity levels in the PCTC?	Will this project create a need for additional police?	Crime statistics Projected cost to the city	Globe PD Gila County Sheriff	Secondary analysis Literature review
What is the current perception of safety in the PCTC and surrounding area?	Will this project increase or decrease that perception?	Crime statistics	Residents Globe PD Gila County Sheriff	Survey Focus groups
Are there current issues relating to vandalism in the PCTC?	Will this project potentially increase crime in the community?	Crime stats	Local law enforcement. Crime stats	Interview local law enforcement reps Review local crime stats.
PATHWAY #6 – Increased Economic Benefits				
What is the level of support for the trail by adjacent property owners?	Is there an understanding of the potential positive impacts on property values?	Increases in property values near the trail once completed.	Community survey Stakeholders	On-line survey Personal feedback Stakeholder commitment
What is the level of commitment from the local business community?	Will that commitment increase as the project moves forward?	# of business owners who join the Pinal Creek Trail Champions. Funding committed to project	Survey of local business owners. Survey of Chamber members	On-line surveys Interviews with business owners

Scoping Step - Pathway Questions				
Research Questions: Existing Conditions (of health determinants and health outcomes)	Research Questions: Potential Impacts (on health determinants and health outcomes)	Possible Indicators	Data Sources	Methodology
What is the status of funding available to construct the Pinal Creek Trail?	Will funding availability increase with a greater understanding of the health benefits.	# of funding sources identified	City of Globe Gila County Local Fundraising Identify funding sources that have been used for other rural trail projects ADOT CAG	Contact existing trail projects in Arizona On-line review of public agencies and private organizations that fund transportation projects and/or healthy community projects
What are current costs for maintaining the Pinal Creek corridor?	Will those costs increase if the trail is constructed?	Increased maintenance costs	Globe Parks and Recreation Gila County	Review existing budgets
What are current programs for attracting new residents to Globe?	Will construction of the trail contribute to economic development efforts to promote Globe?	# of users who are visitors # of new programs	Parks & Recreation programs Community sponsored activities	Contact local organizations involved in promoting the City of Globe
What are current tourist promotion programs?	How will tourist promotion change if the trail is constructed?	Additional tourists Increased business activity	Chamber of Commerce Globe Historic Downtown	Data collection Business interviews

Appendix C: Walkability Assessment

Score	Definition
0	Missing infrastructure
1	very unsafe, no amenities, 8+ natural/ manmade hazards
2	unsafe, 1-2 amenities, 6-7 natural/ manmade hazards
3	somewhat unsafe, 2-3 amenities, 4-5 natural/manmade hazards
4	safe, 4-5 amenities, 2-3 natural/manmade hazards
5	more safe, 6-7 amenities, 1 natural/manmade hazard
6	most safe, 8+ amenities, no natural/manmade hazards

Walking Facilities and Maintenance							
#	Question	Seg. 1	Seg. 2A	Seg. 2B	Seg. 3	Seg. 4	Walk Score
1	Are there sidewalks or shoulders?	1	0	6	3	1	2.2
2	Do you feel safe using the sidewalk or shoulders?	0	0	3	1	4	1.6
3	Does the sidewalk or shoulder accommodate people use strollers, wheelchairs, or other assistive mobility devices?	0	0	4	1	0	1
4	Is the sidewalk continuous without gaps?	0	0	5	1	0	1.2
5	Are the sidewalks or shoulders a minimum of five feet wide?	0	0	6	1	0	1.4
6	Are there curb cuts present that allow pedestrians and people with strollers, wheelchairs, or senior citizens to navigate the sidewalk or shoulder safely and conveniently?	0	0	5	1	0	1.2
7	Is the sidewalk or shoulders free from major misalignment, cracks or pavement condition issues?	0	0	4	1	0	1
8	Is the sidewalk free from obstructions?	0	0	6	1	0	1.4
	Pedestrian Amenities						
1	Are there crosswalks and/or pedestrian signals located at each intersection?	0	0	3	0	0	0.6
2	Is it easy to cross streets?	1	0	4	1	1	1.4
a	Road was too wide						
b	Traffic signals did not provide adequate time to cross						
c	Lack of pedestrian signalization?	√	√				
d	Traffic signals made us wait too long to cross						
e	Street needed striped crosswalks						
f	Blocked line of sight	√	√				
g	Curb ramps were needed or needed repairs	√					
h	Drivers seem to be speeding	√					
i	Other issues or observations (no sidewalks)	√					
3	What amenities are present?	6	1	6	2	1	3.2

a	Small grocery store/convenient store			√			
b	Farmers Market	√		√			
c	Food establishment			√			
d	Supermarket						
e	Pharmacy			√			
f	Entertainment			√			
g	Church			√			
h	Library			√			
i	Post Office			√			
j	Bank			√			
k	Laundry/dry cleaning						
l	Indoor fitness facility			√			
m	Senior Center			√			
n	Playground/park/trailhead	√					
o	School			√			
p	College	√					
q	Retail Stores			√			
r	Employment centers						
s	Smoke-free public spaces						
t	Other: community center, botanical garden, Besh-Ba-Gowah Ruins, dance studio						
4	How pleasant was your walk?	3	1	6	1	5	3.2
a	Needed more grass, flowers, trees		√				
b	Lacked personal security	√	√				
c	Not well lit	√	√				
d	Dirty, lots of litter/trash	√	√				
e	Lack of maintenance	√	√				
f	No bench or place to rest	√	√				
g	Too much high speed traffic		√				
h	Other: angry property owners						
5	Is there grass or other buffers between the trail and adjacent uses?	2	0	5	0	2	1.8
a	Trees	√					
b	Landscaping	√					
c	Bike lanes						
d	Parked cars						
e	Other: make-shift stairs and fencing						
#	Question	Seg. 1	Seg. 2A	Seg. 2B	Seg. 3	Seg. 4	Walk Score
	Average walkability for each segment	1.1	0.1	4.8	1	1	1.6

Appendix D: Bikeability Assessment

Score	Definition
0	Missing infrastructure
1	very unsafe, no amenities, 8+ natural/ manmade hazards
2	unsafe, 1-2 amenities, 6-7 natural/ manmade hazards
3	somewhat unsafe, 2-3 amenities, 4-5 natural/manmade hazards
4	safe, 4-5 amenities, 2-3 natural/manmade hazards
5	more safe, 6-7 amenities, 1 natural/manmade hazard
6	most safe, 8+ amenities, no natural/manmade hazards

Biking Facilities and Maintenance							
	Question	Seg. 1	Seg. 2A	Seg. 2B	Seg. 3	Seg. 4	Bike Score
1	Did you have a safe place to bicycle safely?	1	1	3	1	4	2
2	On the road, sharing the road with motor vehicles?	0	1	3	0	4	1.6
3	Is the trail on and off the path?	0	1	3	0	4	1.6
4	How was the surface you rode on?	1	0	0	0	3	0.8
5	How were the intersections you rode through?	1	0	2	0	0	0.6
6	Did drivers behave well?	2	0	3	0	4	1.8
7	Was it easy for you to use your bike?	1	0	2	0	3	1.2
	Average bikeability for each segment	0.86	0.43	2.29	0.14	3.14	1.37

Appendix E: Additional Recommendations

Pathway	Recommendation
1.3	Trail Amenities - Conduct a community survey to identify potential trail improvements including activities and facilities
1.4	Trail Design - Prepare a trail design that provides opportunities and takes into consideration the needs of all segments of the population, including children, seniors, and persons with disabilities
3.2	Community Livability – Telling The Story - Build on current efforts to promote Globe and examples of how the trail will contribute to the desirability of Globe as a place to live.
3.3	Resident Perception Of Livability – Identify current resident attitudes regarding livability in Globe.
3.4	Work towards adopting a "complete streets" design standards along the Pinal Creek Trail. This design standard would widen current roadways, adding sidewalks and bicycle lanes along the current route.
5.2	Perception of Community Safety - Survey Globe residents to identify their perception of safety in Globe.
5.3	Safe Existing Recreation Areas - Identify recreation areas in Globe that are perceived as safe & identify why those spaces are considered safe.
5.4	Community Support for Existing Recreation Areas - Identify resident levels of support & satisfaction with existing recreation facilities.
5.5	Addressing Existing "Hot Spots" - Identify strategies, priorities and funding sources to mitigate identified "hot spots" for pedestrian/vehicle & bike/vehicle incidents.

Appendix F: Pinal Creek Basin Pictures

Figure 22 ▼
Segment 1

Figure 23 ◄
Segment 2

Figure 24 ▼
Segment 3

Figure 25 ◄
Segment 4

Figure 26 ◄
Segment 5

Appendix G: Pictures of Community

Figure 27 ◀
Ribbon cutting for Gila County disc golf course

Figure 28 ▼
Public participants at the disc golf opening ceremony

▲ Figure 27
Pinal Creek Trail transition between segment 2 and 3 current state

Figure 28 ▼
Pinal Creek Trail transition between segment 2 and 3 artist rendering. This rendering depicts the "bank-side" trail option.

▲ Figure 27
Pinal Creek Trail transition between segment 2 and 3 current state

Figure 28 ▼
Pinal Creek Trail transition between segment 2 and 3 artist rendering. This rendering depicts the "bank-side" trail option.