

Active Transportation In Sierra Vista

Health Impact Assessment





Cover Photo Credit: City of Sierra Vista

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1. Summary

HIA CONTEXT, PURPOSE AND GOALS

CONTEXT

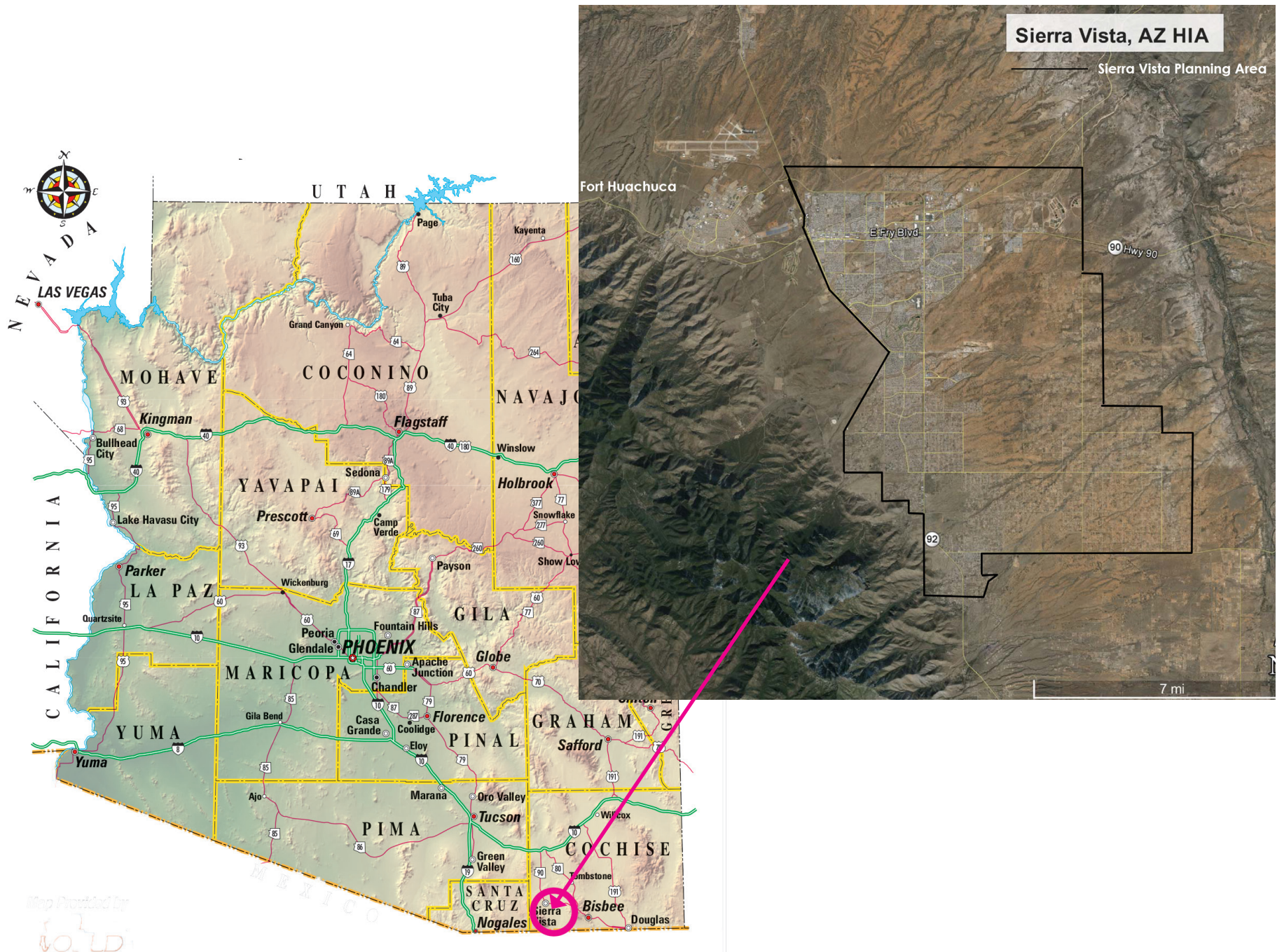
Incorporated in 1956, Sierra Vista is located in the most southwestern part of Cochise County, approximately 28 miles south of the intersection between the 1-10 and SR90. As of 2015, the City was home to over 43,800 residents, many of whom live and/or work on Fort Huachuca, an active military installation and nationally designated historical place. Fort Huachuca was annexed into the City of Sierra Vista in 1971 (Figure 1: Project Context Map)

PURPOSE

By examining the health impacts of increasing and improving facilities for bicycling, walking, and public transit in Sierra Vista, this Health Impact Assessment (HIA) is intended to inform decision-making related to non-motorized and public transportation planning in Sierra Vista.



Figure 1: Project Context Map



HIA GOALS:

- Forging community partnerships and generating support for healthy transportation recommendations.
- Raise awareness within the community of the relationship between transportation and physical and mental well-being, from an individual and community health perspective.
- Informing the capital project priorities of City's Safe Bicycle and Pedestrian Routes Plan and Sidewalk Implementation Plan (SVMPO Regional Transportation Plan (2015-2040)
- Provide input to the:
 - City of Sierra Vista Development Code update
 - Sierra Vista Unified School District school crosswalk plans
 - Fry Blvd. Corridor Study
 - North Garden Avenue Redesign.
 - Policy and planning on the military base Fort Huachuca, a quintessential part of the greater Sierra Vista community.

OBJECTIVES OF THIS HIA

The primary objective of this HIA is to help participants in the HIA planning process and the larger Sierra Vista community to gain a greater awareness of the relationship between transportation and physical and mental health, for individuals and the community.

This objective will be accomplished through:

- Providing the Sierra Vista Metropolitan Planning Organization (SVMPO) and HIA Steering Committee (Be Healthy! Sierra Vista) information about the relationship between individual and community health, and available transportation options and planned non-motorized transportation facilities
- Using the HIA process to engage and educate people who live and work in Sierra Vista and at Fort Huachuca about the intersection between transportation and their health and the health of their community. Forging community partnerships and generating support for health-relevant transportation recommendations.

HIA TEAM & SPONSORSHIP

This Health Impact Assessment was developed in partnership with the Sierra Vista Metropolitan Planning Organization (SVMPO). The HIA was funded by the Arizona Department of Health Services (ADHS) with a grant from the Center for Disease Control and Prevention-National Center for Environmental Health under grant number 1UE1H001193-01.

The team conducting the Health Impact Assessment included:

- Anissa Jonovich, Arizona Department of Health Services
- Dan Coworth, Sierra Vista Metropolitan Planning Organization
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SUMMARY OF FINDINGS

The addition of new sidewalks, bicycle lanes, and multi-use paths will remove gaps throughout the existing city of Sierra Vista and will contribute to increased connectivity and provide healthy transportation options for residents and visitors. When residents take advantage of healthy transportation options such as bicycling, walking, and transit, they increase their level of physical activity, which contributes to the reduction of potentially fatal chronic diseases, such as diabetes and heart disease. Physical activity has also been proven to decrease stress, depression, and isolation, which are significant factors related to the potentially fatal diseases of alcohol and drug addiction.

Healthy transportation options also make important community destinations such as medical care, parks, social services and access to healthy food more accessible to people who do not drive, including the disabled, seniors, and children. Making safety improvements to sidewalk ramps, sidewalk surfaces, crosswalks, and improving sidewalk connectivity will increase the physical and perceived safety of sidewalks and bike lanes, resulting in more people using them and providing better facilities for those who are disabled.

RECOMMENDATIONS

- Sierra Vista Sidewalks Inventory and Implementation Plan- Include census tract income, proportion of disabled, and persons over 65 in overall sidewalk connectivity priority area determination.
- Sierra Vista Sidewalks Inventory and Implementation Plan: Provide a connection between N. Carmichael Avenue where it terminates at N. Railroad Avenue to West Fry Boulevard.
- Sierra Vista Sidewalks Inventory and Implementation Plan: Provide additional sidewalk along Avendia Cochise between Paseo Luis and Calle Mercancia with ADA upgrades. (Project 1).
- Sierra Vista Sidewalks Inventory and Implementation Plan: Provide additional sidewalk on S. Carmichael Ave. between lane and Timothy Lane, with ADA upgrades (Project 13).
- Fry Blvd. Corridor Plan: Sierra Vista City Council Strategic Objective goal is to implement a plan to beautify public infrastructure that makes Fry Blvd. and North Garden Ave. more walkable and bike-able.
- Develop a Safe Routes to School Plan and Program
- Adopt a Complete Streets Policy

Upgrades to the zoning ordinance in Sierra Vista are recommended by the HIA team. These alterations would among other things require ADA compliance of all sidewalks along local streets, increase connectivity throughout the City via new bike lanes and multi-use paths, and requirements of future developments that enhance this connectivity rather than disrupt it.

Recommendations for infrastructure improvements on Fort Huachuca are also outlined in this HIA. All of those recommendations look at either filling in gaps in the sidewalk grid or improving bike lanes and MUP's that in their current condition can be present public safety challenges and limit the viability of active transportation.

A variety of stakeholder engagement techniques were employed to educate the community about the relationship between transportation, physical activity and health, and engage them in the development of the HIA. These included:

- Two public meetings to educate interested parties of the HIA, compile data, and interact with the community
- Engaging "Be Healthy! Sierra Vista," as the HIA Stakeholder group in February 2016
- Hosting a Sierra Vista HIA table at the "Super Bowl Tailgate" held by the Sierra Vista Chamber of Commerce
- Participating in the April 28, 2016 Sierra Vista Chamber of Commerce Health, Wealth and Lifestyle Fair

- Distributing information about the HIA and community meetings through local radio, print, and city sponsored digital newsletters
- Hosting an HIA web page to share information about specific health issues in Sierra Vista, public comment summaries, and encourage community dialogue about health and its relationship to transportation.

2. About

THE PROJECT

The purpose of this project is to identify and make recommendations to maximize the potential beneficial health impacts resulting from more available non-motorized transportation facilities in Sierra Vista through a variety of projects, plans and policies. Each of these projects is described below:

- West Fry Boulevard Corridor Study - An ongoing corridor study for the West end of Fry Boulevard. This end of Fry Boulevard terminates at the historic entrance to Fort Huachuca. A second entrance to Fort Huachuca, located at the west terminus of SR90 has replaced the West Fry Boulevard entry, and now the West Fry entrance is open only on weekdays. As a result, commercial activity along West Fry Boulevard and associated with the Fort's entrance has declined and shifted approximately three miles east to the intersection of Fry Boulevard and SR90. Additionally, the residential areas north of West Fry Boulevard include some of the city's lowest income residents. The West Fry Boulevard Corridor Study seeks to identify streetscape, pedestrian facilities, and other investments that will promote activity and contribute to the revitalization of commercial activity along West Fry Boulevard.
- North Garden Avenue Corridor Study - A road diet program to generate pedestrian activity and beautify the North Garden Avenue streetscape. North Garden Avenue is located along the east side of the Fort, provides access to West Fry Boulevard, and borders the low income housing area north of West Fry Boulevard.
- Sidewalk Implementation Plan - The Sidewalk Implementation Plan identifies gaps in the city sidewalk network. The plan prioritizes where sidewalks are needed based on access to transit, activity centers, parks, and schools. This HIA provides input into implementation of this plan as well as the plan recommendations.
- Safe Bicycle and Pedestrian Routes Plan. In 2011 the City of Sierra Vista completed a Safe Bicycle and Pedestrian Routes Plan. The plan identifies bicycle and pedestrian needs and deficiencies within Sierra Vista and recommends projects, programs, and studies to

improve bicycle and pedestrian safety and comfort. This HIA provides information and recommendations regarding priorities for implementation of this plan.

- Planned Update to the Sierra Vista Development Code. The Development Code regulates how development occurs and the types of development that can occur at a given location. This HIA can provide a better understanding of how transportation facilities, access, and landscaping that provides shade can impact health. The HIA recommendations can influence requirements for sidewalks, bike paths, trails, and other facilities such as bus stop shelters, bicycle racks, benches along sidewalks, and shade that affect the safety, comfort, and connectivity of the non-motorized transportation system.



Bike lane in Sierra Vista. Source: Dan Coxworth, SVMPO Administrator



Overhead view of West Fry Boulevard. Source: Dan Coxworth, SVMPO Administrator

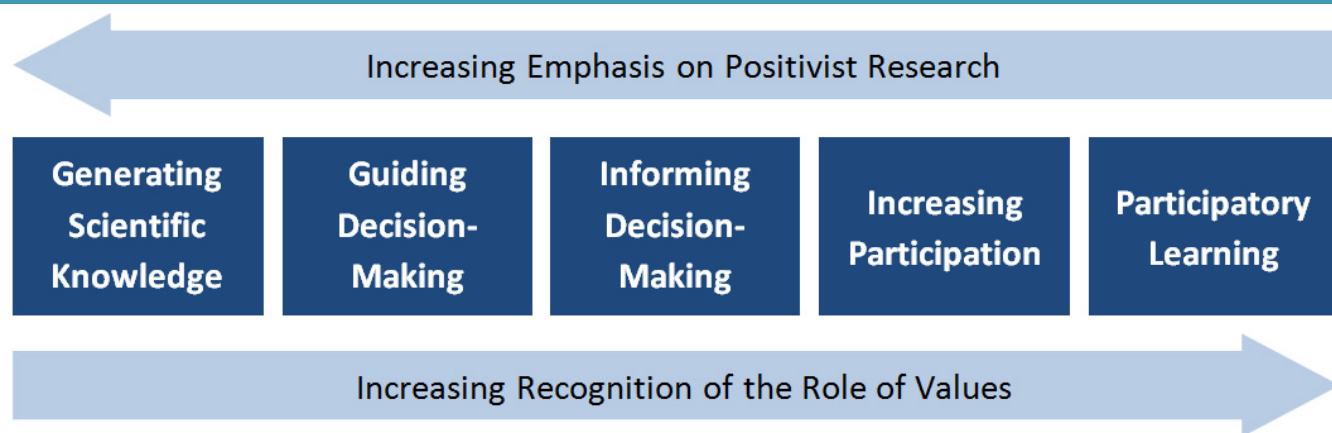
HEALTH IMPACT ASSESSMENT EXPLAINED

An HIA is a specific, six-step process that examines the potential health consequences of a proposed project, plan, or policy. HIAs differ from other tools commonly used for health assessment, such as health risk assessments and public health assessments. The CDC states that HIAs:

- Are intended to inform deliberations on a specific proposal—legislation, proposed rule-making, and project permitting.
- Systematically assess the multiple influences on health that can occur as a result of social, economic, and environmental changes.
- Use a broad definition of health that includes physical and psychological health and general well-being.¹

HIAs provide benefits to the community and decision-makers because they enhance understanding of the total intended and unintended benefits and/or costs while an action is being considered. This knowledge can shape a potential plan, policy, or project so that positive health outcomes are maximized and negative ones are diminished as much as possible. The purpose of an HIA is to never stop a proposal, rather it is to clearly articulate to stakeholders information about the intersection between policy and public health outcomes. In turn, the HIA process brings public health issues to the attention of persons whose purview may not explicitly deal with matters of public health, for example, an official making decisions on transportation planning or land-use planning (Figure 2: Benefits of Health Impact Assessment.).

FIGURE 2: BENEFITS OF HEALTH IMPACT ASSESSMENT



Harris-Roxas B. Views of the Purpose of Health Impact Assessment, Centre for Health Equity Training, Research and Evaluation (CHETRE): Sydney, 2008 http://www.hiaconnect.edu.au/evaluating_hia.htm

THE HIA PROCESS

The HIA Process includes six steps (Figure 3: Steps of HIA):

- Screening
- Scoping
- Assessment
- Recommendations
- Reporting
- Monitoring and Evaluation

Screening is the first step of the process. During the screening process, a determination is made if the project is related to the determinants of health and if conducting an HIA will have value to decision makers. Information about determinations of health is located in the Screening chapter of this document.

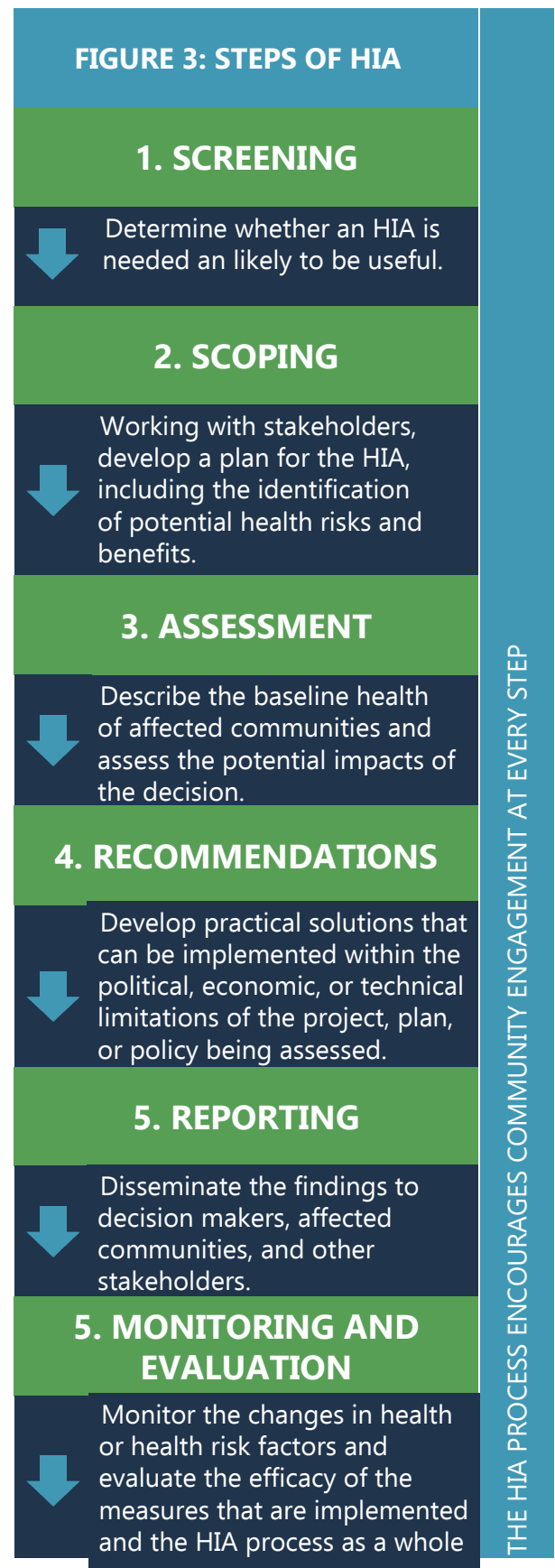
Scoping identifies the determinants of health and health indicators that are specific to the HIA and identifies data sources that can be used in constructing the HIA. During scoping, the types and extent of the public engagement process are also outlined in a stakeholder engagement plan. The stakeholder engagement plan for this HIA is located in Appendix XY: Stakeholder Engagement Plan.

The **Assessment** phase of an HIA is where the baseline health indicators related to the project or policy are described in detail and where the potential health effects of the proposal are characterized.

Recommendations are specific actions included in the HIA that could benefit community health with regards to the proposed project or policy.

Reporting includes activities to inform the community of the HIA recommendations and process.

The **Monitoring and Evaluation** section addresses various ways the process could have been improved, and identifies potential indicators that could be used to monitor the impact of the project and recommendations.



Source: *The HIA Process*. August 26, 2014. The Pew Charitable Trusts. <http://www.pewtrusts.org/en/about/newsroom/news/2014/08/28/the-hia-process>

THE RELATIONSHIP OF HEALTH TO TRANSPORTATION

How we travel from one place to another affects our health. Driving is the least active form of transportation. The ULI states that communities designed in a way that supports physical activity—wide sidewalks, safe bike lanes, attractive stairways, accessible recreation areas—encourage residents to make healthy choices and live healthy lives. Healthy places in turn create economic value by attracting both younger and older workers and appeal to a skilled workforce and innovative companies¹.

Literature shows that regular physical activity:

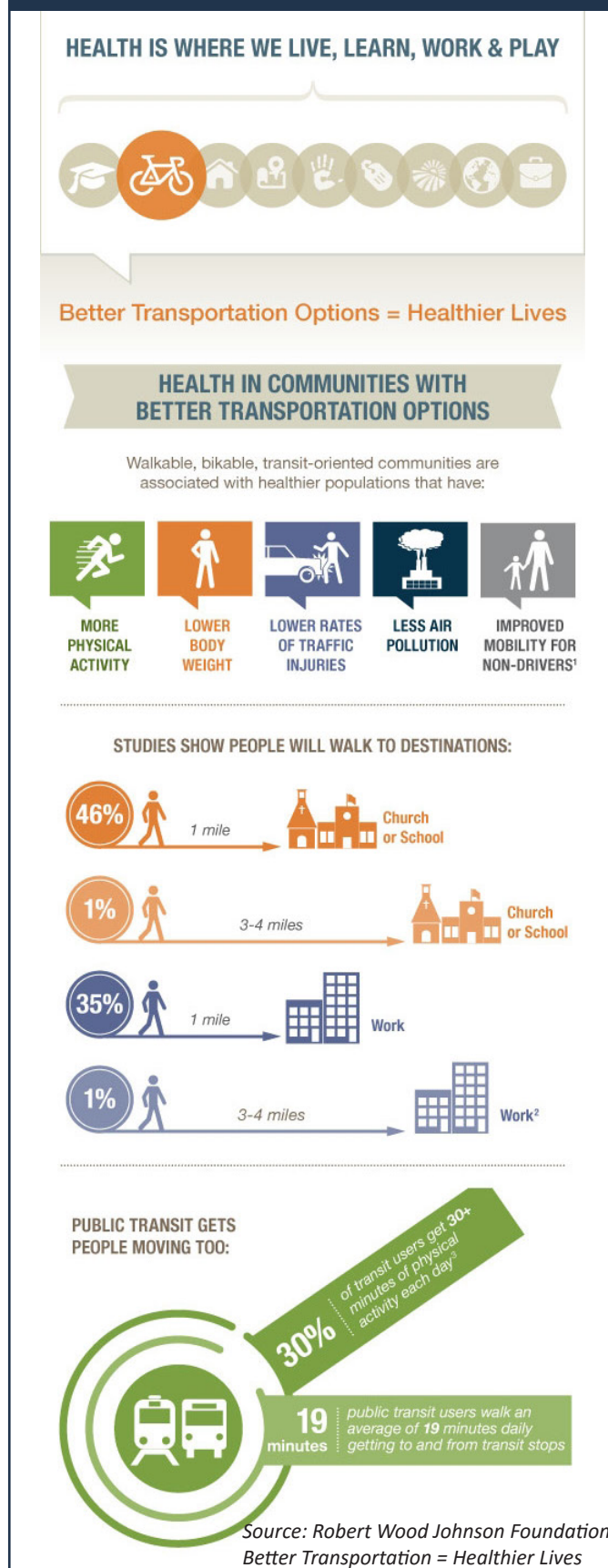
- Decreases the risks of cardiovascular disease, colon cancer, and diabetes
- Maintains muscle strength and joint structure and function
- Is necessary for normal skeletal development during childhood
- May relieve depression, anxiety, and other mental illnesses
- Along with appropriate dietary patterns, may lower obesity levels

Transportation systems influence our level of physical activity in the following three ways (Figure 4: Relationship Of Health To Transportation):

SIDEWALKS TO PROMOTE WALKING

Research has shown that people living in communities with sidewalks are 47% more likely to engage in physical activity for 39 minutes per day, than those that live in communities without sidewalks³. A safe, accessible, well maintained sidewalk not only increases public health, it also encourages social interactions and by increasing the community's walk score, can increase home values.

FIGURE 4: RELATIONSHIP OF HEALTH TO TRANSPORTATION



Sidewalks are also important to remove barriers to accessing public transportation. A 2010 study conducted for the American Public Transportation Association found that neighborhood design features that support transit, such as sidewalks, shade, and mixed land uses, also support public health. Of people with safe places to walk within ten minutes of home, 43% achieve physical activity targets, compared with just 27% of less walkable area residents.⁴

TRAFFIC CALMING EFFORTS TO MAKE WALKING/BIKING SAFER

Wide, well-lit sidewalks, clearly marked crosswalks, pedestrian-activated crossing signals, and reducing speed limits on streets improves both pedestrian and bicyclist's safety.

Streets that are wide, smooth, and straight encourage automobile travel at fast speeds and discourage travel by foot or bicycle. Conversely, streets that are narrow and irregular discourage automobile travel at high speeds. Additionally, streets that incorporate pedestrian and bicycle facilities (bike lanes, sidewalks, crosswalks, etc.) and that are calmed (i.e., streets that contain traffic-slowing obstacles and devices) are believed to facilitate more walking and bicycling. In the United States, street design has been dominated by the desire to facilitate the smooth flow of automobile traffic, resulting in design standards for streets that encourage driving and discourage walking and biking⁵.

BENEFITS OF REGULAR PHYSICAL ACTIVITY

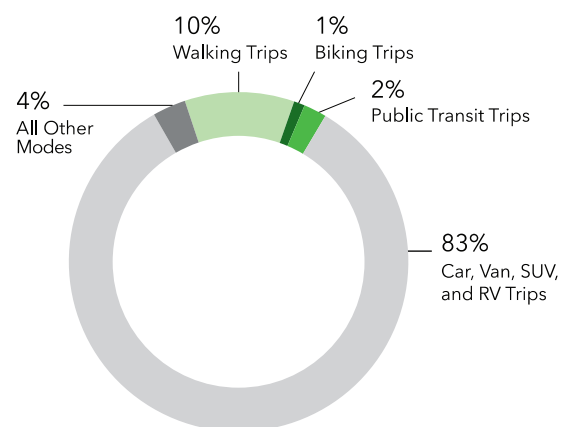
- Reduces the risk of dying prematurely.
- Reduces the risk of dying from heart disease.
- Reduces the risk of developing diabetes.
- Reduces the risk of developing high blood pressure.
- Helps reduce blood pressure in people who already have high blood pressure.
- Reduces the risk of developing colon cancer.
- Reduces feelings of depression and anxiety.
- Helps control weight.
- Helps build and maintain healthy bones, muscles, and joints.
- Helps older adults become stronger and better able to move about without falling.
- Promotes psychological well-being.^{5a}

U.S. TRIPS, BY MODE OF TRANSPORTATION

According to the 2009 National Travel Survey (the most recent available), about 40% of trips are shorter than two miles—about a 30-minute walk or a 10-minute bike ride.⁶ However, driving remains a primary mode of transportation, and according to the 2009 National Transportation Survey, 83% of all trips were made by motorized vehicles (Figure 5: U.S. Trips by Mode of Transportation.).

Figure 5: U.S. Trips by Mode of Transportation

U.S. Trips, by Mode of Transportation



Source: NHTS 2009

3. Screening

INTRODUCTION

Screening is the first phase of Health Impact Assessment (HIA). During this period, the value of conducting an HIA is examined. Screening assesses the extent to which the project, proposal, or policy could have **significance** and **value** in impacting identified determinants of health, and the extent to which the recommendations of an HIA could be implemented (Figure 6: Health Impact Assessment). Screening Summary documents the significance and value of this HIA.

SIGNIFICANCE

This HIA could affect the implementation of a variety of plans that will substantially change the non-motorized transportation environment in Sierra Vista. For all Sierra Vista residents, these changes could result in a reduction in obesity and obesity-related diseases such as diabetes and heart disease, improved mental health, and better access to healthy food, healthcare, employment, and schools.

VALUE

The Sidewalk Implementation Plan, North Garden Avenue Corridor Study, West Fry Boulevard Corridor Study, Safe Bicycle and Pedestrian Routes Plan, and the planned update to the Sierra Vista Development Code affect how the city of Sierra Vista can provide non-motorized transportation facilities through zoning, development, and roadway improvements. Some of the plans, such as the Safe Bicycle and Pedestrian Routes plan and the North Garden Avenue

Redesign, are adopted by the Metropolitan Planning Organization (MPO) and the HIA can provide guidance in implementation priorities. Some, such as the West Fry Boulevard Corridor Study, are in process and the HIA can provide input into the development of recommendations and concept designs. Others, such as the update to the Sierra Vista Development Code are planned, and this HIA can provide foundational information to topics that should be considered in the update.

FIGURE 6: HEALTH IMPACT ASSESSMENT SCREENING SUMMARY

CRITERIA	RESPONSE	DISCUSSION
Is there a specific decision being made?	This HIA will impact several specific decisions.	This HIA will provide input into the West Fry Boulevard and the North Garden Avenue Corridor Studies, and the update of the Sierra Vista Zoning Ordinance, and the determination of implementation priorities for the Safe Bicycle and Pedestrian Routes Plan, the Sidewalk Implementation Plan and Avenida del Sol School crosswalk design and implementation.
Policy Area	Transportation and Health	Focus on connectivity of the bicycle and pedestrian system and its impact on health.
Proposal Status	Awarded and Active	The Sierra Vista Metropolitan Planning Organization is moving forward with implementing these projects and requested input from this HIA to assist in project prioritizing.
Proposal Timing	The corridor studies are awarded and active. The zoning ordinance update is planned. The Sidewalk Implementation Plan and Safe Bicycle and Pedestrian Routes Plan have been adopted and are moving towards Implementation.	The HIA time frame is from February 2016 through August 2016. This time-frame will provide an opportunity for the HIA to provide input to the studies and implementation schedules.
Potential Health Impacts (Initial Screening)	Yes	Sierra Vista is home to Fort Huachuca. Key health issues include a disabled population, isolation, obesity, heart disease, and diabetes. All of these issues can be impacted by increased mobility and physical activity.
Impact on health disparities	Yes	Sierra Vista is a suburban community with limited non-motorized and healthy transportation options. People without cars often have limited access to healthcare, healthy eating options, employment, and education.

FIGURE 6: HEALTH IMPACT ASSESSMENT SCREENING SUMMARY

CRITERIA	RESPONSE	DISCUSSION
Local vs. State	Local	This is a local project. The Sierra Vista MPO is mostly focused on the city of Sierra Vista
Discretion of Stakeholder Group	Guidance and advocacy	This project will be guided by the Sierra Vista MPO and Be Healthy! Sierra Vista.
TIER II		
Receptivity of decision makers	High	The MPO and the City of Sierra Vista both support this project. The HIA will be presented to the SVMPO, Fort Huachuca and City for acceptance/ adoption.
Partners exist to help with HIA	Yes	This HIA will be prepared in partnership with the Cochise County Health Department and the Sierra Vista MPO (SVMPO). SVMPO has committed to ensuring the participation of other key health-related stakeholders.
Potential for systemic and/or institutional change	Potentially	It is possible that more education regarding the health impacts of transportation facilities could result in healthy transportation options receiving higher priority in the implementation of a variety of non-motorized transportation plans, corridor studies, and other projects.

DETERMINANTS OF HEALTH EXPLAINED

Different entities and organizations identify a range of different factors that determine health outcomes. Three general categories fundamental to most definitions of the determinants of health are: built environment, social environment, and individual behavior. To a large extent, individual behavior is influenced by physical and social determinants.

The World Health Organization (WHO) broadly describes nine determinants of community and individual health. (Figure 7: WHO Determinants of Community and Individual Health)

- Social and Economic Environment
- Built Environment
- Income and Social Status
- Genetics
- Social Support Networks
- Individual Characteristics and Behaviors
- The Physical Environment
- Health Services
- Gender

Healthy People 2020, operating under the auspices of the National Institute of Health Office of Disease Prevention and Health Promotion identifies two categories of health determinants of health: physical and social. Transportation options is identified as a social determinant of health. Other directly related social determinants of health identified by Healthy People 2020 are access to educational, economic, and job opportunities and health care services.

Healthy People 2020 physical determinants of health include the natural environment, such as green space (e.g., trees and grass) or weather (e.g., climate change), built environment, such as buildings, sidewalks, bike lanes, and roads, and physical barriers (Figure 7a: Healthy People 2020 Social Determinants of Health)⁷.

The Centers for Disease Control (CDC) defines determinants of health, as factors that may be biological, socioeconomic, psychosocial, behavioral, or social in nature ⁸. The CDC identifies five general areas including:

- Biology and genetics. Individual behavior. Examples: alcohol use, injection drug use (needles), unprotected sex, and smoking
- Social environment. Examples: discrimination, income, and gender
- Physical environment. Examples: where a person lives and crowding conditions

FIGURE 7: WORLD HEALTH ORGANIZATION DETERMINANTS OF COMMUNITY & INDIVIDUAL HEALTH

The Social and Economic Environment - Availability and access to community organizations and employment affects all aspects of our physical and mental health.

The Built Environment - How we live affects our health. Communities designed to encourage physical activity result in lower rates of obesity and diseases related to physical inactivity. Physical activity increases the production of certain hormones and chemicals that have been shown to prevent depression and other mental illnesses. Communities that are designed to encourage interactions between their residents also help to foster a sense of community. A sense of community has been found to increase individual well-being. Communities that are designed to be safe can prevent accidents that can cause personal injuries.

Income and Social Status - Higher income and social status are linked to better health. The greater the gap between the richest and poorest people, the greater the differences in health.

Genetics - Inheritance plays a part in determining lifespan, healthiness and the likelihood of developing certain illnesses. Personal behavior and coping skills – balanced eating, keeping active, smoking, drinking, and how we deal with life's stresses and challenges all affect health.

Social Support Networks – Greater support from families, friends and communities is linked to better health. Culture - customs and traditions, and the beliefs of the family and community all affect health.

Individual Characteristics & Behaviors - How a person behaves has a direct impact on individual and community health. A person that engages in high risk activities can endanger the health of themselves and others.

The Physical Environment – Safe water and clean air, healthy workplaces, safe houses, communities and roads all contribute to good health. Employment and working conditions – people in employment are healthier, particularly those who have more control over their working conditions.

Education- Low education levels are linked with poor health, more stress and lower self-confidence.

Health services - Access and use of services that prevent and treat disease influences health

Gender - Men and women suffer from different types of diseases at different ages.

SOURCE: World Health Organization. Health Impact Assessment. <http://www.who.int/hia/evidence/doh/en/>
Access Date: June 19, 2015.

- Health services. Examples: Access to quality health care and having or not having health insurance.

RELATIONSHIP OF THIS PROJECT TO THE DETERMINANTS OF HEALTH

This project would have an effect on the following Determinants of Health:

- Physical Activity
- The Physical Environment (transportation Options and community design)
- Individual characteristics and behaviors
- Economic Environment (Access to Employment)

How each of these affects individual and community health is discussed below.

PHYSICAL ENVIRONMENT

TRANSPORTATION

There is a strong relationship between non-motorized transportation and the determinants of health. Walking and bicycling are physically active modes of transportation that provide the benefit of improved health and have many other individual and community benefits. These benefits include social equity, reduction of traffic congestion and costs of road maintenance, reduction of greenhouse gas emissions, and economic benefits by reducing the number of vehicles a family needs.

FIGURE 7a: HEALTHY PEOPLE 2020 SOCIAL DETERMINANTS OF HEALTH

- Availability of resources to meet daily needs (e.g., safe housing and local food markets)
- Access to educational, economic, and job opportunities
- Access to health care services
- Quality of education and job training
- Availability of community-based resources in support of community living and opportunities for recreational and leisure-time activities
- Transportation options
- Public safety
- Social support
- Social norms and attitudes (e.g., discrimination, racism, and distrust of government)
- Exposure to crime, violence, and social disorder (e.g., presence of trash and lack of cooperation in a community)
- Socioeconomic conditions (e.g., concentrated poverty and the stressful conditions that accompany it)
- Residential segregation
- Language/Literacy
- Access to mass media and emerging technologies (e.g., cell phones, the Internet, and social media)
- Culture

Physical Determinants of Health

- Natural environment, such as green space (e.g., trees and grass) or weather (e.g., climate change)
- Built environment, such as buildings, sidewalks, bike lanes, and roads
- Worksites, schools, and recreational settings
- Housing and community design
- Exposure to toxic substances and other physical hazards
- Physical barriers, especially for people with disabilities
- Aesthetic elements (e.g., good lighting, trees, and benches)

Source: Healthy People 2020. Determinants of Health. <http://www.healthypeople.gov/2020/about/foundation-health-measures/Determinants-of-Health>. Access Date: June 22, 2015

Chronic diseases and conditions—such as heart disease, stroke, cancer, type 2 diabetes, obesity, and arthritis—are among the most common, costly, and preventable of all health problems⁹. At community meetings held during the development of this HIA, Sierra Vista residents stated they are concerned about the impact of the obesity in their community. The Surgeon General's report states that the benefits of physical activity include reducing symptoms of anxiety and depression, improved mood, and promotion of a feeling of well-being¹⁰.

Transportation is also associated with individual and community economics. Through enhanced transportation options, more people can access school, work, community services, and their neighbors without a car. A 2014 Urban Institute Study found that low income families who had cars were more likely to get access to high-quality neighborhoods—and they were more likely to get jobs if they did not have jobs already, and keep jobs if they already had jobs, than those households who did not have cars. Access to public transit was associated with keeping a job, but not with getting one ¹¹.

COMMUNITY DESIGN

Transportation planning shapes subsequent land-use decisions and the overall growth of an urbanized area. Connecting and providing more sidewalks and bicycle facilities will make Sierra Vista more pedestrian and bicycle-friendly and provide opportunity for residents to change how they travel within the city. Providing better pedestrian, bicycle, and transportation access can also help to shift development patterns to ones that may be pedestrian and bicycle oriented, as well as oriented towards automobiles.

INDIVIDUAL CHARACTERISTICS AND BEHAVIORS

Providing better access to natural resources and providing facilities where people can more safely walk, bicycle, or use transit can impact individual mobility choices and result in behavior changes where people choose to walk, bike and use public transportation instead of driving.

ECONOMIC ENVIRONMENT

ACCESS TO EMPLOYMENT

Access to employment and income are related to individual and community health. A community with a healthy economy has revenues to invest in public facilities, such as parks, schools, sidewalks, bicycle lanes, and trails. Individual income is correlated with health care access and mental health. Revitalizing West Fry Boulevard will result in more revenues to the City of Sierra Vista, potentially jobs that can be accessed by the local community, and a more pleasant physical environment along West Fry Boulevard that could encourage walking and biking.

EFFECT ON VULNERABLE POPULATIONS

OLDER POPULATIONS

As people age, they are less likely to drive. A study done by AARP, "Planning Complete Streets for Aging America," found that when streets are designed to promote and encourage non-motorized forms of transportation, older people who drive less, or no longer drive at all, are more likely to remain mobile and physically active¹². The 2014 ACS reports the City of Sierra Vista has a senior population of 15.2%. By contrast, Arizona's over 65 population is 13.7%. The percent of Sierra Vista Population over 75 years old is 7%; Arizona's over 75 population is 5.6%¹³. The Automobile Association of America (AAA) states, "Visual, cognitive and physical skills that affect driving ability decline with increasing age. Aging drivers often have difficulty seeing objects at dusk and in the evening. Judgment may become impaired, making them less able to react at higher speeds and make turns in front of oncoming traffic. Also, medical conditions such as arthritis or weakening muscles and joints can make it challenging to safely operate a vehicle. While most older adults compensate for these age-related health issues, some do not. It is those who fail to compensate for physical or mental declines, and those who do not stop driving if their limitations cannot be addressed, who suffer a higher risk of causing crashes."¹⁴

People living in poverty have a much higher reliance on transit and public transportation than those who do not. A 2014 FHWA report states that people in poverty take about three times as many transit trips as those in the higher income groups. They also have the greatest rate of bike trips and take walk trips about 50% more than their higher income counterparts. When using personal vehicles, individuals in poverty are about twice as likely to travel in a multi-occupant vehicle¹⁵. 12.6% of Sierra Vista's residents, roughly

OLDER DRIVER FACTS AND FIGURES

- Fifty percent of the middle-aged population and 80 percent of people in their 70s suffer from arthritis, crippling inflammation of the joints, which makes turning, flexing and twisting painful.
- Weaker muscles, reduced flexibility and limited range of motion restrict senior drivers' ability to grip and turn the steering wheel, press the accelerator or brake, or reach to open doors and windows.
- More than 75 percent of drivers age 65 or older report using one or more medications, but less than one-third acknowledged awareness of the potential impact of the medications on driving performance.
- Per mile traveled, fatal crash rates increase beginning at age 75 and rise sharply after age 80. This is mainly due to increased risk of injury and medical complications, rather than an increased tendency to get into crashes.
- Since older drivers are more fragile, their fatality rates are 17 times higher than those of 25- to 64-year-olds.
- In 2009, 33 million licensed drivers were over age 65 – a 20 percent increase from 1999. And by the year 2030, 70 million Americans in the U.S. will be over age 65 – and 85 to 90 percent of them will be licensed to drive.
- In 2009, nearly 5,300 senior drivers were killed and 187,000 were injured in traffic crashes.
- In 2009, more than 60 percent of deaths in crashes involving drivers over age 70 were older drivers themselves and 16 percent were their passengers. Twenty-two percent of these deaths were occupants of other vehicles, bicyclists and pedestrians.³ By comparison, in the same year 42 percent of deaths in crashes involving at least one driver younger than age 30 were attributed to the younger drivers themselves and 24 percent were their passengers. Thirty-four percent were occupants of other vehicles, bicyclists and pedestrians.

Source: *SeniorDriving.org.com*. American Automobile Association. *Facts and Research*. Access Date: July 5, 2016.

5,530 individuals, live below the poverty level¹⁶. This group will benefit from an investment in non-motorized transportation infrastructure to establish connectivity between their homes, places of recreation and leisure, and services necessary to maintain individual health (i.e. healthy food, medical care).

PEOPLE WITH DISABILITIES

Over 20% of the Cochise County 2012 population is disabled, higher than the U.S. average of 12%¹⁷. Some of this may be due to the presence of Fort Huachuca, and some of this may be due to the county's slightly higher than national percent of 2010 population over 65 years old¹⁸. In Cochise County, almost 9 percent of all disabled people have an ambulatory difficulty, and almost 7 percent of all people with a disability have a hearing or vision difficulty¹⁹. The Bureau of Transportation Statistics reports that 12% of people with disabilities have difficulty getting the transportation they need, compared to 3% of persons without disabilities. The problems most frequently cited by individuals with disabilities are, no or limited public transportation (33%), don't have a car (26%), disability makes transportation hard to use (17%), no one to depend on (12%). Of the non-disabled who have difficulty getting the transportation they need, the reason cited most often is no or limited public transportation (47%)²⁰. Providing connected and safe sidewalks and safe connections to public transportation can help people with disabilities access community destinations more easily. Since walking and bicycling are physical activities, they also increase serotonin, and increased serotonin is associated with better mental health.

4. Scoping

INTRODUCTION

This chapter outlines the framework for understanding the scope of this assessment. In this chapter, a Pathway Diagram is used to illustrate the range of individual and community health related outcomes relevant to the SVMPO adopted and proposed non-motorized transportation plans, designed to strengthen the non-motorized transportation network in Sierra Vista. This chapter also identifies specific groups of stakeholders that will be contacted and outreach techniques that will be used during the Assessment phase of the HIA.

SVMPO NON-MOTORIZED TRANSPORTATION PLANNING PATHWAY DIAGRAMS

SVMPO and the City has adopted and is also developing several plans that call for investments into the non-motorized transportation infrastructure. These include the adopted Safe Bike and Pedestrian Routes and Sidewalk Implementation Plans, the underway corridor studies for West Fry Boulevard and North Garden Avenue, and Safe Routes To School (SRTS) projects.

Policies and specific projects associated with each of these plans are identified on the left hand side of the Pathway Diagram.

ABOUT PATHWAY DIAGRAMS

The purpose of a Pathway Diagram is to help develop a shared understanding of how a project will develop and the health outcomes that can be expected. Typically, Pathway Diagrams map out the casual pathways by which health effects might occur due to a proposed plan, policy, or project. In general, this approach identifies the specific action, identifies the determinants of health impacted by the action, and then connects the determinants of health to the specific health effects that could occur.



At public meetings held in Sierra Vista, community members identified how transportation options could impact specific health determinants. The impacts identified by the community are listed in the center column of the Pathway Diagram. The impacts on individual and community health factors important to Sierra Vista, as determined in community meetings and through the screening process, are identified in the column on right side of the Pathway Diagram (Figure 8: Pathway Diagram and Figure 9: Pathway Explanation Table.).

RELEVANCE OF THIS PROJECT TO COMMUNITY HEALTH

The Sidewalk Implementation Plan, Bicycle and Pedestrian Safety Plan, West Fry Boulevard and North Garden Avenue Corridor Studies, Safe Routes To School efforts, and potential updates to the city's zoning ordinance will include a variety of recommendations that will change how the city provides non-motorized transportation facilities. Providing non-motorized transportation facilities will influence community health. At public meetings held throughout Sierra Vista, community members identified how non-motorized transportation options could impact physical and community health. The chart below provides additional information on how the potential impacts on the determinants of health including the Built Environment, Individual Behavior, and the Social and Economic Environment can impact mortality, morbidity, and community health.

Figure 8: SIERRA VISTA HIA PATHWAY DIAGRAM

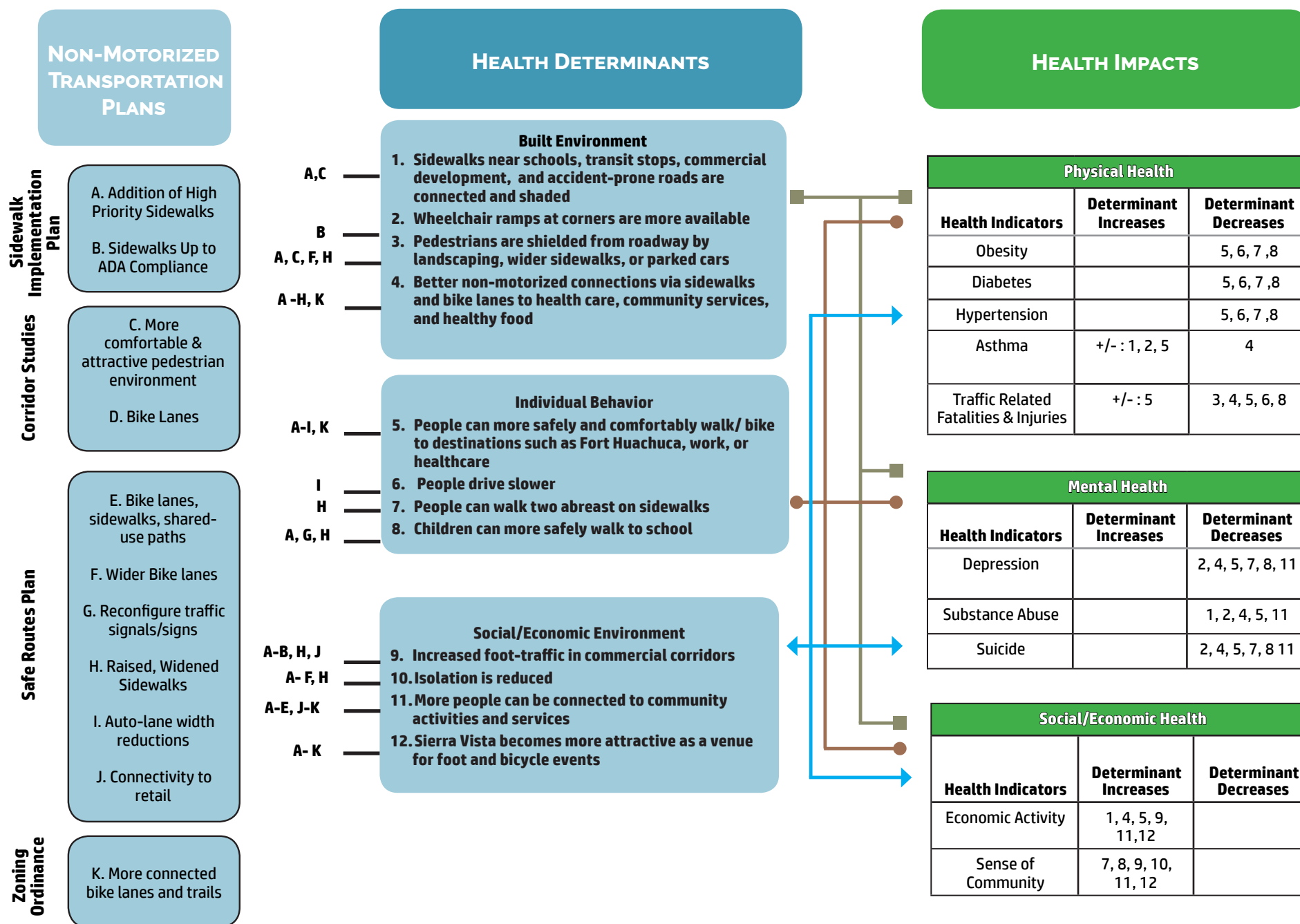


Figure 9: Pathways Explanation Table

PATHWAY	DETERMINANT	DESCRIPTION
1	Built Environment - Sidewalks near schools, transit stops, commercial development, and accident prone roads are connected and shaded	<p>Making the pedestrian environment safer, more connected and comfortable, and convenient may result in people walking more. If people walk more, they are more active. Increased activity is associated with reduced rates of obesity related chronic disease such as hypertension and diabetes. Physical activity is also associated with reduced rates of depression and related chronic diseases such as substance abuse and alcoholism.</p> <p>If people walk instead of drive to nearby destinations, it also may reduce stress associated with traffic congestion. Lower rates of stress are associated with reduced rates of depression and related chronic disease such as substance abuse and alcoholism. Reducing congestion could make people more willing to travel for education and other community services throughout the Verde Valley, thereby reducing isolation.</p> <p>As more people walk, and higher vehicular speeds that are associated with less traffic congestion may increase, pedestrian and bicycle collisions will increase.</p>

Figure 9: Pathways Explanation Table

PATHWAY	DETERMINANT	DESCRIPTION
2	Built Environment - Sidewalks up to ADA compliance	<p>Providing sidewalks that are at ADA standards can result in fewer injuries for people with disabilities, and help make those with disabilities who cannot drive more independent and mobile. This could result in better access to healthcare and services for this population group; potentially reducing isolation and associated chronic diseases of substance abuse, depression, and alcoholism.</p> <p>Providing ADA accessible sidewalks and crosswalks will make the non-motorized transportation environment safer for those with disabilities, potentially reducing fatalities and injuries from crashes with vehicles.</p> <p>Enhancing mobility for the disabled could make employment more accessible, resulting in higher incomes. Higher incomes are associated a healthier economy, and reduced rates of depression and associated chronic diseases of substance abuse, and suicide.</p>
3	Built Environment - Pedestrians are shielded from the roadway by landscaping, wider sidewalks, and/or parked cars.	Protecting pedestrians from the roadway with landscaping and parked cars creates vertical barriers between the pedestrian and vehicles. This could result in fewer people being injured due to accidents involving cars and pedestrians, and cars and cyclists.
4	Built Environment - Better non-motorized connections via sidewalks and bike lanes to health care, community services, and healthy food.	<p>Creating better connections between healthy food, community services, and health care will result in improved community health. Improved access to healthy food will help reduce obesity related diseases. Better access to health care can help reduce chronic disease and help to diseases associated with depression. Better access to community services can help reduce isolation. Reduced isolation is associated with reduced substance abuse, suicide, and depression. If people are better able to access community services and amenities, they will benefit from an increased sense of community.</p> <p>Sierra Vista has one major hospitals (not including medical facilities) on the Fort. The network of sidewalks, bike lanes, and shared use paths do not effectively connect all parts of the city to these places.</p>

Figure 9: Pathways Explanation Table

PATHWAY	DETERMINANT	DESCRIPTION
5	Individual Behavior - People can more safely and comfortably walk/ bike to destinations such as Fort Huachuca, work, or health care.	Walking and biking are two ways to engage in physical activity that contributes to maintaining a healthy body weight. Healthy body weight is associated with decreases in the rates of chronic diseases often associated with obesity. Physical activity is also beneficial to mental health, and could reduce rates of depression, substance abuse, and suicide. Asthma rates may increase due to exposure to the air in Sierra Vista, which has high levels of dust and other particulate matter.
6	Individual Behavior - People Drive Slower	The higher the impact speed in a pedestrian - vehicle crash the higher the incidence of a pedestrian fatality. Reducing traffic speeds could contribute to a decrease in pedestrian and bicyclist fatalities in pedestrian vehicle crashes. Increases vehicular speed can impact the comfort of a pedestrian on an adjacent sidewalk or bicycle lane. Reduced vehicular speeds will increase pedestrian and cyclist comfort levels. Increased comfort can result in an increase in physical activity for the number of people who use Sierra Vista's sidewalks, bike lanes, or shared use paths.
7	Individual Behavior - People can walk two abreast on the sidewalk	Currently, some sidewalks in Sierra Vista are too narrow for two people to walk side by side. This is important for safety (parents with small children, adults that need assistance walking) as well as for encouraging social interaction. If sidewalks are safer, people will walk more.
8	Individual Behavior - Children can more safely walk to school	Making it safer for children to walk to school can result in more parents allowing their children to walk to school and increased physical activity for school children. Safer school crossings can also result in reduced pedestrian and bicycle fatalities for the entire population. Often, children walking together to school results in an increased sense of community because children and parents get to know one another as their children walk to school.
9	Social/Economic Environment - Increased foot activity in commercial corridors	Pedestrian activity in and around commercial corridors like Fry Boulevard (an area of the city which is not as economically healthy as in the past) may allow local businesses to attract more customers, leading to employment growth, and higher incomes. A sense of community pride may develop if these areas become destinations of commerce, attracting people from all over Sierra Vista.
10	Social/Economic Environment - Isolation is reduced	Reduced social isolation leads to a stronger sense of community and less depression, substance abuse, and suicide.

Figure 9: Pathways Explanation Table

PATHWAY	DETERMINANT	DESCRIPTION
11	Social/Economic Environment- More people can be connected to community activities and services	Connecting more people to health services helps them to better monitor their health. This results in better overall health and management of obesity and mental health chronic diseases. Connecting people to local goods and services can also result in increased economic activity if more people start shopping in local establishments instead of driving to stores outside the city. Finally, as more people are able to access community activities, their sense of community will increase, reducing isolation and related chronic diseases of depression, substance abuse and suicide.
12	Social/Economic - Sierra Vista becomes more attractive as a venue for foot and bicycle events.	Events such as bicycle races and foot races bring visitors into Sierra Vista that spend money on goods and services. This benefits the Sierra Vista economy. As Sierra Vista becomes known as a desirable destination for these events, and resident pride in the city can increase.

The City of Sierra Vista Safe Bike and Pedestrian's Route and Sidewalk Implementation Plan, West Fry Boulevard and North Garden Avenue corridor studies, Safe Routes to School program and the City of Sierra Vista planned zoning ordinance update all influence the design, location, and provision of non-motorized transportation facilities and will impact the determinants of health.

HEALTH OUTCOMES

Based on scoping, this HIA will focus on the health determinants of the Built Environment, Social Environment and Individual Behaviors, and the individual and community health outcomes below:

- Physical Health • Obesity • Chronic Disease • Hypertension (blood-pressure) • Asthma
•Traffic related injuries or deaths
- Mental Health • Substance Abuse • Depression • Suicide
- Social Health • Economic Activity • Sense of Community

DATA RESOURCES

The following resources have been identified and will be used to provide data for this Assessment.

- Alliance for Biking and Walking (<http://www.bikewalkalliance.org/>)
- American Community Survey 2014 (<https://www.census.gov/programs-surveys/acs/>)
- Arizona Department of Health Services (www.azdhs.gov/)
- AARP (www.aarp.org/)
- Center for Disease Control (www.cdc.gov/)
- Cochise County Health Services BMI Study and other studies (<https://www.cochise.az.gov/health-and-social-services/home>)
- Healthy People 2020 (<https://www.healthypeople.gov/>)
- National Household Travel Survey (<http://nhts.ornl.gov/>)
- Raymond W. Bliss Medical Center (rwbach.huachuca.amedd.army.mil/)
- Robert Wood Johnson Foundation County Health Rankings and Roadmaps (www.countyhealthrankings.org/)
- Sierra Vista Metropolitan Planning Agency U.S. Census 2010 (www.census.gov/2010census/)
- U.S. Department of Health and Human Services (www.hhs.gov/)
- World Health Organization (<http://www.who.int/hia/en/>)
- FHWA (non-motorized transportation studies) (<https://www.fhwa.dot.gov/>)
- Bicycle and Pedestrian Information Center (<http://www.pedbikeinfo.org/>)

SPECIFIC HEALTH OUTCOMES EVALUATED IN THIS ASSESSMENT

The transportation plans will include high level recommendations to reduce congestion and provide mobility options within Sierra Vista. As a result, health areas of focus will be general, and address outcomes associated with chronic diseases such as obesity, diabetes, heart disease, and hypertension, social isolation, and access to healthcare.

PHYSICAL HEALTH

Chronic Diseases are long-lasting conditions that can be controlled but not cured and include, but are not limited to, diseases such as diabetes, obesity and overweight, hypertension (high blood pressure) and heart disease. As described by the Centers for Disease Control, chronic disease is the leading cause of death and disability in the United States. The CDC reports that half of all adults suffer from chronic diseases, and that seven of the top causes of death in the United States are due to chronic disease¹³.

Transportation facilities that provide healthy mobility options can result in increases in physical activity. Increased physical activity is directly correlated with reductions in chronic obesity-related diseases, including hypertension, diabetes, and heart disease.

MENTAL HEALTH

The strongest evidence suggests that physical activity and exercise probably alleviate some symptoms associated with mild to moderate depression. The evidence also suggests that physical activity and exercise might provide a beneficial adjunct for alcoholism and substance abuse programs; improve self-image, social skills, and cognitive functioning; reduce the symptoms of anxiety; and alter aspects of coronary-prone (Type A) behavior and physiological response to stressors¹⁴.

SOCIAL HEALTH

By providing access to community institutions and education, residents can be more connected to their community and to opportunities for social interaction. Reductions in social isolation can contribute to positive mental health. Individuals who lack social connections or report frequent feelings of loneliness tend to suffer higher rates of morbidity and mortality, as well as infection, depression, and cognitive decline, and social isolation may pose a particularly severe risk for older adults. Older adults are more likely to experience bereavement and develop health problems, both of which may increase their need for social support and companionship. As a result, social isolation may be particularly deleterious for older adults. Indeed, research indicates that older adults who experience one or another aspect of isolation have been found to be at greater risk for all-cause mortality, increased morbidity, depression, and cognitive decline¹⁵.

ECONOMIC HEALTH

Providing a variety of connections that also support recreational activities for visitors, in particular bicycling and walking, will support tourism within these areas, as well as provide healthy transportation options for local residents. In June 2013, Arizona Department of Transportation released a report, *An Economic Impact Study of Bicycling in Arizona: Out of State Bicycle Tourists and Exports* (PDF), which focused on the impacts from out-of-state cyclists traveling to Arizona for events, guided tours, races, and training camps. The study documented \$57 million in retail sales and 721 jobs created across the state¹⁶.

STAKEHOLDER ENGAGEMENT

Two public meetings were held with the public to educate interested parties of the HIA, compile data, and interact with the community. "Be Healthy! Sierra Vista," a local advocacy group, participated in the second of the two public meetings.

In February, SVMPO staff attended the Chamber of Commerce's "Super Bowl Tailgate with the Public," marketing the HIA and collecting further input. SVMPO employees set up a booth for information on the HIA. Local media was also instrumental in informing the public of the HIA, with the Sierra Vista Herald embedding an article on the HIA and a local radio host making mention of the project. Others may have come to know about the project as CHSS compiled health statistics on willing Sierra Vistans, to supplement the lack of record keeping of health outcomes at the municipal level.

It was the intention of the HIA team to amass Ideas and viewpoints via a webpage dedicated to the HIA process. The website was set up with mysidewalk providing a platform for the HIA to share findings and updates with anyone interested in the project. The mysidewalk page also had the ability for visitors to comment and contribute to the dialogue surrounding health in the community of Sierra Vista.

5. Assessment

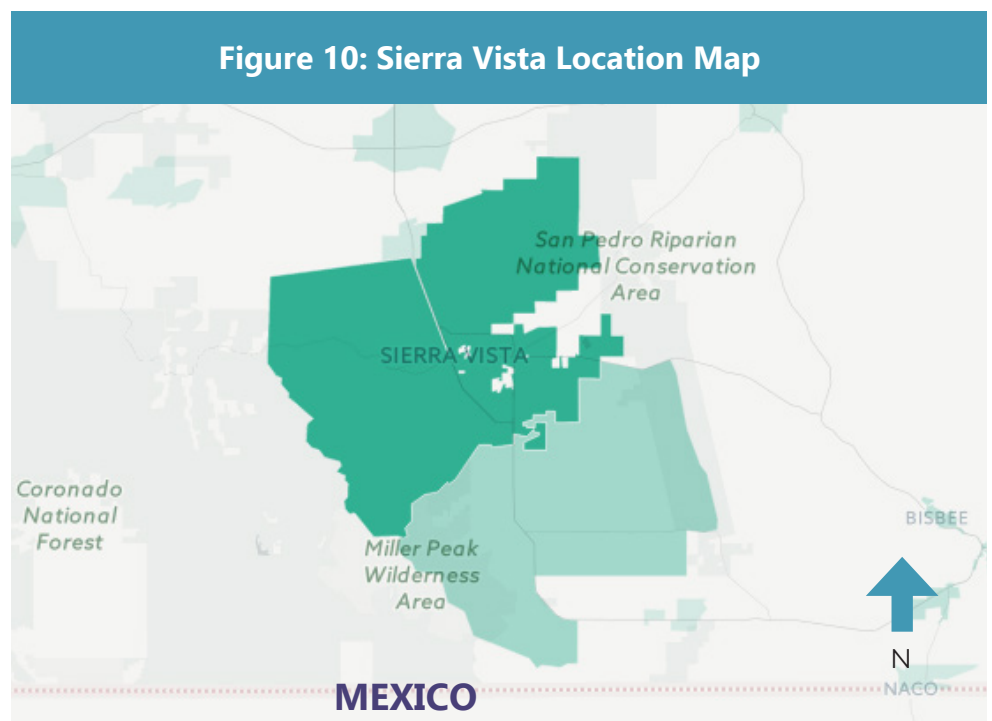
INTRODUCTION

This chapter of the HIA includes data and findings that generally describe current health challenges facing the City of Sierra Vista and how plans to further non-motorized transportation could affect community health.

COMMUNITY PROFILE

Sierra Vista is located in Cochise County, Arizona. The county is in southeast Arizona and is bordered by New Mexico and Mexico. Cochise County includes 129,112 people (Arizona State Demographers Office Medium Series Projections) and is mostly rural.¹⁸ Sierra Vista, the largest of the seven cities within the county, comprises approximately 1/3 of the total county population. Fort Huachuca is an active and historic military base, located within the north west portion of the city.

On the northwest border of Sierra Vista is the town of Huachuca City (2013 population 1,794). The Huachuca Mountains create Sierra Vista's Southwest border (Figure 10: Sierra Vista Location Map.).

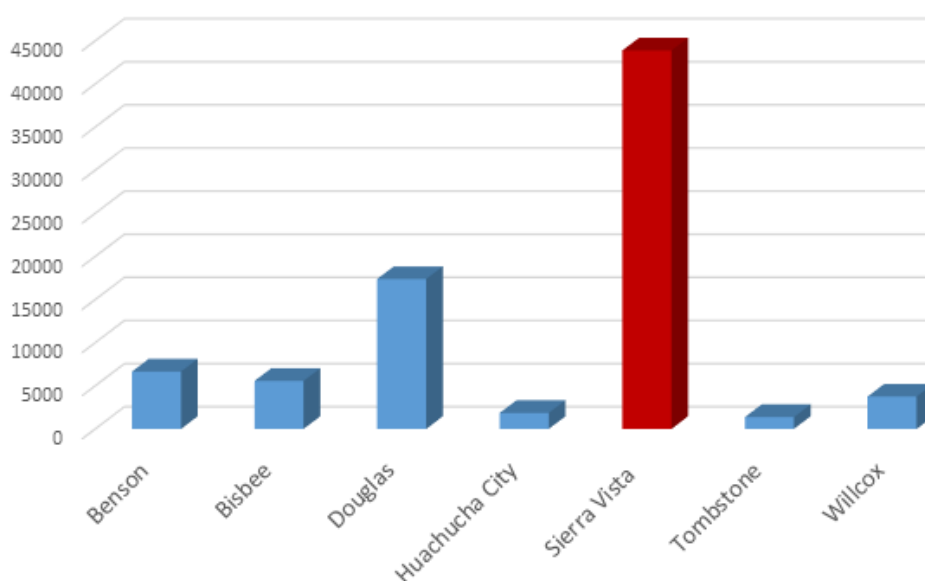


DEMOGRAPHIC ANALYSIS

POPULATION

According to the Arizona Department of Administration, Sierra Vista's 2016 projected population is 47,314 and accounts for 35 percent of the total Cochise County population. The next largest city in Cochise County is Douglas, with a total 2016 projected population of 17,119. 52,104 people live in unincorporated Cochise County¹⁸(Figure 11: Population of Cochise Jurisdictions.).

Figure 11: Population of Cochise Counties Jurisdictions

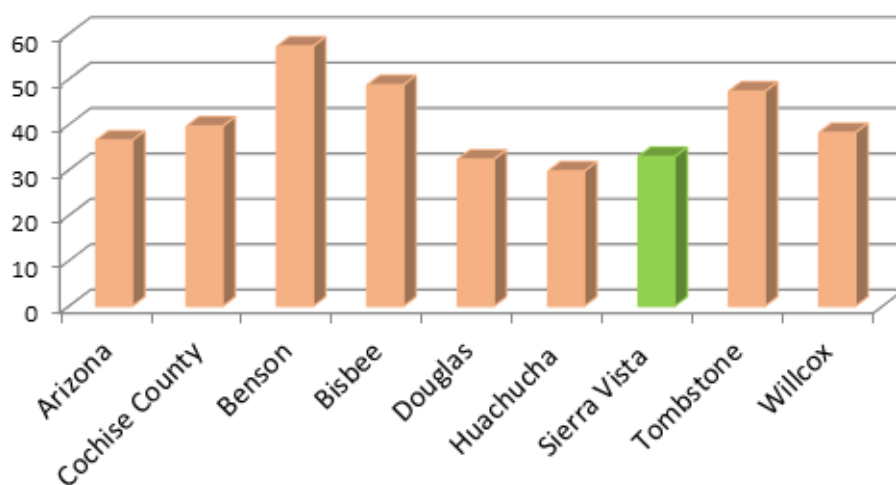


AGE

The median age of Sierra Vista residents in 2010 was 32.9 years. While the city had approximately the same percent of residents under 18 in 2010 as Cochise county, it had city has a larger proportion of 2010 population with residents between 18 and 65 years of age (62.5%) than Cochise County (60.7%) and a larger 2010 percentage of over 65 population (17.3%) than Cochise County (14.6%).

This likely reflects the Fort Huachuca population within the city and retired military (Figure 12: Median-Age: Cochise County Jurisdictions.).

Figure 12: Median-Age: Cochise County Jurisdictions



Source: 2010 U.S. Census

INCOME

Sierra Vista's median 2014 income of \$58,818 surpasses that of the state as a whole by nearly \$9,000 (the State of Arizona's 2014 median income is \$49,928). Almost 13 percent of all individuals living in Sierra Vista in 2014 were below the poverty level. The majority of those living in poverty were at or above 150 percent of the poverty level in 2014²¹. The lowest income areas are located in the center of Sierra Vista, close to the historic West Fry Boulevard entrance

to the Base and around the Fry Boulevard/SR 92 intersection. This is significant because lower income households typically have less vehicles and could benefit from facilities for non-motorized transportation. Conversely, reducing the need for a vehicle for these households could provide savings that could be used for healthier food or healthcare (Figure 13: Median Income by Census Block Group in Sierra Vista).

HEALTH INSURANCE

In 2014, 11 percent of Sierra Vista residents were uninsured, lower than the County (12.5%) and the State (16.3%)²². The high percent of insured residents is likely due to the presence of the Fort.

RACE

Almost 63 percent of Sierra Vista residents consider themselves white not of Hispanic or Latino origin, as compared to 56 percent in Cochise County. Nine percent of residents identify as African American, compared to about 5 percent in Cochise county and four percent identify as Asian, compared to just over two percent in Cochise County²³. The larger percent of minority residents as compared to the county is likely due to the presence of Fort Huachuca, which more closely reflects national demographic trends.

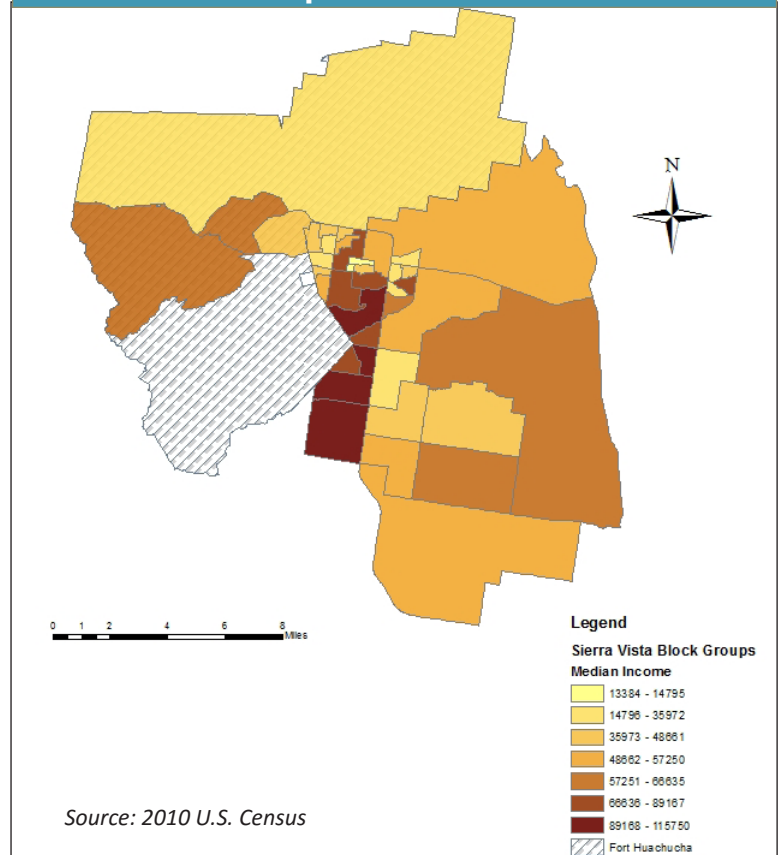
SIERRA VISTA HEALTH DATA

Much of area-specific health data presented in this assessment uses State and County sources. Some health data sets are not accessible or available specifically for the City of Sierra Vista and HIA research team relied heavily on county level health data. Two studies used for this assessment includes a BMI study conducted by members of the Cochise County Health and Services Department. This study included 200 people and provided a sample size large enough to derive meaningful analysis. Another Sierra Vista data source includes Raymond W. Bliss Hospital patient data.

MORTALITY

Almost half of all deaths (44 percent) in Cochise County are due to obesity related diseases that can be managed, in part, by increasing physical activity and healthy eating. Cochise County has the third highest rate of deaths due to heart disease of any county in Arizona (Mohave and La Paz County have higher mortality rates due to stroke). The county falls in the middle

Figure 13: Median Income by Census Block Group in Sierra Vista



of all counties for causes of death due to stroke and suicide. (Figure 14: Deaths per 100,000 Population - Cochise County and Arizona.)

Heart disease is responsible for almost one-quarter of all deaths in Cochise County, and accounts for 60 percent of all death from obesity related diseases. (Figure 15: Cochise County Mortality Factors Per 100,000 Persons). This is higher than for Arizona, where heart disease accounts for 21 percent of all 2013 deaths²⁴. The impact of heart disease on Cochise County is representative a nation-wide epidemic of cardiovascular disease. Among the health indicators listed in Figure 15, heart disease and stroke are responsible for more deaths per 100,000 residents in Cochise County than in the State of Arizona as a whole²⁵.

Chronic Lower Respiratory Diseases (CLRD), including asthma, accounts for the secondv highest morbidity rate in Cochise County and accounts for 5.9 percent of all deaths, lower than that of Arizona (6.6 percent of all deaths). Two of the major reasons CLRD's develop are smoking and exposure to pollution. Despite falling smoking rates in the U.S., 16 percent of all Cochise County residents smoke cigarettes²⁶. Smoking is a major cause of heart disease. A study on the influence of physical activity on Cigarette

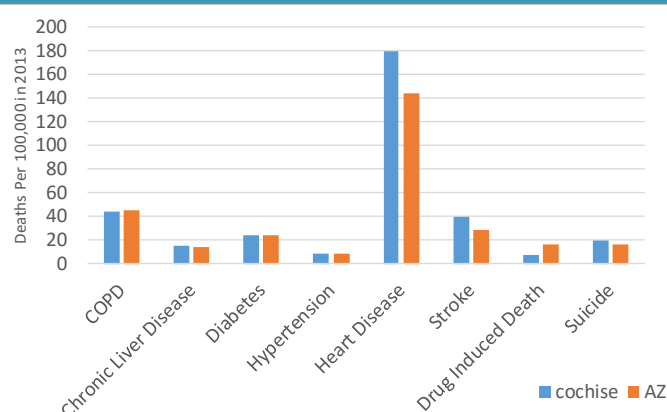
Smoking among adolescents found that one additional weekly occurrence of exercise lead to a .3 percent decline in the probability of being a smoker and a decline in the number of cigarettes smoked by smokers in a month. This article concludes that reduction in health-damaging smoking behavior among adolescents could be an additional benefit of being physically active²⁷. The Canadian Center for Addiction and Mental Health states that "physical activity decreases the desire to smoke, reduces cravings and withdrawal symptoms, and positively influences factors such as perceived ability to cope and self-esteem, which in turn can protect against initiation of, or return to, smoking. When physical activity is combined with nicotine replacement therapy, it facilitates smoking cessation and delays weight gain in women who smoke²⁸."



Pedestrians environment on E Fry Blvd., Sierra Vista. Access limited to sidewalk, missing features of comfort and safety while adjacent to major road.

Pollution in Sierra Vista, with high levels of dust and particulates in the air, can also contribute to respiratory problems. In 2012, Sierra Vista is not a non-attainment zone for ozone or PM-25, and no reliable sources for measuring air quality could be identified for this HIA. However, a 2001 Health Consultation: Review of Environmental Data in Air, Drinking Water and Soil report prepared by the Arizona Department of Health Services Office of Environmental Health Environmental Health Consultation Services under cooperative agreement with the Agency for Toxic Substances and Disease Registry identified concrete block and funeral services businesses that emitted low levels of contaminants. Additionally, the report identified other sources of pollution in the area including vehicular and aviation sources.

Figure 14: 2013 Deaths Per 100,000 Population - Cochise County and Arizona



Source: AZDHS. Community Profiles Dashboard. Access date: June 25, 2016

Figure 15: Cochise County Mortality Factors per 100,000 Persons (2013)

Cochise County	Indicator	Per 100,000	Rank in AZ	Main Cause
Mortality	All Death	737.9	7	
	Chronic Lower Respiratory Diseases	43.9	7	Tobacco smoke, outdoor air pollution (WHO, 2015)
	Diabetes	23.9	13	Genetics, obesity
	Stroke	40.1	2	Age, high blood pressure, diabetes, smoking. (National Institute of Health)
	Hypertension	8.7	6	Obesity, lack of physical activity, alcohol. (NIH)
	Heart Disease	179.4	3	
	Drug Induced	7.9	12	Often brought on by depression/mental distress
	Suicide	19.6	8	Often brought on by depression/ mental distress

Source: Arizona Department of Health Services Community Profiles Dashboard. Accessed: June 18, 2016

MORBIDITY

Cochise County reports a higher rate of chronic diseases including COPD, uncontrolled Diabetes and complications from uncontrolled diabetes, and hypertension than Arizona. (Figure 18: Cochise County Morbidity Factors per 100,000 Persons.) In 2013, the county ranked 3rd highest in the state for both uncontrolled diabetes and for hypertension. The incidence of short term complications from diabetes in 2013 was 152% more than for Arizona. COPD affect 145% more of the population in Cochise County than Arizona. Drug and alcohol abuse is lower in Cochise County than the state as a whole²⁹(Figure 16: Cochise County Morbidity Factors per 100,000 Persons.).

Figure 16: Cochise County Morbidity Factors per 100,000 Persons (2013)

Morbidity Factor	Rate per 100,000 Persons		Rank (All Counties)	Causes
	Arizona	Cochise County		
Chronic Obstructive Pulmonary Disease (COPD)	299.50	923.8	6	Smoking, breathing in secondhand smoke, irritants, or chemicals (NIH)
Uncontrolled Diabetes	20.10	45	3	Genetics, obesity (National Diabetes Foundation)
Complications from Diabetes	83.10	127.2	4	Genetics, obesity (National Diabetes Foundation)
Hypertension	299.50	326.1	3	Obesity, lack of physical activity, alcohol. (NIH)
Congestive Heart Failure	53.70	24.20	9	Heart disease, hypertension (high blood pressure) (NIH)
Drugs	289.30	242	8	Mental illness, depression, social factors, genetics
Alcohol Use	950.5	661.8	14	Depression, mental illness, social factors, genetics
Chronic Diseases (arthritis, obesity, cancer)	4,503.70	5,919.9	5	Obesity, smoking, lack of physical activity, high cholesterol, alcohol (NIH)

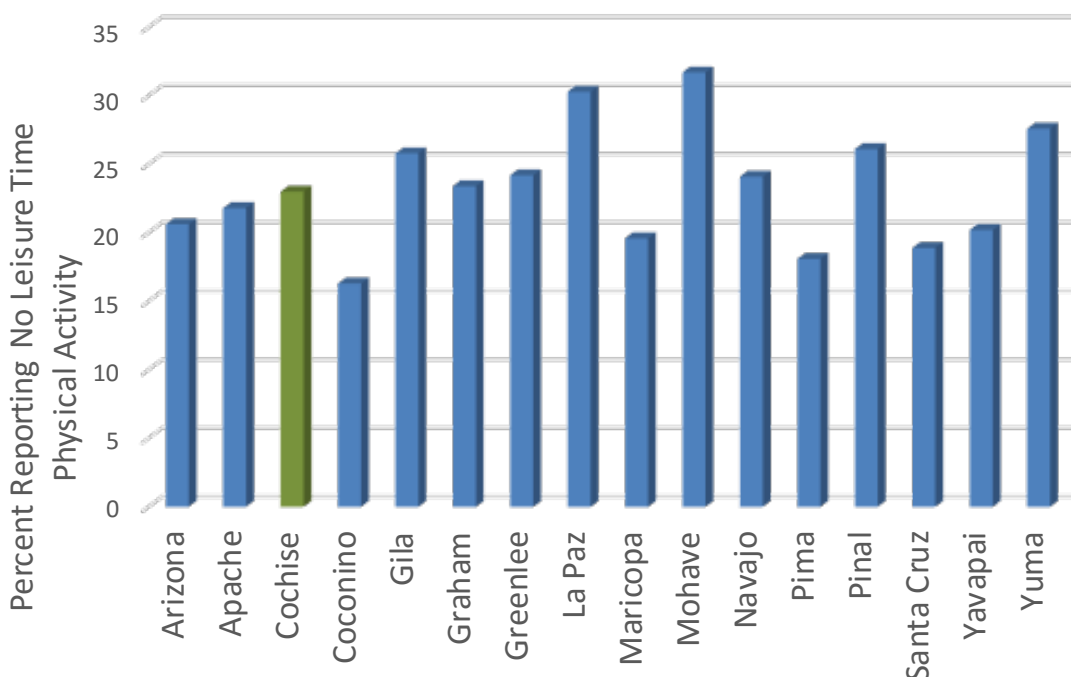
Source: Arizona Department of Health Services Community Profiles Dashboard. Access date: May 30, 2016

PHYSICAL ACTIVITY

In 2016, 23% of Cochise County reported no leisure time physical activity (Figure 17: 2016 Physical Inactivity). This corresponds with the 2012 Cochise County Health Assessment findings. The county ranks in the middle (7th) of all Arizona Counties and higher than the State as a whole, for percent of people who do not engage in leisure time physical activity³⁰ (Figure 17: 2016 Physical Inactivity: Arizona Counties.). The U.S. Department of Health and Human Services in their 2008 Physical Activity Guidelines for Americans, states that adults should participate in moderate-intensive aerobic exercise for a minimum of 30 minutes per day, five days a week to ward off chronic diseases. For children and teens, they recommend at least 60 minutes of physical activity per day, every day. Walking and biking are accessibly, effective means of meeting these guidelines for the betterment of physical and mental health³¹.

Lack of physical activity is a significant contributor to obesity-related chronic disease including diabetes, COPD, and hypertension. High blood pressure, heart disease, anxiety and depression. Some cancers, including colorectal, breast and endometrial, and lung cancer, have been found to be more prevalent among those that are physically inactive. Examples of physical activities provided include running, calisthenics, golf, gardening, or walking for exercise³².

Figure 17: 2016 Physical Inactivity: Arizona Counties



Source: Robert Wood Johnson Foundation County Rankings and Roadmaps. Access date: April 4, 2016.

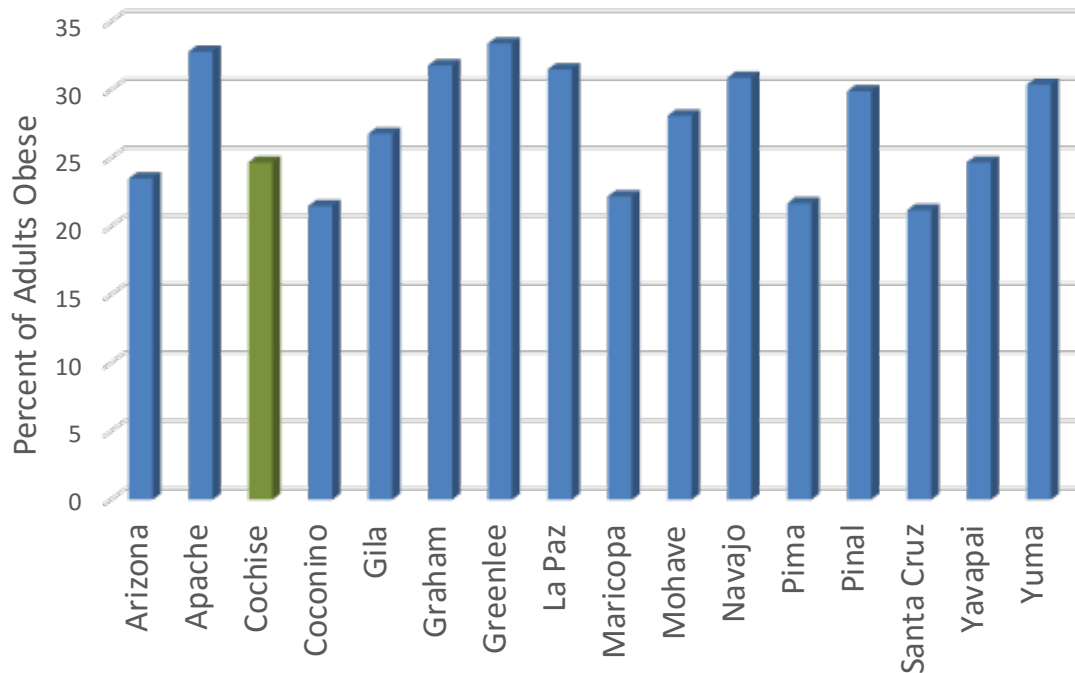
OBESITY

Obesity and diabetes were the top health concerns identified by Cochise County residents in a survey conducted as part of the 2012 Cochise County Health Assessment. The Journal of Rural Health found that rural Americans were more likely to battle obesity than urban dwellers- with 39 percent of adults living in rural areas self-report as obese, compared to 33 percent of adults living in urban areas³³.

While Cochise County has one of the lowest rates of obesity of all Arizona counties, one in four, or 25 percent of Cochise County's adults are obese³⁴(Figure 18: Obesity Among Adults in Arizona Counties).Obesity is an important public health issue. Obesity and overweight can increase a person's risk for other serious health problems including heart disease, type 2 diabetes, high blood pressure, stroke, and some types of cancers. The risks are increased not only for adults, but also for teens and children, especially in the case of type 2 diabetes.

Body Mass Index (BMI) is used to determine if one is considered overweight or obese. An adult with a BMI of 25.0 to 29.9 is considered overweight, while an adult with a BMI of 30.0 or higher is considered obese. Individuals in the overweight category and close to being obese are at risk of developing many of the same symptoms as those referred to as obesity.

Figure 18: Obesity Among Adults in Arizona Counties

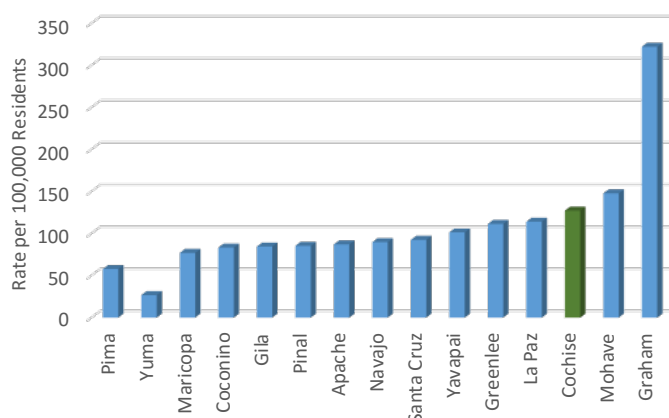


Source: Robert Wood Johnson Foundation County Rankings and Roadmaps. Access date: April 6, 2016

DIABETES

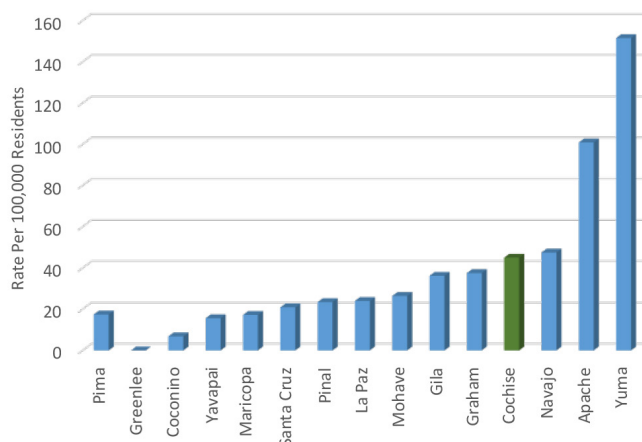
The most common form of diabetes is known as type 2 diabetes. Aside from genetics, obesity is the individual trait most associated with the diagnosis of diabetes. Type 2 diabetes is associated with individuals who are obese, inactive, and those with genetic risk factors. There is a higher risk of type 2 diabetes among some ethnic and racial groups including American Indians, African Americans, Hispanics/Latinos, Asian Americans and Pacific Islanders³⁵. While 13.4 percent of Cochise County's population has been diagnosed with diabetes, another 8.02 percent of its residents are "pre-diabetic." According to ADHS Cochise County has the third highest rate of uncontrolled diabetes (Figure 19: Short Term Complications From Diabetes per 100,000 Arizona Counties) and the fourth highest rate of complications due to diabetes in Arizona (Figure 20: Rates of Uncontrolled Diabetes per 100,000 Arizona Counties). Diabetes is a manageable chronic disease. Access to health care, staying physically active, and maintaining a balanced diet can help to control type 2 diabetes.

Figure 19: Short Term Complications From Diabetes per 100,000 Arizona Counties (2013)



Source: AZDHS Community Profiles Dashboard. Access Date June 25, 2016.

Figure 20: Rates of Uncontrolled Diabetes per 100,000 Arizona Counties (2013)



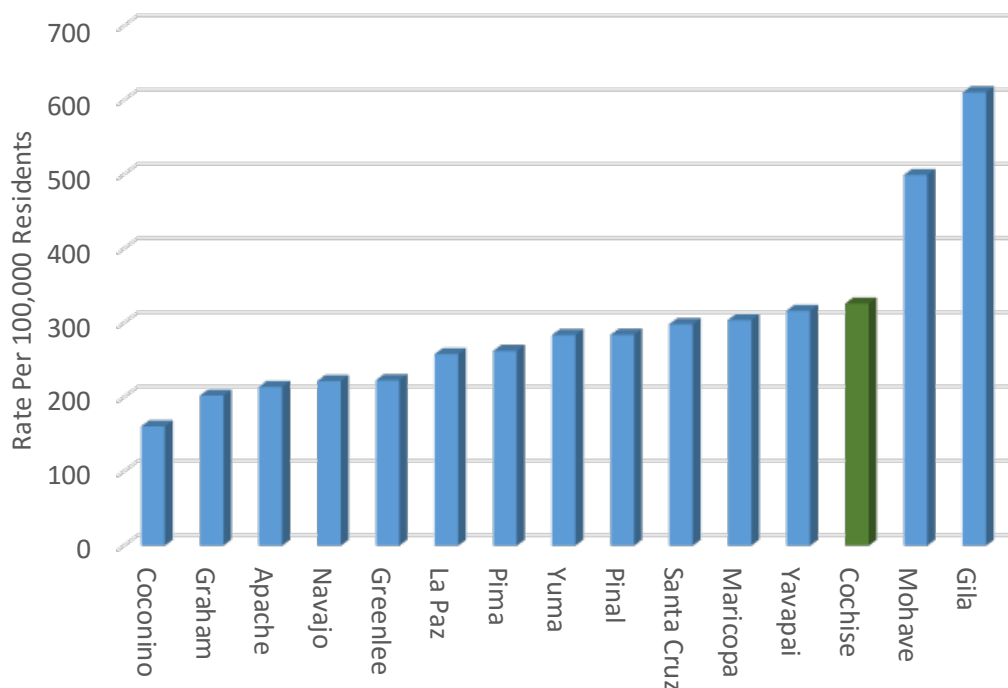
Source: AZDHS Community Profiles Dashboard. Access Date June 25, 2016.

HEART DISEASE & HYPERTENSION

Cardiovascular diseases claim more lives each year in the US than cancer and chronic lower respiratory diseases combined. Risk of heart disease can be reduced by maintaining physical activity, a healthy diet, and refraining from tobacco use. One in six Cochise County residents still smokes tobacco and Hypertension affects more people in Cochise County than in all but two of Arizona's counties (Figure 21: Hypertension per 100,000 Arizona Counties.).

ASTHMA

Figure 21: Hypertension per 100,000 Arizona Counties (2013)



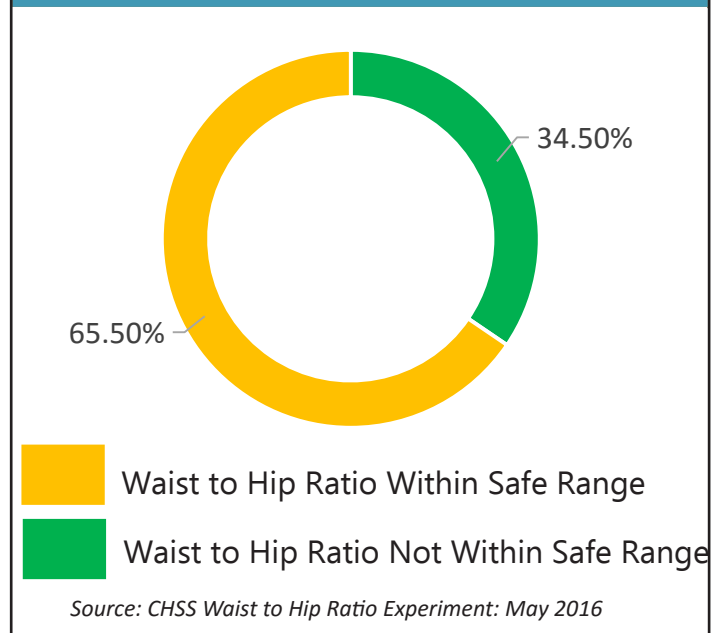
Source: AZDHS Community Profiles Dashboard. Access Date June 25, 2016.

Cochise County falls in the middle of all Arizona counties with regards to the incidence of Asthma³⁶. Asthma is a condition exacerbated by the amount of dust and particulates in the air. Sierra Vista is not within the Cochise County non-attainment area for PM-10 or PM-25, however it is a rural county that is impacted by blowing dust. While symptoms of the disorder may limit one's ability to be engage in rigorous exercise, studies show that light activities such as walking can actually lead to a reduction in symptoms over time³⁷.

WAIST TO HIP RATIO

According to the Nurses Health Study, measuring waist sizes was effective in predicting a person's risk of death from diseases like type 2 diabetes and heart disease³⁸. The waist to hip ratio measures abdominal fat surrounding the liver and other organs, which can lead to higher blood pressure, higher LDL cholesterol, higher blood glucose, and high triglycerides. The waist to hip ratio measures the circumference of one's waist, divided by the circumference of one's hips. If a person is outside of the "safe" range for that measurement, they are at higher risk for cardiovascular issues associated with carrying too much weight in their midsection. Men with a score of .95 or higher and women with a .8 or higher are considered at risk according to experts from the World Health Organization (WHO).

Figure 22: Waist to Hip Ratio Risk Assessment



A waist to hip ratio study conducted for this HIA within Sierra Vista was conducted at various locations throughout the City and on the Fort, including the Sierra Vista's Farmer's Market, Cochise College Staff Wellness Fair, NAMI March for Mental Health, Ft. Huachuca Safety Fair, the West End Fair, the Women's Health Expo, and other meeting venues. Participants were self selected. Over 204 Sierra Vista residents throughout a three month period provided personal data. 34.5% of participants had a score which puts them at risk, while the other 64.5% had a low enough score to be considered not at risk (Figure 22: Waist to Hip Ratio Assessment).

ISOLATION AMONG THE ELDERLY POPULATION

Isolation among the elderly population was an issue identified as a result of stakeholder engagement in the HIA process. 24.2% of Sierra Vista's householders live alone and 11.3% of Sierra Vista's senior citizens are living alone.³⁹

Isolation or loneliness impacts physical health. Lonely people are at greater risk for heart attacks, metastatic cancer, Alzheimer's and other illnesses. Social isolation also turns up the activity of genes responsible for inflammation and turns down the activity of genes that produce antibodies to fight infection.⁴⁰ While social isolation does not appear to be significant in Sierra Vista - the Robert Wood Johnson Foundation reports that in 2014, Cochise County had the second highest rate of social associations (8.8 memberships per 10,000 persons) in Arizona - living alone does impact mobility, especially among the elderly and disabled⁴¹. The Bureau of Transportation Statistics found that in 2000, 12% of those with disabilities reported that the biggest issue with accessing needed transportation was no one to depend on.⁴² Older drivers

living alone also have limits on their ability to see at night, or stiffness that prevents them from driving and depend on others to drive them as well as mobility options that do not require them to drive.⁴³

An important component of isolation is transportation. In 2013, 5.6% of Sierra Vista households had no vehicles available and 1.5% of two person households had no vehicle available. 12% of all two-person households and 15% of all households with three or more people had one car available.⁴⁴ Providing transportation options for this population is important; those with one car need options should their vehicle need repairs or break down; those with no vehicles need transportation options to be independent. A 2004 study by Children's, Women's and Seniors Health Branch of the British Columbia Ministry of Health found that socially isolated seniors often use fewer health and social services and that driving cessation was associated with a decrease in out-of-home activity levels, which, in turn, may have negative consequences such as isolation and ill health. The study also found that increasing evidence supports the idea that out-of-home activity levels affect health status, well-being and survival in old age. Furthermore, loneliness and immobility were the most commonly mentioned effects of the forfeiture of a drivers license by the elderly.⁴⁵

Lack of mobility options decreases access to goods and services such as medication, health care, or fresh food, making it difficult to maintain physical health. A review of the literature found in 25 separate studies, 10% to 51% of patients responded that access to transportation was a barrier to health care access. This is very significant because when patients cannot get to their health care provider, they miss the opportunity for evaluation and treatment of chronic disease states, changes to treatment regimens, escalation, or deescalation of care and, as a result, delay interventions that may reduce or prevent disease complications.⁴⁶

DISABLED POPULATION

In 2012, approximately 17% of the population in Sierra Vista reported having a disability. The American Community survey estimates that of the total disabled population, almost half have ambulatory difficulties, and of those with ambulatory difficulties, more than half are 54 years old or older. Sidewalks and facilities for people using wheelchairs are especially important to provide options for these individuals to access healthy food, medical care, and community and social activities that reduce isolation. A National Center for Biotechnology Information study of Transportation Patterns and Problems of People with Disabilities found the most significant transportation problems mentioned by disabled participating in a national study (either overall or for the non-use of public transit) are barriers in the pedestrian environment, which far outnumber reported problems with transit or paratransit modes⁴⁷.

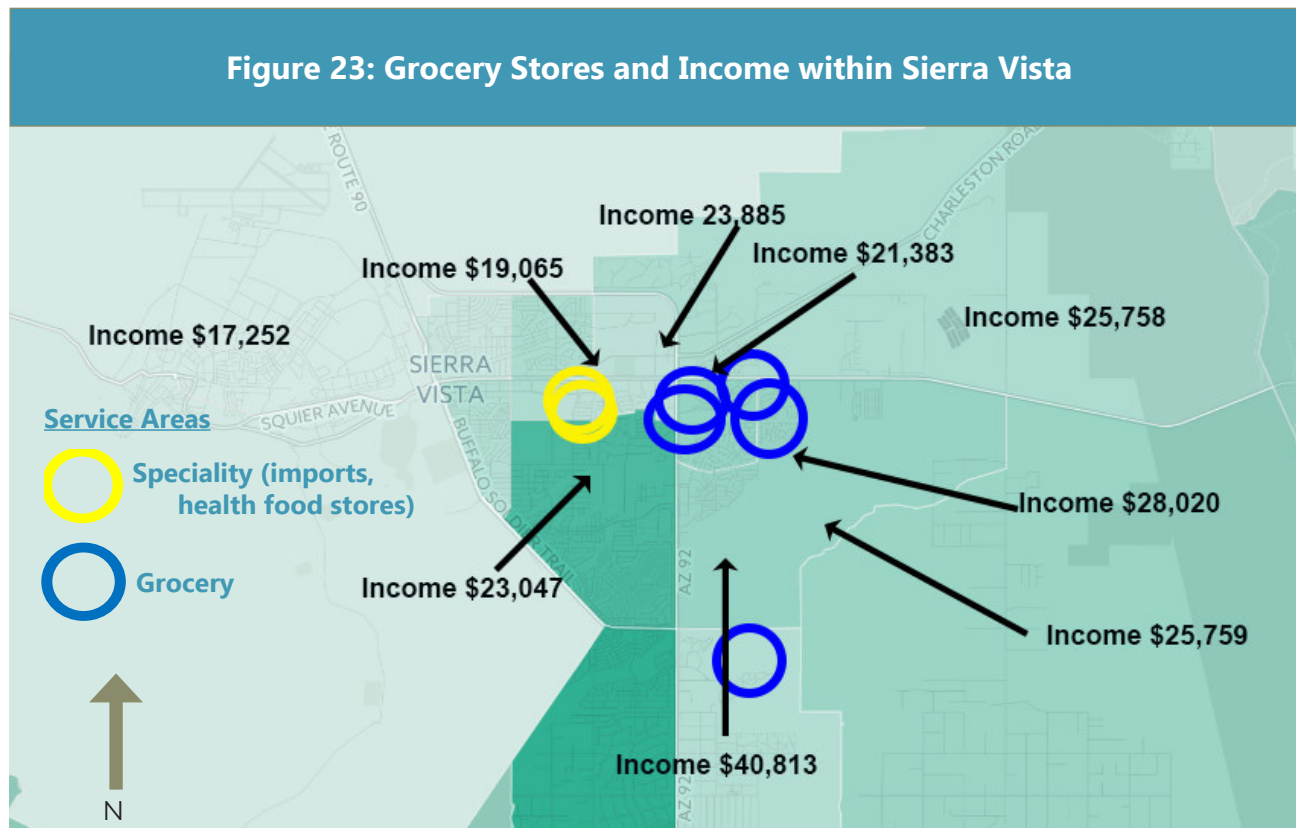
ACCESS TO HEALTHY FOOD

Numerous studies have researched the correlation in access to healthy food and diet with the incidence of obesity and overweight people in a community. Most of the studies concluded that living in closer proximity to healthy food retail, results in healthier eating habits and therefore, a lower risk of obesity or overweight.⁴⁸ Food insecurity can come as a result of poverty. The USDA defines a food desert as a "low-access community" where at least 500 people and/or at least 33% of the census tract population resides more than one mile from a supermarket or large grocery store (for rural census tracts, the distance is more than 10 miles).⁴⁹

Food Deserts are correlated with higher rates of obesity. Counties with the highest percentage of households living in food deserts (10 percent or more) had rates of adult obesity in 2008 that were nine percentage points higher than counties with the lowest percentage of households in food deserts, even after controlling for median household income, poverty rates, and racial and ethnic make-up of the population.⁵⁰

The majority of people with the lowest incomes in Sierra Vista do not live within 1/2 of a mile of a full service grocery store. Lower income people tend to have less transportation options, and the ability to walk to a grocery store increases the ability of this population to access healthy food. Nationwide, in 2001, households with an annual income of less than \$25,000 are almost nine times as likely to be a zero-vehicle household than households with incomes greater than \$25,000.⁵¹ In 2000 (the latest year for which this information is available) Sierra Vista had approximately 19% of all households with 2014 incomes less than \$25,000.⁵² Consequently, non-motorized transportation facilities and public transportation are important for this population group to access a healthy diet necessary to help control of chronic diseases. Figure 23 shows Sierra Vista Census tracts by income and the distance from a grocery store.

In stakeholder meetings, residents stated that the issue of access to healthy food is exacerbated by current land use patterns. Most of the commercial development within Sierra Vista is located along Fry Boulevard and along SR92; with the most active commercial areas located at the intersections of these two roads. Within the city-limits there are six grocers, not including the commissary on Fort Huachuca. These six grocers are all concentrated near Fry Blvd., with the



Source: My Sidewalk Maps, Google and Census 2010 Data

furthest one only .3 miles from the commercial corridor. Current public transportation service provides some access to these locations, but residents reported some challenges with access due to the location of the bus stop (far from the entrance to the grocery) and regulations limiting the number of bags that could be carried onto the bus. Because Sierra Vista is a mostly suburban community with a lower residential density per acre, thousands of households are not within walking distance, one quarter mile or five minutes, from stores that sell healthy food.

HEALTH REPORTING FROM FORT HUACHUCA

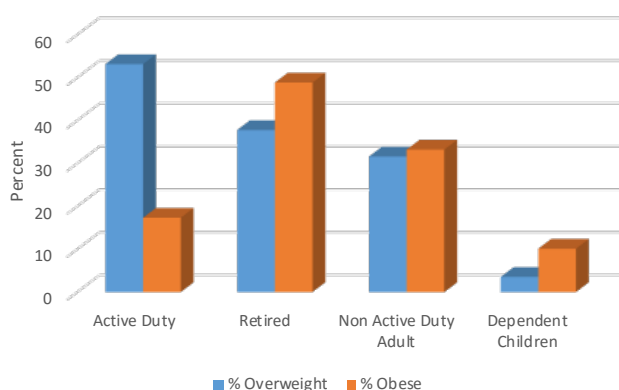
OBESITY ON FORT HUACHUCA

The percentage of over-weight and obese active duty personnel receiving care at the Raymond W. Bliss Army Health Center in 2014 was 53.13% (overweight) and 17.32% (obese).⁵³ (Figure 24: 2014 Obese and Overweight Military Personnel) Fort Huachuca personnel report that the high percentage of obese and overweight active duty personnel is a growing trend in the military with 1.6% (25,766) of active US military diagnosed as overweight or obese in 1998 – increasing to 5.3% (86,186) by 2010.⁵⁴ Roughly half (49%) of retired military are obese. 13% of on-base military children, based on data provided by Raymond W. Bliss Army Health Center, are either over-weight or obese.

CHRONIC DISEASE

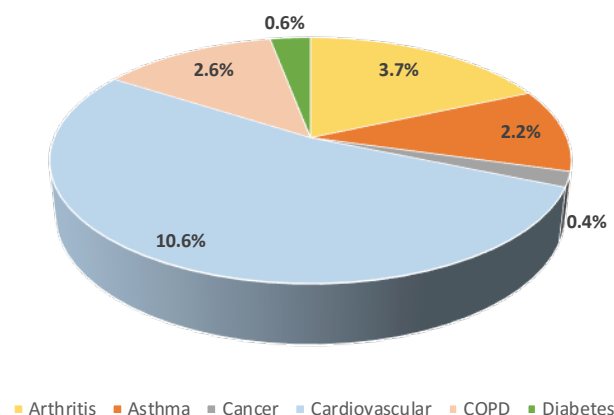
Chronic Diseases affect the population on Fort Huachuca, although these diseases are present in lower rates relative to the rest of Sierra Vista⁵⁵. From 2008 to 2014, 16.8% of active duty patients at Raymond W. Bliss Army Health Center were diagnosed with at least one chronic disease. (Figure 25: Chronic Disease Rates by Diagnosis Category) Obesity related diseases that can be managed with diet and exercise, such as cardiovascular disease and COPD, make up the largest portion of chronic diseases among the military at Fort Huachuca. The 2014 diabetes rate was modest at .6%. The percentage of active duty patients who were asthmatic was 2.2%. The hospital's findings suggests a drop in rates of asthma over time.

Figure 24: 2014 Obese and Overweight Military Personnel



Source: Raymond W. Bliss Army Health Center

Figure 25: 2014 Chronic Disease Rates by Diagnosis Category



Source: Raymond W. Bliss Army Health Center

BEHAVIORAL HEALTH

The Raymond W. Bliss hospital estimates that in 2014, 11.8% of active duty patients were diagnosed with some sort of behavioral disorder. Data of behavioral disorder rates show 1.1% rate of substance disorder and 5.5% rate of mood disorders among active duty military. 5% had an anxiety disorder and approximately 3% were diagnosed with PTSD. This is comparable to Cochise County as a whole, where 12% of persons reported more than 12 days in 30 where their mental health was not good (includes stress, depression, and problems with emotions).⁵⁶ The Fort reports a higher rate of substance abuse than the county (.002% compared to 1.1%).

The Mayo Clinic states that walking is a type of physical activity that can help improve mood and that regular exercise probably helps ease depression.⁵⁷ Some of the ways that walking can ease depression cited by Mayo include:

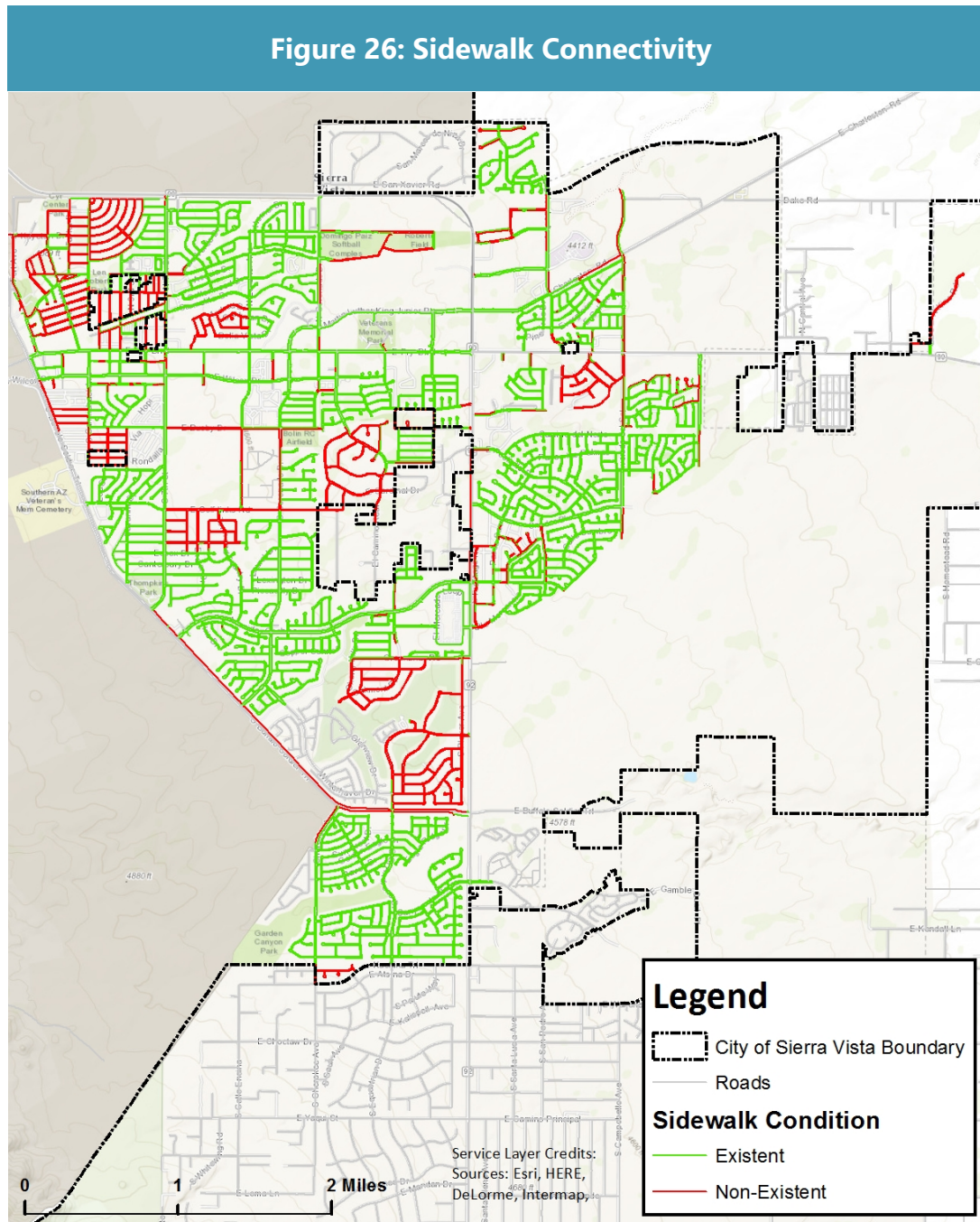
- Releasing feel-good brain chemicals that may ease depression (neurotransmitters, endorphins and endocannabinoids)
- Reducing immune system chemicals that can worsen depression
- Increasing body temperature, which may have calming effects

POTENTIAL PUBLIC HEALTH IMPACTS OF NON-MOTORIZED TRANSPORTATION FACILITIES AND POLICIES CONSIDERED BY THIS HIA

SIDEWALK IMPLEMENTATION PLAN

SIDEWALK CONNECTIVITY

The SVMPO Sidewalk Implementation Plan (Figure 26: Sidewalk Connectivity) ADA Compliance Analysis) shows the condition of Sierra Vista's sidewalks. The green lines represent existing sidewalks and the red lines indicate areas where sidewalks are absent. (Figure 26) Areas with gaps in the sidewalk system include lower income residential areas around West Fry Boulevard as well as residential areas within walking distance of Fry Boulevard and SR 92, the city's main



Source: Sierra Vista Sidewalks Inventory and Implementation Plan 2015. Sierra Vista Metropolitan Planning Organization

commercial area. The Sidewalk Implementation Plan includes 26 recommendations that are centered around the creation of new pedestrian-oriented infrastructure. All 26 of the recommendations in the Sidewalk Implementation Plan focus on improving connectivity near and around “high priority areas.” These “high priority areas” are based on the presence of schools, fixed transit routes, commercial areas, parks, and areas prone to traffic accidents.

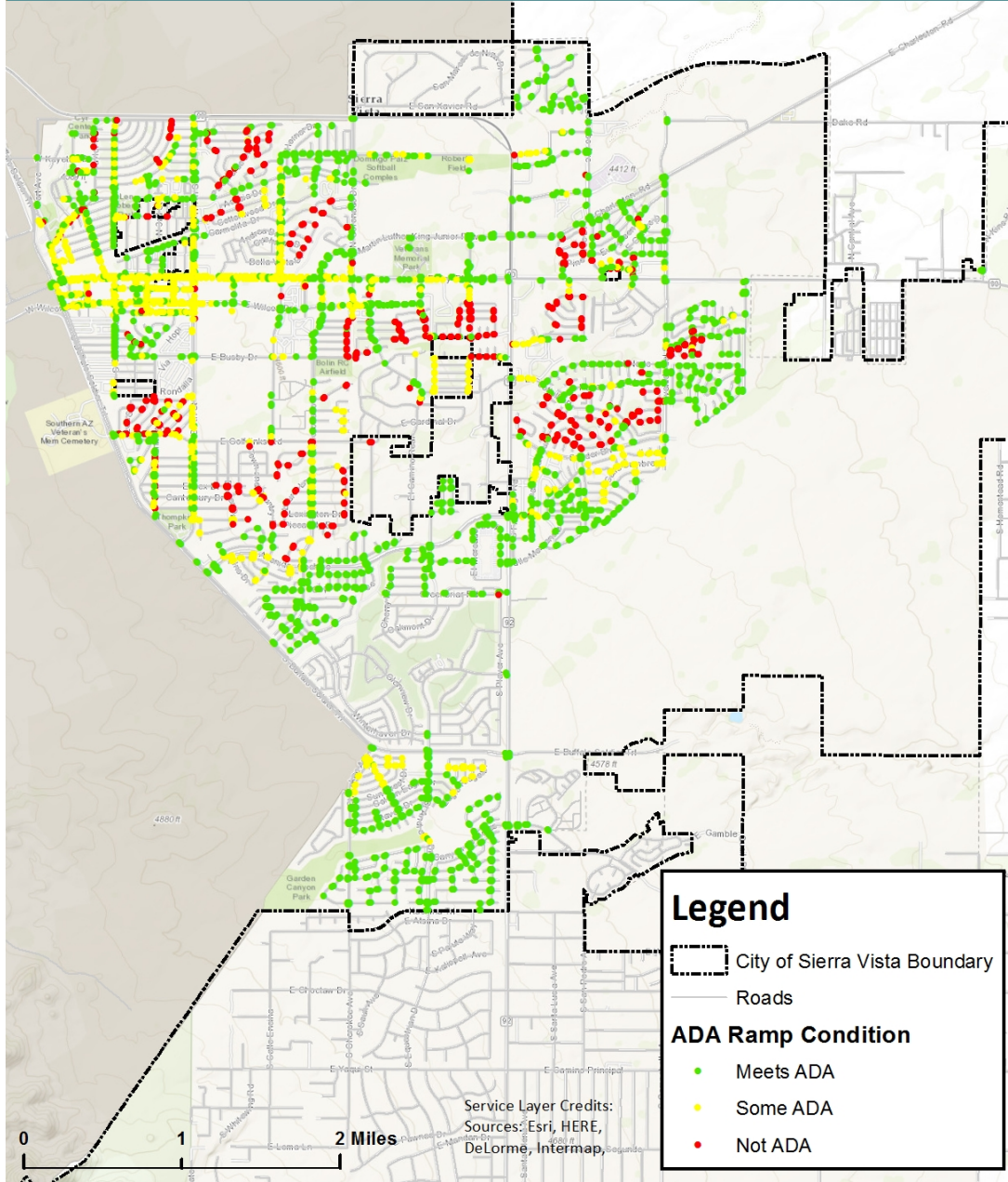
Increasing the availability and presence of sidewalks will help to increase walking. A 2001 study published in the American Journal of Public Health used data from the American Physical Activity Study to assess environmental determinants of physical activity found that the presence of sidewalks are positively associated with physical activity among 61% of all respondents. Other important factors included access to enjoyable scenery and streetlights.⁵⁸ The Bureau of Transportation Statistics found that in 2002 people who said their community had no sidewalks were four percent less likely to be walkers and people in communities without sidewalks were 22% more dissatisfied with how their community made walking safe.⁵⁹

Reducing interruptions in the sidewalk system will reduce impediments to walking that create real and perceived unsafe walking environments. A 2007 study of 750 mostly older adults published in the British Journal of Sports Medicine found that when tripping hazards were reduced along sidewalks, 26% of potential walkers would be more likely to walk within their neighborhood.³⁸ The 2012 National Survey of Bicyclist and Pedestrian Attitudes and Behavior found that tripping on an uneven or cracked sidewalks is the largest reason for pedestrian injuries while walking (24%), and tripping on stones or stepping in holes are the fifth and six most common reasons for pedestrian injuries while walking, accounting for a total of ten percent of all pedestrian injuries.⁶⁰

TRANSIT ACCESS

Sidewalks are also an integral component of a transit system. In 2014, the U.S. Census estimated that almost 10% of all Cochise County residents walked to work; and 2% used public transportation (includes taxi cabs). Many people walk to transit stops. As a means of comparison, in 2014 in Maricopa County, which includes Phoenix and many other urban areas, the U.S. Census estimated about 1.5% of all county residents walked to work. Phoenix includes Luke Air Force Base (as it is likely many people who walk to work in Sierra Vista live on the Fort); and Luke is not as large a percent of the population as Fort Huachuca is in Sierra Vista. However, this statistic points to the value of providing facilities for pedestrians in Sierra Vista and on Fort Huachuca. Many of the fixed transit stops in the city are surrounded by inadequate sidewalks, which create obstacles to accessing transit, and especially for those who are physically disabled. For example, neighborhoods on the east and west sides of S. Charmichael Ave, south of West Fry Boulevard, have neighborhoods without sidewalks adjacent to public transit stops. Many of the neighborhoods north of West Fry Boulevard, along both sides of North Avenue have no sidewalks. These are some of the lowest income areas within the city; and transit an important mobility option to access healthy food, community services and health care in lower income areas. A lack of sidewalks creates barriers to transit and makes in hard to access these necessary services for these communities.

Figure 27: Sidewalk ADA Compliance Analysis



Source: Sierra Vista Sidewalks Inventory and Implementation Plan 2015. Sierra Vista Metropolitan Planning Organization

ADA ACCESS

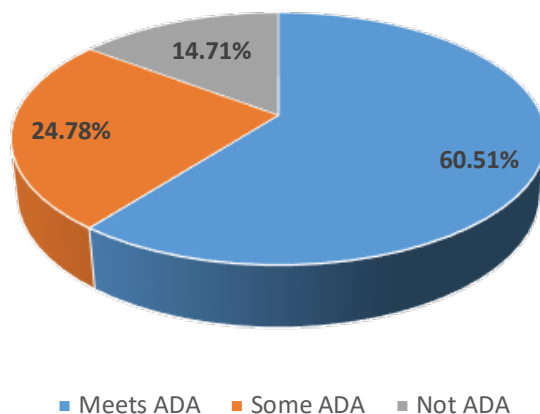
Among existing sidewalks in Sierra Vista, 14.71% do not accommodate Americans with Disabilities and 24.78% provide some ADA accommodations (Figure 27: ADA Compliance Sierra Vista and Figure 27a: Percent of Sidewalk Ramps Meeting ADA Requirements Sierra Vista). Areas without facilities for the disabled include the areas surrounding the intersection of SR 92 and Fry Boulevard. The percent of 2010 disabled persons living in the census tract on the southeast corner of this intersection, where a large grocery store and other services are located is 18%. The percent of 2010 disabled population in the census tract that includes the southwest corner of this intersection is 19.8%. This corner includes a bookstore, an important social gathering place for the community. Limiting mobility options that provide access to these services for those with disabilities increases the risk of isolating this population group. Isolation is a health indicator that can lead to other poor health outcomes such as depression, substance abuse and suicide. Access to continuous sidewalks that provide access to public transportation and community services also enables those with disabilities who do not drive to have access to employment, education, healthcare, and community activities.

SAFE PEDESTRIAN AND BICYCLE ROUTES PLAN

Slightly more than 3% of all Cochise County residents bicycled to work in 2014. The percent of people bicycling to work in Cochise is almost 300 percent more than the number of people bicycling to work in Maricopa County; a much more urban area.⁶¹ The highest number of crashes between bicycles and vehicles are along Fry Boulevard; where most of Sierra Vista retail and services are located (Figure 28: Pedestrian and Cyclist Collisions: Sierra Vista.). Improving the safety of bicycle and

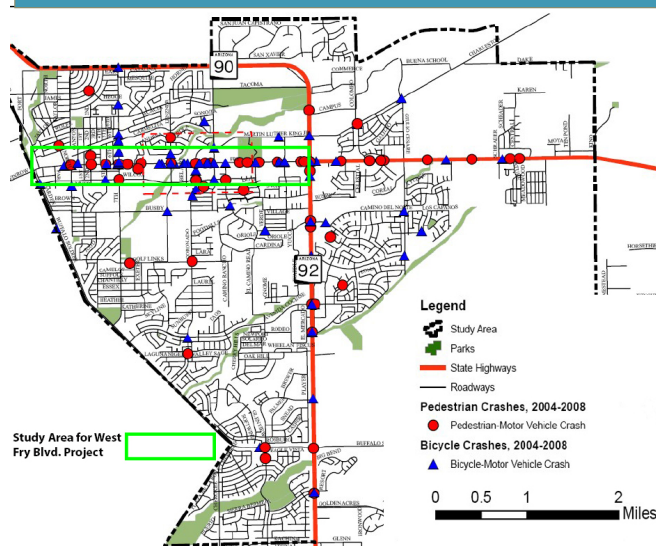
The percent of disabled persons living in the census tract on the southeast corner of the SR 92 and Fry Boulevard Intersection, where a large grocery store and other services are located is 18%. The percent of disabled population in the census tract that includes the southwest corner of this intersection is 19.8 percent. This corner includes a bookstore, an important social gathering place for the community.

Figure 27a: Percent of Sidewalk Ramps Meeting ADA Requirements Sierra Vista 2015



Source: Sierra Vista Sidewalk Implementation Plan

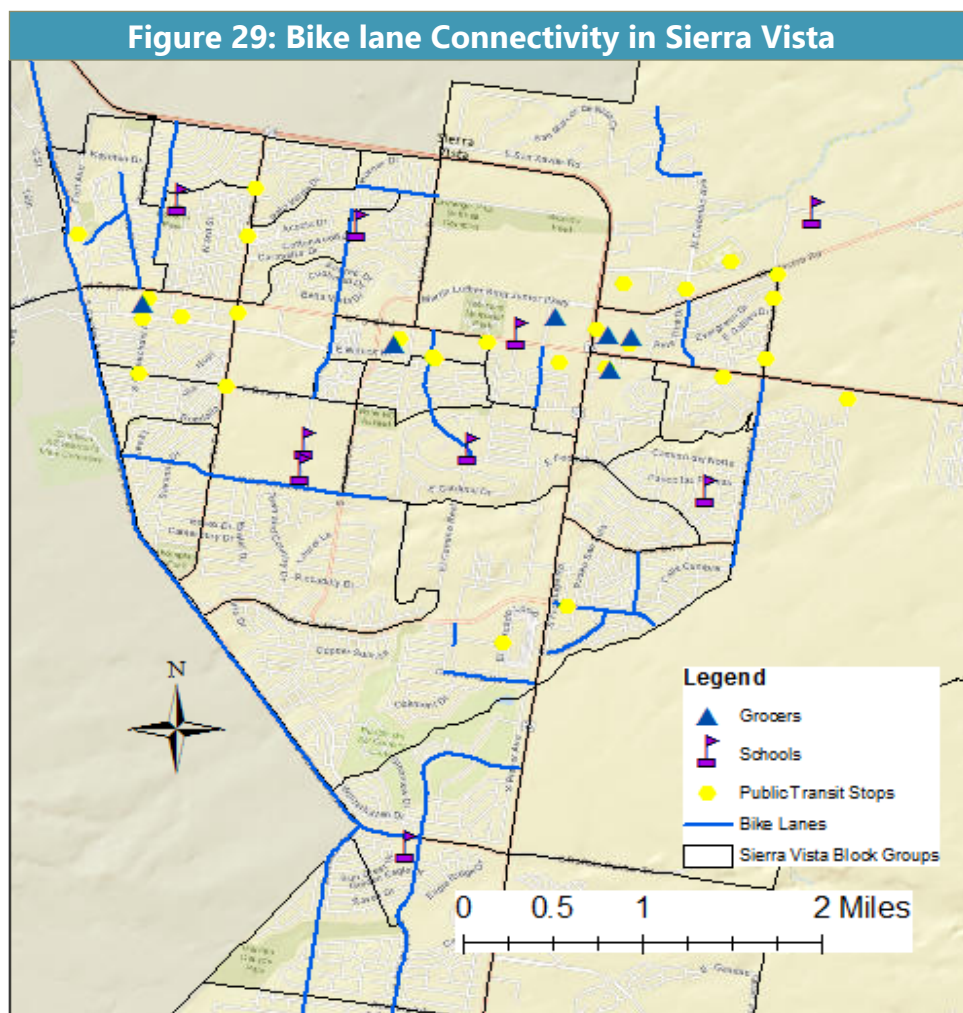
Figure 28: Pedestrian and Cyclist Collisions: Sierra Vista



Source: SVMPO Safe Bicycle and Pedestrian Routes Plan 2011

pedestrian facilities along this roadway will contribute to a reduction in mortality and improved community health.

The Safe Pedestrian and Bicycle Routes Plan makes active transportation more viable and safe in Sierra Vista. Studies show that there is both a perception of danger and a difference in accident rates among areas with and without basic bike infrastructure such as designated bike lanes. A study of Portland, Oregon cyclists found that fear of sharing the road with automobiles traveling at high speeds deters people from bicycling, even if it is something they would find enjoyable, or economically preferable.⁶² Many of the roads on the Fort and in Sierra Vista are two-lane, rural roads. It is likely that investments in bike-lanes and shared use paths can decrease injury rates and increase bicycle ridership as perception about the safety of active transportation on these streets improves. Two-lane rural roads have proven to have higher fatality rates for cyclists than urban streets, because of the tendency toward higher speeds.⁶³ Kalamazoo, Michigan found roads with bike lanes had injury rates 50% lower, while the risk of injury on protected bike lanes was a 90% lower. Shared use paths (off-street trails where cyclists, pedestrians, skaters, and other non-motorized modes mix) were found to reduce injury by 60%.⁶⁴



Source: City of Sierra Vista GIS

WEST FRY BOULEVARD CORRIDOR STUDY

The West Fry Boulevard Corridor Study includes retrofits to the street-scape that would widen sidewalks, and landscaping that would provide shade and separate pedestrians from traffic. Figure 30: West Fry Boulevard Conceptual Renderings shows how sidewalks could enhance the pedestrian environment along West Fry Boulevard. (Sierra Vista MPO. Fry Boulevard Corridor Study)

Research published by the American Planning Association, shows that enhanced streetscapes invite people to engage in more physical activity in communities.⁴⁴ In addition, street redesigns that include facilities for bicycle, pedestrians and transit (Complete Streets) are linked to positive economic effects on communities by increasing retail activity, property development, land values and tax revenues.

Pedestrian and cyclist collisions with vehicles are higher around West Fry Boulevard than in other areas of the city. Providing safe and attractive places to walk along West Fry Boulevard could decrease the number of traffic related injuries.

NORTH GARDEN AVENUE CORRIDOR STUDY

North Garden Avenue is located one block west of Buffalo Soldier Trail between West Fry Boulevard and Buffalo Soldier Trail. The approximately 1/2 mile of street provides access across a wash to West Fry Boulevard from the neighborhood just south of West Fry Boulevard, hotels and apartments located near the Historic West Fry Boulevard entrance to the Fort. This neighborhood is also one of the lower income neighborhoods in Sierra Vista. Improving access to West Fry Boulevard and the Fort along North Garden Avenue will make it easier for people to access this entrance to the Fort by bicycle and foot.

SIERRA VISTA ZONING ORDINANCE UPDATE

Land use is one of the most important determinants of people's choice of travel modes. The Federal Highway Administration University Course on Bicycle and Pedestrian Transportation states that in addition to ordinances that require bicycle parking and sidewalks, even more basic changes are needed for automobile parking requirements, street design standards, allowable land use densities, and transit-oriented developments. The FHWA identifies inclusion of bicycle and pedestrian facilities in piecemeal developments, internal bicycle and pedestrian circulation facilities in commercial and business developments, designing developments with multiple connections to main thoroughfares, on-site walkways for commercial developments, pedestrian access between developments, and adequate lighting for pedestrians and other standards to ensure land use codes support healthy transportation.⁶⁵

Figure 30: West Fry Boulevard Conceptual Renderings



Renderings of Fry Blvd. Redesign. Source: svmpo.org

As Sierra Vista updates in land use and subdivision ordinances, providing bicycle and pedestrian connectivity, mixed uses, and higher densities in areas close to community services such as hospitals, grocery stores, parks, and gathering places could result in creating places that encourage people to walk or bike instead of drive.

POTENTIAL PUBLIC HEALTH IMPACTS OF PROPOSED PROJECTS ON FORT HUACHUCA

Fort Huachuca and community partners including the Department of Public Works, the School Superintendent, and the Healthy Community Committee identified roadway sections for future projects that will improve the viability of safe biking and walking. Representatives of the Fort report that pedestrians and cyclists use roads with high traffic volumes roads for travel and exercise. In many areas, these roadways lack facilities for bicycles and pedestrians (Figure 31: Fort Huachuca Bicycle and Pedestrian Improvements). The identified improvements will make it safer to walk and bicycle on the Fort, potentially increasing the number of people who walk and bike. Providing bicycle and pedestrian connections to base services enhance opportunities to access healthy food, recreation areas, and community spaces as well as increase physical activity for those who use them, could contribute to reducing obesity and obesity related chronic diseases on the Fort.

Figure 31: Fort Huachuca Bicycle and Pedestrian Improvements

Location	Proposal
Burns Street	Additional Sidewalk
H Street	Additional Sidewalk
(Bonne Blink to Old Post)	Additional Sidewalk
Arizona Street (Between Irwin St. & Brainaird Rd.)	Additional Sidewalk
Whitside Road	Bike Lanes, MUP
Hatfield Street (To Main Gate)	Bike Lanes, MUP
Allison to Winrow	Bike Lanes, MUP



COL Johnston School
Missing sidewalk from neighborhood.



COMMUNITY PRIORITIES

An interactive website devoted to the HIA and discussing community health, two public meetings, and participation in events including the Chamber of Commerce Super Bowl Tailgate in February 2016, The Chamber of Commerce Health Wealth and Life Style Fair in March 2016, were used to inform the public of the HIA and solicit their participation in the HIA process.



Information about the HIA was provided at a table at the Chamber of Commerce Super-Bowl Tailgate in February, 2016.



A community meeting about the HIA held on January 28, 2016.

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6. RECOMMENDATIONS

INTRODUCTION

This chapter includes recommendations to assist in prioritizing the pedestrian project in the Sierra Vista Metropolitan Planning Organization Sidewalk Implementation Plan, and bicycle and pedestrian projects included in the West Fry Boulevard Corridor Study, and recommendations to promote healthy transportation facilities in Fort Huachuca. In addition to these recommendations, other recommendations that could be considered are the update of the zoning code, implementation of Safe Routes To School Programs, and other plans that promote non-motorized transportation are also included here.

RECOMMENDATIONS

Recommendations in this chapter focus on non-motorized transportation facilities that will have the greatest positive impacts on individual and community health by connecting people to healthy food, health care, and community services and activities. Greatest priority was given to those recommendations that benefit Sierra Vista's low income and elderly population, as the health of these groups is most impacted by access to non motorized transportation and transit.

Overall, the study recommendations will help make transportation in the Sierra Vista healthier and contribute to an increase in important health determinants including physical activity, mobility options, and a reduction in social isolation (Figure 32: Recommendations).

Figure 32: Recommendations

PATHWAY/ HEALTH DETERMINANT	RECOMMENDATION	RATIONALE
All	Sierra Vista Sidewalks Inventory and Implementation Plan 1) Determine sidewalk connectivity priority areas based on census tract income, proportion of disabled persons, and persons 65+ criteria.	Income, disability, and age are important corollaries of access to health care, healthy food, and obesity and obesity related diseases. Including these considerations in sidewalk priorities will help identify areas that need access to healthy and non-motorized transportation areas the most.
1, 4, 9, 10, 11	Sierra Vista Sidewalks Inventory and Implementation Plan 2) Provide a connection between N. Carmichael Avenue where it terminates at N. Railroad Avenue to West Fry Boulevard.	The neighborhoods around N. Carmichael Avenue are the poorest in Sierra Vista (2010 median household income \$26,296. These are the latest numbers available at this level of geography). 8% of the city's 2010 disabled population lives in this relatively small census tract surrounding this area. Providing sidewalks to help these neighborhoods access public transportation along West Fry Boulevard, the West gate to the Fort, and services along Fry Boulevard.

HEALTH DETERMINANTS (p. 23)

Built Environment

1. Sidewalks near schools, transit stops, commercial development, and accident-prone roads are connected and shaded
2. Wheelchair ramps at corners are more available
3. Pedestrians are shielded from roadway by landscaping, wider sidewalks, or parked cars
4. Better non-motorized connections via sidewalks and bike lanes to health care, community services, and healthy food

Individual Behavior

5. People can more safely and comfortably walk/ bike to destinations such as Fort Huachuca, work, or healthcare
6. People drive slower
7. People can walk two abreast on sidewalks
8. Children can more safely walk to school

Social/Economic Environment

9. Increased foot-traffic in commercial corridors
10. Isolation is reduced
11. More people can be connected to community activities and services
12. Sierra Vista becomes more attractive as a venue for foot and bicycle events

Figure 32: Recommendations

PATHWAY/ HEALTH DETERMINANT	RECOMMENDATION	RATIONALE
1, 4, 9, 10, 11	<p>Sierra Vista Sidewalks Inventory and Implementation Plan</p> <p>3) Provide additional sidewalk along Avienda Cochise between Paseo San Luis and Calle Mercancia, with ADA upgrades. (Project 1)</p>	<p>The area without a sidewalk is on both sides of Avienda Cochise. This connection would provide a continuous sidewalk to residents of an apartment complex and a residential subdivision continuous access to educational (PPEP Tech High School) medical facilities, retail, daycare, and public transportation services located along SR92.</p> <p>The recommendation also creates a continuous connection to SR92 across from the Sierra Vista Mall, so people can walk more safely to local retail. The Mall also includes a movie theater. Creating a safer pedestrian connection to this venue could result in more children walking to the movies, instead of relying on their parents to drive them. The increased physical activity from walking can contribute to a decrease in the obesity, the risk of obesity related chronic diseases, and isolation that can result in depression and depression related diseases such as substance abuse.</p>
1, 4, 5, 9, 10, 11,	<p>Sierra Vista Sidewalks Inventory and Implementation Plan</p> <p>4) Provide additional sidewalk along SR92 between E. Hazen and Avendia Cochise, with ADA upgrades. (Project 4)</p>	<p>The recommended addition of a MUP along the west side of SR 92 and within a quarter mile of the Sierra Vista Mall. Providing this sidewalk will help pedestrians travel more safely along the west side of SR 92, and create a continuous connection between the Sierra Vista Mall and the commercial area at the intersection of SR92 and Fry Boulevard. If more people are physically active via walking, biking, etc., it is likely to see a reduction in obesity and obesity related diseases. In addition, this physical activity is good for mental health. A strengthen sense of community is believe to be correlated with pedestrian-oriented design (CNU). Finally, Country Club pocket park is now more accessible for the subdivisions near-by. Parks are a great source of recreation.</p>

Figure 32: Recommendations

PATHWAY/ HEALTH DETERMINANT	RECOMMENDATION	RATIONALE
1, 4, 9, 10, 11	<p>Sierra Vista Sidewalks Inventory and Implementation Plan</p> <p>5) Provide additional sidewalk on S. Carmichael Ave between Sheila Lane and Timothy Lane, with ADA upgrades (Project 13).</p>	<p>The proposed sidewalk would provide a consistent walkway along S. Carmichael Boulevard to W. Fry Boulevard. This connection would provide some of the lowest income neighborhoods in Sierra Vista with a healthy transportation option to access transit along Carmichael Boulevard.</p> <p>A continuous sidewalk connection along South Carmichael Boulevard would provide safe access to East and West Fry Boulevard (Sidewalks and other pedestrian improvements are currently planned along West Fry Boulevard, and West Fry Boulevard connects to the West entrance to the Fort), to transit stops located along S. Carmichael Avenue, and to two small, specialty grocery stores located along Fry Boulevard.</p> <p>A continuous sidewalk along S. Carmichael Avenue would also create sidewalk access to Claramitaro and Tompkins Parks. The sidewalk could encourage more use of the park by children who can access it safely, and result in increased physical activity.</p> <p>5% of the city's disabled population lives in the triangular census tract bounded by 7th Street and Buffalo Soldier Trail and Fry Boulevard. Providing a continuous sidewalk along S. Carmichael will make it easier for those disabled persons who are unable to drive to access transit along S. Carmichael Avenue.</p>

Figure 32: Recommendations

PATHWAY/ HEALTH DETERMINANT	RECOMMENDATION	RATIONALE
1, 4, 5, 8, 10, 11	<p>Sierra Vista Sidewalks Inventory and Implementation Plan</p> <p>6) Provide additional sidewalk between N. Colombo Ave between E. Evergreen Dr. and E. Galieleo Dr. (Project 17)</p> <p>7) Provide sidewalks along both sides of Rainbow Way (Projects 19 and 20)</p>	<p>This recommendation provides a healthy transportation option in a neighborhood with one of the lower 2010 household incomes in the city. A sidewalk along N. Colombo Avenue will provide safe route for children to walk to school by connecting residential area to Berean Pre-School. This could result in increasing physical activity and decreasing obesity among this population group.</p> <p>A sidewalk along Colombo Avenue north of Fry Boulevard could increase safety and enhance to Fry Boulevard. If people feel safer walking to Fry Boulevard more people might walk or bike to the commercial areas along Fry Boulevard 1/2 mile to the east of the intersection of Fry Boulevard and N. Colombo Ave. The commercial areas include grocery stores and retail services.</p> <p>Rainbow way is the primary local street in this neighborhood and provides the only access to Fry Boulevard from this neighborhood. Sidewalks along both sides of rainbow way will provide access to Fry Boulevard for this neighborhood. Over 7.5% of the city's 2010 disabled population lives in the relatively small census tract that includes this neighborhood. Providing a continuous sidewalk for those who do not drive will make it easier for them to access the commercial areas 1/2 mile to the east of the Rainbow Wan and Fry Boulevard intersection.</p> <p>Three churches are located within 1/2 mile of the intersection of Colombo Avenue and Fry Boulevard), Providing a safe and continuous route from these neighborhoods along N. Colombo Avenue could result in increased social connections and reducing isolation for this population group.</p>

Figure 32: Recommendations

PATHWAY/ HEALTH DETERMINANT	RECOMMENDATION	RATIONALE
1, 3, 4, 5, 7, 9, 10, 11, 12	Fry Boulevard Corridor Plan 8) Implement the Sierra Vista City Council Strategic Objective plan to beautify public infrastructure that makes Fry Boulevard and North Garden Avenue more walkable and bikeable.	Fry Blvd. is Sierra Vista's major commercial corridor. Enhancing the sidewalk infrastructure, will make West Fry Boulevard a more pleasant place to walk, and could increase pedestrian activity. An increase in pedestrian activity could increase business activity along West Fry Boulevard providing jobs for residents in nearby neighborhoods that which are among some of the lowest income neighborhoods in the city. An increase in income is associated with better health care access. Providing wider sidewalks and landscaping that separates pedestrians moving traffic and provides shade reduces the opportunities for pedestrian/vehicle collisions, makes the sidewalk feel safer (resulting in an increase of pedestrian activity) and could reduce exposure to UV rays associated with skin cancer. Providing bicycle lanes along West Fry Boulevard will enhance bicycle access to the Fort and access from the neighborhoods north and south of West Fry Boulevard to the commercial area approximately three miles to the east at the intersection of SR 92 and Fry Boulevard'.
Sierra Vista Planned Update to the Zoning Ordinance		

HEALTH DETERMINANTS (p. 23)

Built Environment

1. Sidewalks near schools, transit stops, commercial development, and accident-prone roads are connected and shaded
2. Wheelchair ramps at corners are more available
3. Pedestrians are shielded from roadway by landscaping, wider sidewalks, or parked cars
4. Better non-motorized connections via sidewalks and bike lanes to health care, community services, and healthy food

Individual Behavior

5. People can more safely and comfortably walk/ bike to destinations such as Fort Huachuca, work, or healthcare
6. People drive slower
7. People can walk two abreast on sidewalks
8. Children can more safely walk to school

Social/Economic Environment

9. Increased foot-traffic in commercial corridors
10. Isolation is reduced
11. More people can be connected to community activities and services
12. Sierra Vista becomes more attractive as a venue for foot and bicycle events

Figure 32: Recommendations		
PATHWAY/ HEALTH DETERMINANT	RECOMMENDATION	RATIONALE
1,2,3,4,5,8, 11,12	9) Provide connections from within all new development to existing and planned bicycle routes and shared use paths and trails.	<p>Providing connections from new development to existing and planned paths and trails will help to make Sierra Vista more connected. It will enable more children to walk to school, and more residents to use healthy transportation options to access transit, health care, healthy food and community services. Providing healthy transportation options helps to reduce obesity and obesity related diseases such as diabetes and hypertension. Walking and bicycling increases social interaction and reduces isolation; which contributes to depression and related diseases such as substance abuse.</p> <p>Reducing the distance pedestrians have to travel from the street to a commercial building could encourage people to use transit or walk.</p> <p>Providing connections between commercial developments could result in people walking between them, instead of driving their car from one parking lot to another.</p>
	10) Provide bicycle and pedestrian connections between commercial developments	
	11) Provide pedestrian facilities through parking areas located between the street and commercial buildings	
	12) When possible, place buildings close to the street	
1,2,3,4,5,8, 11,12	13) If a development can connect to planned or existing sections of an existing or a planned bicycle route, or shared use path or trail, require the development to provide the connection and allow public access.	

Figure 33: Fort Huachuca Recommendations

PATHWAY/ HEALTH DETERMINANT	RECOMMENDATION	RATIONALE
All	14) Develop a “walk the Fort” program aimed at Fort residents and employees. Advertise the program through Fort literature and websites.	Providing information about the benefits of walking and bicycling to Fort residents will make them more aware of facilities that are available, and help to create a database that can be used to make Fort residents more aware of new facilities that may be close to them and they could easily access. This may help to increase the number of people who are aware of facilities as well as the number of people who might consider using these facilities and do not currently use them now.
1, 3, 4, 5, 7, 9, 10, 11, 12	15) Additional sidewalks on Burns Street	This recommendation provides connectivity between neighborhood and Fort Huachuca’s commissary (grocery store). Providing access to healthy food can contribute to a reduction in obesity and obesity related diseases.
1, 4, 5, 8, 10	16) Additional Sidewalk connecting H Street and Col. Johnston	This recommendation provides a safe route for children and parents to walk to Col Johnston School. It also provides a connected sidewalk between the school, a residential area, ball fields, and a child care center. This will make it safer for children and parents to walk from school to the ball fields, and potentially increase physical activity. This could contribute to a reduction of childhood obesity.
4, 5, 10, 11	17) connecting Bonnie Blink to Old Post	Currently, there is sidewalk to Old Post, but the sidewalk ends at a subdivision. Providing a sidewalk will make this connection safer (reduce tripping hazards) and increase the appearance of safety, resulting in more pedestrian use. The sidewalk is a healthy transportation option that could result in reducing obesity and obesity related diseases.
3, 4, 5, 10, 11	18) Bike Lanes/ Shared use paths on Arizona Street (Between Irwin St. & Brainaird Rd.)	This creates a connection along Arizona Street from order to branch off to centralized areas/ locations that are frequently used. Pedestrians have a safer route, able to travel within clearly marked parameters.
3, 4, 5, 10, 11	19) Whitside Road bike lane/Shared use path proposal	Connects the current shared use path that is being developed along major on-post arterial roads to other on post roads that connect to centralized areas/locations that are frequently used.

Figure 33: Fort Huachuca Recommendations

PATHWAY/ HEALTH DETERMINANT	RECOMMENDATION	RATIONALE
3, 4, 5,10, 11	20) Hatfield Street (To Main Gate) bike lane/ Shared use path proposal	SR 90 is a main roadway that accesses the Fort on the north and is also a popular area with runners and cyclists. This shared use path would provide a 2.25 connection from the main access point into Fort Huachuca and connecting bicycle and pedestrian facilities. The shared use path would also provide a safer route for pedestrians, decreasing the potential for collisions between pedestrians and vehicles. Providing safe areas for recreational biking and walking can help to increase the frequency of these activity and result in reduced obesity and obesity related diseases.
3, 4, 5,10, 11	21) Allison to Winrow bike lane/ Shared use path proposal	Allison connects to Winrow near the Fry Boulevard entrance to Fort Huachuca and again when it turns into Lawlon Road in residential areas within the Fort. This is a popular area with runners and cyclists. This shared use path would provide a safer route than Winrow Road to access the residential areas of the Fort by bicycle or foot. Providing safe areas for recreational biking and walking can help to increase the frequency of these activity and result in reduced obesity and obesity related diseases.

HEALTH DETERMINANTS (p. 23)**Built Environment**

1. Sidewalks near schools, transit stops, commercial development, and accident-prone roads are connected and shaded
2. Wheelchair ramps at corners are more available
3. Pedestrians are shielded from roadway by landscaping, wider sidewalks, or parked cars
4. Better non-motorized connections via sidewalks and bike lanes to health care, community services, and healthy food

Individual Behavior

5. People can more safely and comfortably walk/ bike to destinations such as Fort Huachuca, work, or healthcare
6. People drive slower
7. People can walk two abreast on sidewalks
8. Children can more safely walk to school

Social/Economic Environment

9. Increased foot-traffic in commercial corridors
10. Isolation is reduced
11. More people can be connected to community activities and services
12. Sierra Vista becomes more attractive as a venue for foot and bicycle events

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6. Reporting

INTRODUCTION

This chapter describes how the results of this assessment are disseminated to entities that will be responsible for implementation of the Sierra Vista Plans and Policies included in this HIA. The primary mode to report the results of this study includes presentations to the Sierra Vista City Council, the Base Commanders, and Be Healthy Sierra Vista.

PRESENTATIONS

Presentations related to this study are shown in (Figure 34: Reporting). In addition, a web page soliciting input was created. The most effective forms of outreach were the face-to-face surveys and one-on-one meetings.

Figure 34: Reporting			
Entity	Date(s)	Reporting By	Presented Topics
Steering Committee Meeting - Sierra Vista	January 28, 2016	PLAN*et	Overview of SVMPO HIA and discussion of proposed scope
Public Event - Chamber of Commerce Tail-Gate	February 7, 2016	SVMPO	Benefits of Physical Activity/ Healthy Transportation Options
Public Meeting - Sierra Vista	April 7, 2016	PLAN*et	Presented data on health in Sierra Vista and met with advocacy group Be Healthy!
Public Event - Health and Wealth Lifestyle Fair	April 30, 2016	SVMPO, CHSS	Benefits of Physical Activity/ Healthy Transportation Options
Women's Health Event	May 14, 2016	Cochise County Department of Health	Waist to Hip Measurements

Figure 34: Reporting

Entity	Date(s)	Reporting By	Presented Topics
Presentation to Sierra Vista City Council	July 26, 2016	PLAN*et	Overview of HIA and HIA recommendations
Sierra Vista MPO Executive Board	October 2016	Sierra Vista MPO	Overview of HIA and recommendations for adoption

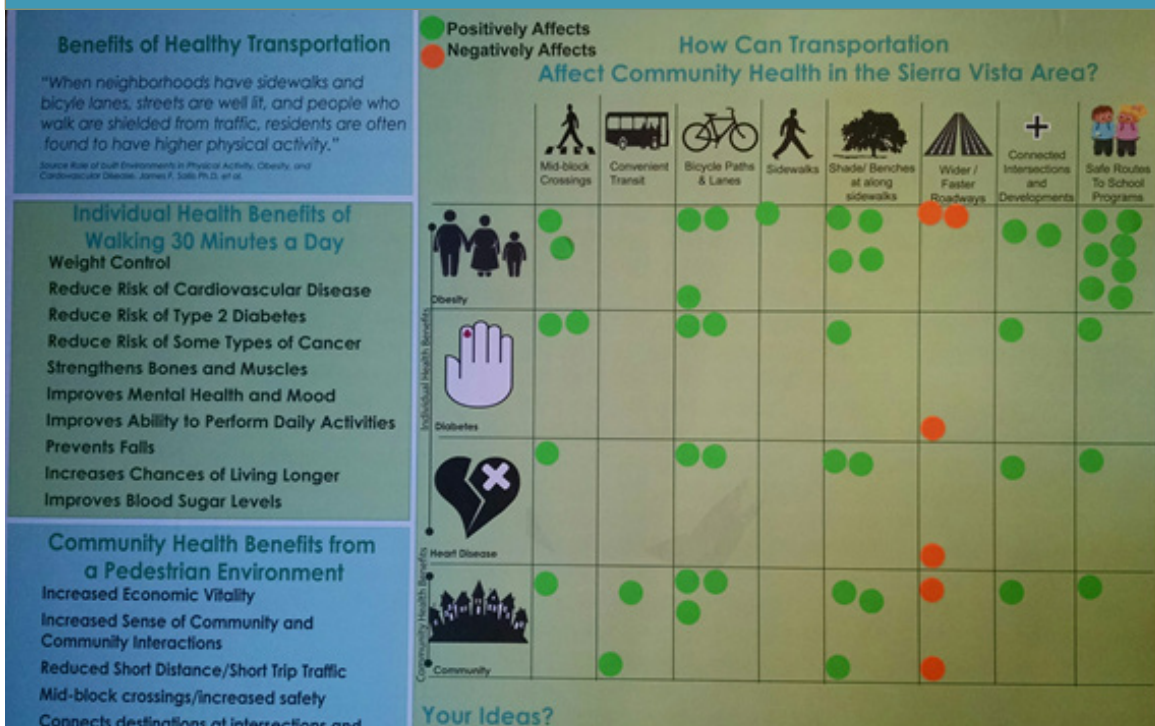
IMPLEMENTATION ENTITIES

The primary entity responsible for transportation improvements in Sierra Vista is the City of Sierra Vista and the Sierra Vista Metropolitan Planning Organization (SVMPO). SVMPO and in some cases, Sierra Vista will be the implementing entity for the recommendations contained in this HIA. Be Healthy! Sierra Vista, who will advocate for ongoing implementation of this HIA

PUBLIC COMMENTS

At public meetings and through the website for this HIA community members provided input to this HIA through a website and by using dot on boards at events and community meetings (Figure 35: Tail-Gate Public Comment). Appendix A includes a summary of comments received during the development of this HIA.

Figure 35: Tail-Gate Public Comment



Public Comments provided about healthy transportation at Chamber of Commerce Tail-Gate Event in Sierra Vista

7. Monitoring and Evaluation

INTRODUCTION

This chapter includes identification of indicators that can be used to monitor and evaluate implementation of HIA recommendations; and an discussion of the efficacy of the HIA process.

IMPLEMENTATION RESPONSIBILITY AND TIMING

Figure 36: Implementation Responsibility and Timing identifies indicators that can be used to measure the efficacy of recommendations contained in this HIA, the entities that could collect data for the indicator, and how the data could be collected (implementation methodology).

It is understood that many of these recommendations are dependent on funding. However, monitoring to evaluate the impacts of these recommendations should be started now, so changes in community health can be measured.

Figure 36: Implementation Responsibility And Timing

Pathway	Recommendation	Indicator	Responsible Entity	Implementation Methodology	Timing
All	Sierra Vista Sidewalks Inventory and Implementation Plan 1) Determine sidewalk connectivity priority areas based on census tract income, proportion of disabled persons, and persons 65+ criteria.	Increases in miles and connectivity of sidewalks and bike lanes in census blocks with higher than city average percent of population that is disabled, over age 65, and/or low income.	Sierra Vista Metropolitan Planning Organization (SVMPO)	Adoption	Short-term
1, 4, 9, 10, 11	Sierra Vista Sidewalks Inventory and Implementation Plan 2) Provide a connection between N. Carmichael Avenue where it terminates at N. Railroad Avenue to West Fry Boulevard.	Ridership increases at the fixed transit stops with the help of Vista Transit. Monitor Census data and the transportation survey for changes in their mode share.	City of Sierra Vista	Funding	Short-term

Figure 36: Implementation Responsibility And Timing

Pathway	Recommendation	Indicator	Responsible Entity	Implementation Methodology	Timing
1, 4, 9, 10, 11	<p>Sierra Vista Sidewalks Inventory and Implementation Plan</p> <p>3) Provide additional sidewalk along Avenida Cochise between Paseo Luis and Calle Mercancia with ADA upgrades. (Project 1)</p> <p>HIA additional recommendation: Add a pedestrian activated signal at Avenida Cochise and SR92 to increase pedestrian safety.</p>	<p>PPEP High School could distribute transportation survey to students.</p> <p>Monitor Census data and the transportation survey for changes in the mode share of near-by residents.</p>	City of Sierra Vista	Funding	Short-term
1, 4, 9, 10, 11	<p>Sierra Vista Sidewalks Inventory and Implementation Plan</p> <p>4) Provide a MUP along SR92 between E. Hazen and Avendia Cochise with ADA upgrades.</p>	<p>Monitor census data, transportation survey.</p>	City of Sierra Vista	Funding	Long-term

Figure 36: Implementation Responsibility And Timing

Pathway	Recommendation	Indicator	Responsible Entity	Implementation Methodology	Timing
All	Sierra Vista Sidewalks Inventory and Implementation Plan 5) Provide additional sidewalk on S. Carmichael Ave. between Sheila Lane and Timothy Lane, with ADA upgrades (Project 13).	Ridership increases at the fixed transit stops with the help of Vista Transit. Monitor pedestrian activity on Fry Blvd and census data on transportation.	City of Sierra Vista	Funding	Short-term
1, 4, 9, 10, 11	Sierra Vista Sidewalks Inventory and Implementation Plan 6) Provide additional sidewalk between N. Colombo Ave between E. Evergreen Dr. and E. Galieleo Dr. (Project 17) 7) Provide sidewalks along both sides of Rainbow Way (Projects 19 and 20)	Monitor pedestrian activity on Fry Blvd. Monitor percent of children walking to school through school transportation surveys.	City of Sierra Vista	Funding	Short-term

Figure 36: Implementation Responsibility And Timing

Pathway	Recommendation	Indicator	Responsible Entity	Implementation Methodology	Timing
1, 3, 4, 5, 7, 9, 10, 11, 12	Fry Blvd. Corridor Plan 8) Implement the Sierra Vista City Council Strategic Objective plan to beautify public infrastructure that makes Fry Boulevard and North Garden Avenue more walkable and bikeable.	Pedestrian activity along Fry Blvd. and North Garden Avenue.	City of Sierra Vista	Adoption/ funding once final design for West Fry Blvd. and North Garden Ave. projects are completed	Mid-term

Figure 36: Implementation Responsibility And Timing

Pathway	Recommendation	Indicator	Responsible Entity	Implementation Methodology	Timing
1, 2, 3, 4, 5, 8, 11, 12	Update to the Zoning Ordinance				
	9-13) Provide connections from within all new development to existing and planned bicycle routes and shared use paths and trails				
	Plan for activity centers throughout the City		Be Healthy! Sierra Vista		
	If a development can connect to planned or existing sections of an existing or a planned bicycle route, or shared use path or trail, require the development to provide the connection and allow public access	Ensure that these updates to the zoning ordinance are submitted and adopted.	City of Sierra Vista As Sierra Vista updates in land use and subdivision ordinances,	Advocacy Adoption	Long-term
	Provide bicycle and pedestrian connectivity, mixed uses, and higher densities in areas close to community services such as hospitals and grocery stores As Sierra Vista updates in land use and subdivision ordinances				

Figure 36: Implementation Responsibility And Timing

Pathway	Recommendation	Indicator	Responsible Entity	Implementation Methodology	Timing
All	14) Develop a “walk the Fort” program aimed at Fort residents and employees. Advertise the program through Fort literature and websites.	Mailing/email lists (hits) on awareness website Residents surveys to determine increaess in bicycling/ walking within the fort.	Fort Huachuca	Enhancement of existing Fort Information provided to residents	Short Term
1, 2, 3, 4, 5, 7, 9, 10, 11, 12	15) Additional sidewalks on Burns St.	Resident surveys to determine increases in bicycling/ walking within the base.	Fort Huachuca	Funding	Mid-term
1, 4, 5, 8,10	16) Additional sidewalk connecting H St. to Col. Johnson on Burns St.	Monitor percent of children walking to school through school transportation surveys.	Fort Huachuca	Funding	Short-term

Figure 36: Implementation Responsibility And Timing

Pathway	Recommendation	Indicator	Responsible Entity	Implementation Methodology	Timing
4, 5, 10, 11	17) Additional sidewalk connecting Bonnie Blink to Old Post	Resident surveys to determine increases in bicycling/ walking within the base.	Fort Huachuca	Funding	Mid-term
3, 4, 5, 10, 11	18) Bike lanes/shared use paths on Arizona St. (Between Irwin St. and Brainaird Rd.)		Fort Huachuca	Funding	Long-term
3, 4, 5, 10, 11	19) Bike lanes/ shared Whitside Rd. bike lane/shared use path proposal.		Fort Huachuca	Funding	Short-term
3, 4, 5, 10, 11	20) Hatfield St. (to Main Gate) bike lane/shared use path proposal.		Fort Huachuca	Funding	Short-term
1, 2, 3, 4, 5, 8, 11, 12	21) Allison to Winrow bike lane/ shared use path proposal.		Fort Huachuca	Funding	Short-term

IMPACT EVALUATION

As an HIA is implemented, and if baseline information is established, it can be monitored and over time, the effectiveness of its recommendations can be evaluated. At the conclusion of an HIA, the assessment process can be also be evaluated.

MEETING OBJECTIVES OF HIA

The primary objective of this HIA was to inform the SVMPO and the municipal government in Sierra Vista about healthy transportation options and the health impacts of potential transportation improvements recommended by the SVMPO in various planning documents.

A secondary objective of the HIA was to build community partnerships and support for health-relevant transportation recommendations. This objective has been met. For example, the Be Healthy! Sierra Vista advocacy group can play a role in advocating for ways to improve public health in Sierra Vista, such as adopting policies to encourage active transportation. Partnerships were also forged with health officials on the Fort whom can advocate for similar policies on Fort Huachuca.

A third objective of this HIA was to raise community awareness about the relationship between health and transportation. This objective was met. At the public meetings many residents discussed the importance of transportation options to their individual health.

ACCEPTANCE OF RECOMMENDATIONS

This HIA will be presented for adoption to the Sierra Vista MPO and the Sierra Vista City Council. The report will be presented to Be Healthy! Sierra Vista and proposed for presentation to Fort Huachuca.

OTHER IMPACTS/OUTCOMES

Through presentations of this HIA to entities and agencies in the region, transportation stakeholders, health, and human services providers have become more aware of the value of conducting HIAs as part of the decision making process. In many cases, stakeholders only knew about HIA through classes or word of mouth. Participation in this process provided first-hand experience where stakeholders could experience the value of this process.

Participation in this HIA process by Cochise County Health and Social Services and other entities has increased the capacity for conducting future HIAs in this region, and resulted in Be Healthy! Sierra Vista becoming advocacy group for better community health.

July 26th 2016, the HIA was presented at a Sierra Vista City Council Workshop. The HIA will be presented to the SVMPO board for adoption or acceptance.

The City of Sierra Vista has secured grant funding from the Legacy Foundation of Southeast Arizona to hire a part-time coordinator that will assist the Sierra Vista MPO and City of Sierra Vista Community Development Department in monitoring and evaluation. In addition, the Sierra Vista MPO is anticipating establishing a Bicycle & Pedestrian Advisory Committee before the end of the year that will also assist the Sierra Vista MPO in monitoring and evaluation efforts.

PROCESS EVALUATION

RESOURCES

This HIA was funded by the Arizona Department of Health Services through a CDC grant. The HIA was conducted from February 2016 to July 2016. The determination to conduct this HIA was made by the Arizona Department of Health Services through a competitive grant process.

The HIA was conducted by a consultant working with the SVMPO and its consultants as they identified the linkages between recommendations made in SVMPO transportation planning documents and community health. Because the consultant and HIA recipient worked closely on the development of the application for funding for this HIA, the execution of the HIA continued with close involvement from the recipient and the consultant.

AVAILABILITY AND QUALITY OF DATA

There is limited health data available for the City of Sierra Vista. When possible, data specific to Sierra Vista was used, supplemented with county wide data. The 2012 Cochise County Community Health Assessment provided helpful information. Some studies by the Cochise County Department of Health provided additional support for other findings. In the future, data could be collected by health providers at the county and the Fort that could help document the impact of providing more healthy transportation facilities. For example, a baseline could be established regarding obesity and obesity related chronic disease citywide, and as healthy transportation improvements are constructed, monitoring of these occurrence of these conditions could occur.

PUBLIC ENGAGEMENT

Public meetings were attended to varying degrees, dependent on location, date, and time. While Be Healthy! Sierra Vista and the Sierra Vista MPO were actively engaged in the development of this HIA. The Cochise County Department of Health was actively engaged and participated in this HIA process in order to build capacity for conducting other HIAs throughout the county.

The involvement of community members and groups such as cycling groups, health care providers, and other advocacy groups with large county-wide constituencies was solicited through meetings, hosting tables at community wide events, and digital and print outreach. This HIA focused mostly on Sierra Vista and not on the Cochise County. As a result, many of the advocacy groups were only marginally interested in the outcomes of the HIA. Other groups, such as cycling groups, were supportive, but only in as much as the HIA was in keeping

with the very specific agendas of these groups (i.e., providing more recreational cycling trails). Connecting this HIA to the public engagement process and outcomes of a specific project may result in more engagement from stakeholders and the community..

Fort Huachuca staff were engaged throughout the process. New information for the Fort needed to be provided in a very specific format not supported by existing research. As a result, the Fort determined not to hear the results of this HIA. However, the HIA was provided to Fort Staff for review and comment. An HIA focused on specific projects at the Fort, supported with data from the Fort could potentially be of more interest to command at Fort Huachuca.

FORMULATION OF RECOMMENDATIONS

Recommendations in this HIA focused on providing implementation priorities for adopted plans such as the Sidewalk Implementation Plan and the Safe Bicycle and Pedestrian Routes Plan. The MPO requested that this HIA provide additional information regarding priorities for implementation of Plan recommendations. Priorities for this HIA with respect to these plans were developed based on vulnerable populations, and recommendations that could have the biggest impact on chronic disease that could be reduced through physical activity.

Additional recommendations incorporated public comment and ideas from research about how future planning, such as the zoning ordinance update, and in process plans such as the Fry Boulevard Corridor Study, could provide opportunities for physical activity city wide.

In some cases, such as the selection of priority areas for implementation of sidewalks, the HIA provided some recommendations that could impact the methodology through which priorities are developed. However, incorporation of these recommendations would required amendment of the Sidewalk Implementation Plan.

The recommendations in this HIA will be presented for adoption to the Sierra Vista City Council.

PROCESS EFFICACY

This HIA process resulted in an increase in the awareness of the relationship of health and physical activity and health and the Built Environment. Be Healthy! Sierra Vista had formally agreed to advocate for the implementation of this HIA. During the development of this HIA, county staff and staff from SVMPO participated in a training session to increase their ability to conduct HIAs. The county initiated a body mass survey. Surveys distributed at community presentations resulted in participants stating that they were more informed about the relationship between transportation and health. These surveys are located in Appendix E.

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NOTES

1. http://www.cdc.gov/healthyplaces/types_health_assessments.htm
2. Urban Land Institute. Ten Principles for Building Healthy Places. <http://uli.org/wp-content/uploads/ULI-Documents/10-Principles-for-Building-Healthy-Places.pdf>.
3. 3. Sidewalks: A Livability Fact Sheet. (n.d.). Retrieved from http://www.aarp.org/content/dam/aarp/livable-communities/documents-2014/Livability_Fact_Sheets/Sidewalks-Fact-Sheet.pdf
4. Litman, Todd Victoria Transport Policy for the American Public Transportation Association. Evaluating Public Transportation Health Benefits 14 June 2010 http://www.apta.com/resources/reportsandpublications/Documents/APTA_Health_Benefits_Litman.pdf
5. How Land Use and Transportation Systems Impact Public Health, A Literature Review of the Relationship Between Physical Activity and Built Form. <http://www.cdc.gov/nccdphp/dnpa/pdf/aces-workingpaper1.pdf>. Access Date July 5, 2016.
- 5a. Physical Activity and Health: A Report of the Surgeon General Physical Activity and Health: A Report of the Surgeon General. <http://www.cdc.gov/nccdphp/sgr/ataglan.htm>. Access date: July 5, 2016.
6. Flusche, Darren. The League of American Bicyclists. News from the League. January 23, 2010. <http://www.bikeleague.org/content/national-household-travel-survey-short-trips-analysis>
7. World Health Organization. Health Impact Assessment (HIA) . <http://www.who.int/hia/evidence/doh/en/>. Access date July 5, 2016.
8. Healthy People 2020. Determinants of Health. Retrieved June 22, 2015, from <https://www.healthypeople.gov/2020/about/foundation-health-measures/Determinants-of-Health#social>.
9. Chronic Disease Overview. CDC. <http://www.cdc.gov/chronicdisease/overview/>. Access date: July 5, 2016
10. Physical Activity and Health: A Report of the Surgeon General Physical Activity and Health: A Report of the Surgeon General. <http://www.cdc.gov/nccdphp/sgr/ataglan.htm>. Access date: July 5, 2016.
11. Pendall, Rolf, Hayes, Christopher, George, Arthur (Taz), McDade, Zac. Driving to Opportunity. Understanding Links among Transportation Access, Residential Outcomes, and Economic Opportunity for Housing Voucher Recipients.
12. Planning Complete Streets for an Aging America - AARP. (2015, April). Retrieved from http://www.aarp.org/home-garden/livable-communities/info-08-2009/Planning_Complete_Streets_for_an_Aging_America.html
13. American Community Survey. (2014). American FactFinder - Community Facts. Retrieved from http://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml Access date July 5, 2016
14. AAA fact sheet. senior driving.aaa.com. access date: July 5, 2016
15. FHWA NHTS Brief - Mobility Challenges for Households. (2014). Retrieved from <http://nhts.ornl.gov/briefs/PovertyBrief.pdf>
16. United States Census. (2010). American FactFinder - Community Facts. Retrieved from http://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml Access date February 2016.
17. 2012 American Community Survey 1-Year Estimates. U.S. Census. Sex By Age By Disability Status. B19101.
18. American FactFinder - Community Facts.
19. 2010-2014 American Community Survey 5-Year Estimates. Disability Characteristics. S1810. Access Date July 5, 2016.
20. Bureau of Transportation Statistics. Freedom to Travel. Data Analysis. http://www.rita.dot.gov/bts/sites/rita.dot.gov/bts/files/publications/freedom_to_travel/html/data_analysis.html. Access Date July 6, 2016.
21. American Fact Finder – Community Facts. Access Date July 6, 2016.
22. American Fact Finder. Health Insurance Coverage. 2010-2014 American Community Survey. S2701. Access Date July 5, 2016.

23. American Fact Finder – Community Facts. Access Date July 6, 2016.
24. AZDHS Leading Causes of Death. www.asdhs.gov/plan/report/ahs/ahs2013/pef/text2b.pdf. Access date July 5, 2016
25. Arizona Department of Health Services. (2009). ADHS Bureau of Public Health Statistics - Community Profiles Dashboard. Retrieved from <http://azdhs.gov/preparedness/public-health-statistics/profiles/index.php>
26. Robert Wood Johnson Foundation. (2016). Health Rankings | County Health Rankings & Roadmaps. Retrieved from <http://www.countyhealthrankings.org>. Access date July 5, 2016.
27. Ali, Mir M. Amialchuk, Aliaksandr, Heller, Lauren R. The Influence of Physical Activity on Cigarette Smoking among Adolescents: Evidence from Add Health. Oxford Journals. February 14, 2014.
28. Canadian Center for Addition and Mental Health. ADAPTT. Physical Activity and Smoking. Key Messages for Health Care Providers and Policy Makers. Fact sheet for healthcare providers.
29. Arizona Department of Health Services. (2009). ADHS Bureau of Public Health Statistics - Community Profiles Dashboard. Retrieved from <http://azdhs.gov/preparedness/public-health-statistics/profiles/index.php>
30. Robert Wood Johnson Foundation. (2016) Health Rankings | County Health Rankings & Roadmaps. Retrieved from <http://www.countyhealthrankings.org>. Access date July 4, 2016.
31. U.S. Department of Health. 2008 Physical Activity Guidelines for Americans Summary. <http://health.gov/paguidelines/guidelines/summary.aspx>. Access date July 5, 2016.
32. Warburton, Darren E.R. , Nicol, Crystal Whitney, Bredin, Shannon S.D. Health benefits of physical activity: the evidence. School of Human Kinetics, PMCID: PMC1402378. March 14, 2006.
33. WONG, D. J., & Unit, A. N. (2012, September 14). Rural America Fatter Than Urban America. Retrieved from <http://abcnews.go.com/Health/rural-america-fatter-urban-america/story?id=17231029>
34. Robert Wood Johnson Foundation. (2016) Health Rankings | County Health Rankings & Roadmaps. Retrieved from <http://www.countyhealthrankings.org>. Access date July 5, 2016.
35. Chow, E. A., MD, Foster, H., MD, Gonzales, V., MD, & Mciver, L., MD, MPH. (2012, July 30). The Disparate Impact of Diabetes on Racial/Ethnic Minority Populations | Clinical Diabetes. Retrieved from <http://clinical.diabetesjournals.org/content/30/3/130>
36. Arizona Department of Health Services. (2009). ADHS Bureau of Public Health Statistics - Community Profiles Dashboard. Retrieved from <http://azdhs.gov/preparedness/public-health-statistics/profiles/index.php>
37. Boyd, Amy, Yan, Celeste, et al. Feasibility of exercising adults with asthma: a randomized pilot study. PMCID: PMC3511803. Published online 2012 Aug 3. doi: 10.1186/1710-1492-8-13
38. Harvard T.H. Chan School of Public Health. (2016). Waist Size Matters | Obesity Prevention Source. Retrieved from <https://www.hsph.harvard.edu/obesity-prevention-source/obesity-definition/abdominal-obesity/>
39. American Fact Finder – Community Facts. Access Date July 6, 2016. Occupancy Characteristics. 2010-2014 American Community Survey. S2501.
40. Ellis Nutt, A. (2016, January 31). Loneliness grows from individual ache to public health hazard - The Washington Post. Retrieved from http://www.washingtonpost.com/national/health-science/loneliness-grows-from-individual-ache-to-public-health-hazard/2016/01/31/cf246c56-ba20-11e5-99f3-184bc379b12d_story.html
41. Robert Wood Johnson Foundation. (2016) Health Rankings | County Health Rankings & Roadmaps. Retrieved from <http://www.countyhealthrankings.org>. Access date July 5, 2016.
42. Bureau of Transportation Statistics. Freedom to Travel. http://www.rita.dot.gov/bts/sites/rita.dot.gov/bts/files/publications/freedom_to_travel/html/data_analysis.html.
43. AAA fact sheet. senior driving.aaa.com. access date: July 5, 2016
44. American Fact Finder. Household Size by Vehicles Available. 2010-2014. B08201.
45. Children's, Women's and Seniors' Health Branch, British Columbia Ministry of Health. (2004). Social Isolation Among Seniors: an emerging issue. Retrieved from http://www.health.gov.bc.ca/library/publications/year/2004/Social_Isolation_Among_Seniors.pdf

46. (Syed,Samina T., Gerber, Ben S., and Sharp, Lisa K. Journal of Community Health. Traveling Towards Disease: Transportation Barriers to Health Care Access. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4265215/>.)
47. Field, Marilyn J. and Jette, Alan M. Institute of Medicine (US) Committee on Disability in America. The Future of Disability in America. National Academies Press (US). 2007. ISBN-13: 978-0-309-10472-2
48. PolicyLink. (2013). Access to Healthy Food: Why it Matters. Retrieved from http://thefoodtrust.org/uploads/media_items/access-to-healthy-food.original.pdf
49. http://www.ers.usda.gov/dataFiles/Food_Access_Research_Atlas/Download_the_Data/Archived_Version/archived_documentation.pdf
50. Socio-Economic Significance of Food Deserts [Television series episode]. (2011, June 29). In PBS Newshour. PBS.
51. Bureau of Transportation Statistics. Household, Individual, and Vehicle Characteristics. Highlights of the 2001 National Travel Survey.
52. American Fact Finder – Community Facts. Access Date July 6, 2016.
53. Data provided by Fort Huachucha.
54. "Growing Obesity Rates in Military." The Washington Post. (n.d.). Retrieved from https://www.washingtonpost.com/world/national-security/growing-obesity-rates-in-military/2012/12/10/5a155a0c-4317-11e2-9648-a2c323a991d6_graphic.html
55. Data provided by Fort Huachucha.
56. Robert Wood Johnson Foundation. (2016) Health Rankings | County Health Rankings & Roadmaps. Retrieved from <http://www.countyhealthrankings.org>. Access date July 5, 2016.
57. Mayo Clinic. (n.d.). Depression and anxiety: Exercise eases symptoms - Mayo Clinic. Retrieved from <http://www.mayoclinic.org/diseases-conditions/depression/in-depth/depression-and-exercise/art-20046495>
58. Brownson, Ross C., Baker, Elizabeth A. Housemann, Robyn A, et al. Environmental and Policy Determinants of Physical Activity in the United States. American Journal of Public Health. December 2001. Vol. 91. No. 12.
59. Sidewalks Promote Walking | Bureau of Transportation Statistics. (n.d.). Retrieved from http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/special_reports_and_issue_briefs/issue_briefs/number_12/html/entire.html
60. Br Journal of Sports Medicine. (April 2007) Vol 41:9 pg 562-568 30. Retrieved from <http://bjsm.bmj.com/content/41/9/562.full.pdf>
61. American Fact Finder – Community Facts. Commuting Characteristics by Sex. 2010-2014 American Community Survey. 61S0801. Access Date July 6, 2016.
62. Portland Bureau of Transportation. Four types of Transportation Cyclists in Portland. (<http://www.portlandoregon.gov/transportation/article/158497>)
63. Abbey-Lambertz, K. (2016, June 16). Cyclists Shouldn't Have To Risk Their Lives Just To Use The Road. Retrieved from http://www.huffingtonpost.com/entry/kalamazoo-bike-crash-safety_us_575ea98ae4b0ced23ca882e6
64. Schmitt, A. (2012, October 22). Study: Protected Bike Lanes Reduce Injury Risk Up to 90 Percent | Streetsblog USA. Retrieved from <http://usa.streetsblog.org/2012/10/22/study-protected-bike-lanes-reduce-injury-risk-up-to-90-percent>
65. Federal Highway Administration University Course on Bicycle and Pedestrian Transportation. (2006, July). Publication No. FHWA-HRT-05-093. (2006, July). Retrieved from <http://www.fhwa.dot.gov/publications/research/safety/pedbike/05085/chapt5.cfm>

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APPENDIX A: COMMUNITY COMMENTS

FEBRUARY 7, 2016-SIERRA VISTA TAILGATE PARTY- HIA TABLE

On February 7, 2016, the HIA had a table at the first Sierra Vista Tailgate Party. This event was meant to get the community of Sierra Vista more involved in their surroundings. We saw this as a perfect opportunity to inform the community about the work of the HIA and what it means to Sierra Vista.

During the 6 hours that the event was held (from 10am-4pm) we were able to talk to about 50 people and explain how the HIA will inform policy decisions within the city, which will lead to a healthier Sierra Vista through changes in transportation. The community was very receptive and many thanked us for our efforts.

We also received several great ideas from residents. The following are some of the ideas:

- More activities for children.
- Create a splash park for kids in the downtown area, to get families out and about.
- The Canyon De Flores area does not have a park, but there is vacant land in the area that could be great for a park. See if the city owns the land and have the community develop it. It could be a great activity for the Eagle Scout troop.
- Love the bike paths, that's why we moved here. Add more and connect them throughout the city.
- Safer routes to schools would allow children to walk to school. See about adding more sidewalks that are not too close to the street.
- There is an issue with feral/wild dogs in the area, this is a big safety issue and a reason I will not let my children walk to school. What can we do about this?
- We need more shade trees that provide shade all year long on the multi-use paths. Fumes from cars can be shielded somewhat from these trees as well.
- Benches placed along the multi-use paths would allow people who cannot walk for long distances at a time to take a break while using the paths.
- There seems to be an issue with driver awareness and the multi-use paths. Drivers seems to be unaware of the roadway crossings of the paths. Installing a flashing light at the roadway crossing that is triggered when a walker or biker goes over a sensor in the path, would alert drivers to the people using the paths.

FROM APRIL 4, 2016 MEETING

- Sierra Vista HIA: Stakeholder Recommendations
- Food trucks that have groceries/healthy options as oppose to fast food parking on a regular basis.
- Textured sidewalks (brick) impair handicapped in chairs
- Need bike lanes from 7th Street to where markets are
- Bikes connection to markets through neighborhoods creates conflict
- Foothills to Avendia Cochese path on SR92 switches sides. Need path to create a loop
- Sierra Vista bus stopped going to Safeway so people have to walk all the way from Wilcox\
- Sidewalk overlay on google. Kmz
- Only 1 bus stop on Fry at Hastings
- More education about road sharing
- No safe place currently on Fry Blvd. for biking - should add bike lanes or multi-use paths
- No bike lanes in the city center
- Farmers market on weekends to deliver fresh produce/healthy food options
- Nothing to walk to near Herford- Put a grocery or loop on that side of Sierra Vista or another farmers market
- Create a produce booth where people can bring fresh produce
- Have people bring produce to community garden
- Need a walking path at veterans park
- Regularly scheduled walks in town- power walkers, mom group
- Bike paths at 7th street. Bike paths on SR92 - help people bike into base/centrally located
- Bike rental system - borrow a bike
- Have more community events

Appendix B:

The Relationship Between Health and Transportation

Physical activity is a key determinant of health. The more active an individual, the less likely she or he is to experience chronic obesity related diseases. The CDC states that physical activity doesn't need to be very strenuous for an individual to reap significant health benefits. Even small increases in light to moderate activity, equivalent to walking for about 30 minutes a day, will produce measurable benefits among those who are least active. One of the easiest ways to increase how much we walk is to change our travel behavior from automobile dependent to automobile-independent.

Over the past decades, community and transportation planners have begun to focus on the symbiotic relationship between community design and transportation. This focus has resulted in a shift from communities that offered few mobility choices to communities that provide non-motorized, transit-based, and automobile options. According to the Center for Disease Control and Prevention (CDC), Physical activity also helps you stay at a healthy weight, reduce stress, sleep better, and feel better overall, according to U.S. Health and Human Services guidelines. This is important because the National Health Interview Survey indicates that 53 percent of adult men and 64 percent of adult women never get more than 10 minutes of vigorous physical activity per week.

Communities that provide safe, convenient, and comfortable transportation choices enable people to choose a transportation mode that is appropriate to trip distance and other conditions, such as weather, time allotted for the trip, and the surrounding environment. Studies have shown that communities that offer healthy transportation options correlate with lower rates of obesity and other chronic disease.

A 2009 Robert Wood Johnson Foundation study¹ on the link between transportation, physical activity and obesity includes these findings:

- Most studies of children and adolescents indicate that walking or bicycling to school is

related to higher physical activity

- More and better-quality sidewalks are associated with adults having both higher rates of walking and of meeting physical activity recommendations, and with a lower likelihood of being overweight. Similarly, the presence of bicycle lanes and paths is positively related to cycling,⁶⁵ and to more adults meeting physical activity recommendations.
- A survey of more than 11,500 participants in 11 countries found that residents of neighborhoods with sidewalks on most streets were 47 percent more likely to get moderate-to-vigorous physical activity at least five days per week for at least 30 minutes each day than were residents of neighborhoods with sidewalks on few or no streets. A review of 16 studies found that people who reported having access to sidewalks were 20 percent more likely to be physically active than those reporting no access to sidewalks.
- The health benefits of regular physical activity are far-reaching: reduced risk of coronary heart disease, stroke, diabetes, and other chronic diseases; lower health care costs; and improved quality of life for people of all ages. Regular exercise provides the opportunity for health benefits for older adults such as a stronger heart, a more positive mental outlook, and an increased chance of remaining indefinitely independent—a benefit that will become increasingly important as our population ages in the coming years.
- Building multi-use trails can lead to short- and long-term increases in walking and cycling...Furthermore, trails have been shown to be particularly beneficial in promoting physical activity among women and people in lower-income areas.
- With few exceptions, living near trails or having trails in one's neighborhood has been associated with people being 50 percent more likely to meet physical activity guidelines and 73 percent to 80 percent more likely to bicycle. In a nationally representative study, individuals who reported using trails at least once per week were twice as likely to meet physical activity recommendations as were those who reported using trails rarely or never.
- In a sample of pre-adolescent girls, proximity to trails was related to 4.8 percent more physical activity and a 1.4 percent lower body mass index.

The study concludes that:

- A substantial body of research shows that certain aspects of the transportation infrastructure—public transit, green-ways and trails, sidewalks and safe street crossings near schools, bicycle paths, traffic-calming devices, and sidewalks that connect schools and homes to destinations—are associated with more walking and bicycling, greater physical activity and lower obesity rates.
- Beyond improving local travel options, transportation infrastructure investments that support physical activity can result in increased recreational opportunities, improvements to individuals' health and decreased health care costs. In combination with infrastructure investments, programs that raise awareness and complement pedestrian and bicycle facilities are promising options for supporting physical activity. Specifically, Safe Routes

to School programs and the management of traffic in local neighborhoods and around schools have been shown to affect physical activity among children, adolescents and adults.

- Fast vehicle traffic is a significant barrier and danger to bicyclists and pedestrians. Measures to slow down traffic and to help pedestrians negotiate busy streets can be effective in increasing physical activity and improving safety.
- Addressing the decades-long decline in walking and bicycling for transportation requires changing the physical characteristics of our communities. Federal, state and local policies and funding that support the type of infrastructure investments and programs identified in this brief can help slow and perhaps even reverse this decline.

NOTES:

(Active Living Research Active Transportation. Research Brief 9/09/. Making the Link from Transportation to Physical Activity and Obesity. Spring 2009. http://activelivingresearch.org/sites/default/files/ALR_Brief_ActiveTransportation_0.pdf. Access Date October 2, 2015.

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Appendix C:

Facts about

Obesity-related Chronic Disease

HEART DISEASE

The term “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 arrhythmias (Centers for Disease Control and Prevention [CDC], 2009). Coronary artery disease is caused when cholesterol is deposited along the walls of the coronary arteries (the arteries which supply blood to the heart), creating a build up of plaque and narrowing the blood supply available to the heart (Centers for Disease Control and Prevention [CDC], 2013). As the buildup of plaque continues and the heart muscle continues to get insufficient blood supply, the heart will eventually stop pumping, which is commonly called a heart attack (Centers for Disease Control and Prevention [CDC], 2013).

Most heart disease can be prevented by eating a healthy, high fiber diet, consisting of plenty of fruits and vegetables, and foods low in sodium and saturated fat. Another 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 will have a significantly lower risk of developing heart disease.

Source: Centers for Disease Control and Prevention [CDC], 2013

BMI

A healthy body weight is determined by ratio between height and weight, also called Body Mass Index (BMI.) 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. BMI for youth is calculated as 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 considered some of the leading causes of preventable death in the United States. Obesity and the resulting health conditions cost \$147 billion annually according to figures amassed in 2008. An individual’s likelihood of becoming obese is influenced by three main factors: genetic characteristics, individual behaviors and their living and work environments.

Because weight and height change during growth and development, as does their relation to body fatness, a child’s BMI must be interpreted relative to other children of the same sex and age.

Source: (Centers for Disease Control and Prevention [CDC], 2014)

DIABETES

In the United States, diabetes is the seventh leading cause of death and is responsible for a myriad of other health problems. Complications from diabetes include, neuropathy (nerve damage), problems with the eyes/blindness, heart disease, kidney disease, high blood pressure, stroke and lower extremity amputation (Centers for Disease Control and Prevention [CDC], 2015) (American Diabetes Association, N.D.). 9.3% of the population in the United States, or 29.1 million people currently have diabetes, with 8.1 % being undiagnosed and unaware of their condition.

Source: Centers for Disease Control and Prevention [CDC], 2014).

HYPERTENSION

Hypertension is often called the “silent killer” because it has no obvious warning signs or symptoms (Centers for Disease Control and Prevention [CDC], 2015). 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, in comparison with the Arizona state average of 299.5 residents per 100,000

Source: Arizona Department of Health Services [ADHS], Bureau of Public Health Statistics, 2013

Appendix D:

Stakeholder Engagement Plan

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HEALTH IMPACT ASSESSMENT COMMUNITY AND STAKEHOLDER ENGAGEMENT

SIERRA VISTA, ARIZONA

MARCH 9, 2016

PROCESS OVERSIGHT

Stakeholder Engagement Activities	Format / Methodology	Purpose / Desired Outcome	Desired Participants	Proposed Date
Meetings to take place every other week with project team	<ul style="list-style-type: none"> • Telephonic monthly • Written, provided with invoice • Regular team meetings with ADHS and SVMPO 	Ongoing project communication	<ul style="list-style-type: none"> • ADHS • SVMPO • Sierra Vista City Council 	Ongoing, monthly

The oversight process is intended to be used throughout all the stages of the HIA

SCREENING

Stakeholder Engagement Activities	Format / Methodology	Purpose / Desired Outcome	Desired Participants	Proposed Date
<p>Collaborate with SVMPO</p> <p>Coordinate with Fort Huachuca base health officer as well as medical professional practicing at local hospitals</p>	<ul style="list-style-type: none"> Contact medical professionals, Fort Huachuca's (Base) health officer and medical staff, and community leaders to request their participation in HIA Steering Committee and evaluate who else could contribute 	<ul style="list-style-type: none"> Determine if the MPO has capacity to support/provide data for HIA 	<ul style="list-style-type: none"> SVMPO Steering Committee Fort Huachuca Base Health Officer and related staff Gwen Calhoon, (Sierra Vista City Council) 	Grant Application Due Date
<p>Examine opportunities for coordination with other, ongoing efforts such as Be Healthy! Sierra Vista and Medical Center</p>	<p>Contact Cochise County Health and Social Services to determine level of participation</p>	<ul style="list-style-type: none"> Determine level of interest in HIA within the health community Engage potential entities that can assist in implementation. Develop potential support for conducting the HIA 	<ul style="list-style-type: none"> Be Healthy! Sierra Vista Other community health entities (Canyon Vista and Sierra Vista Medical Centers) 	Grant Application Due Date

Deciding whether an HIA is needed, feasible, and relevant



SCOPING

Stakeholder Engagement Activities	Format / Methodology	Purpose / Desired Outcome	Desired Participants	Proposed Date
Solicit input from the community and Steering Committee and other health providers about important health issues	Present information to the Steering Committee on the relationship between community health and community design	Engage the City Council and MPO in providing transportation improvements that benefit health	<ul style="list-style-type: none"> • SVMPO Steering Committee • Cochise County Health and Social Services (Rosa Vickers) • Community members • Canyon Vista Medical Center • Sierra Vista Medical Group • Raymond W. Bliss Army Health Center • Hospice Centers • Sierra Vista Unified School District (SVUSD) 	<ul style="list-style-type: none"> • Jan. 28, 2016 (Steering Committee and Community) • Feb. 7, 2016 Super Bowl tail-gate event
Research other studies to determine key health issues that might not be apparent to the community	Contact senior centers and hospices to understand elderly health needs	Determine health impacts to study relating to transportation	<div>Deciding which health impacts to evaluate and evaluation methodology</div>	

SCOPING

Stakeholder Engagement Activities	Format / Methodology	Purpose / Desired Outcome	Desired Participants	Proposed Date
Educate the community about the relationship between community design and health	<ul style="list-style-type: none"> • Host a project website • Increase Awareness of Community Health by: <ul style="list-style-type: none"> • Publishing article (s) in the local newspaper with Sierra Vista health facts and the address of the HIA website • Measure public opinion on health concerns by: <ul style="list-style-type: none"> • Providing information and opportunities to talk about health at community events • Put a survey about community health concerns on the project website. 	<ul style="list-style-type: none"> • Expand the number of stakeholders so the entire community can participate in identifying health impacts • Raise Community awareness about the benefits of an HIA • Promote Civic activity and pride • Promote community partnerships 	Community members	<ul style="list-style-type: none"> • Jan. 28, 2016 (Steering Committee and Community) • Feb. 7, 2016 Super Bowl tail-gate event

ASSESSMENT

Stakeholder Engagement Activities	Format / Methodology	Purpose / Desired Outcome	Desired Participants	Proposed Date
Objectively assess Impact of non-motorized Transportation on Community Health Concerns	<ul style="list-style-type: none"> Work with local Councils of Government, hospitals, Health Departments to obtain, identify and analyze data and verify data sources Asking Steering Committee to identify data resources Asking the community how non-motorized transportation can benefit health Examining with other HIAs to identify best practices for analysis 	<ul style="list-style-type: none"> Build fact based support for the connection between physical activity (i.e. non-motorized transportation) and positive health outcomes Provide documentation for use to solicit grants and other funding Document intuitive expectations with fact 	<ul style="list-style-type: none"> SVMPO Be Healthy! Sierra Vista Cochise Health & Social Services SVUSD Sierra Vista Medical Group Canyon Vista Medical Center Raymond W. Bliss Army Health Center 	<ul style="list-style-type: none"> Jan. 28, 2016 Steering Committee and Community meetings Feb. 7, 2016 Super Bowl tailgate April 7, 2016 Steering Committee, Be Healthy! Sierra Vista Meeting
Subjectively assess Impact of non-motorized Transportation on Community Health Concerns	<ul style="list-style-type: none"> Ask the Community by Hosting a Health Impact Assessment Table at Community Events Asking people about health concerns at a public meeting on the HIA 	Understand what types of non-motorized transportation will best impact community health issues	Community Members	<ul style="list-style-type: none"> April 7, 2016 Community meeting

Using data, research and analysis to determine the magnitude and direction of potential health impact; offering recommendations to improve health conditions

RECOMMENDATIONS

Stakeholder Engagement Activities	Format / Methodology	Purpose / Desired Outcome	Desired Participants	Proposed Date
Solicit and present ideas about to implement healthy transportation	<ul style="list-style-type: none"> • Present recommendations at a Steering Committee Meeting • Present recommendations at a Be Healthy! Sierra Vista • Present recommendations at a Community Meeting 	<ul style="list-style-type: none"> • Solicit feedback on draft recommendations and refine them for inclusion in final HIA • Develop support for recommendations and potentially identify options for implementation • Initiate partnerships for recommendations 	<ul style="list-style-type: none"> • Community • Steering Committee • Be Healthy! Sierra Vista • Fort Huachuca, Raymond W. Bliss Army Health Center • Sierra Vista Medical Group and other private medical providers • Community members 	April 7, 2016 Steering Committee, Be Healthy! Sierra Vista, and Community Meetings

Providing recommendations to manage the identified health impacts

ASSESSMENT

Stakeholder Engagement Activities	Format / Methodology	Purpose / Desired Outcome	Desired Participants	Proposed Date
Present Final Report	<ul style="list-style-type: none"> • Present final report to SVM-PO Board • Present final report to Sierra Vista City Council • Present report at meeting of Be Healthy! Sierra Vista • Present report at a community meeting • Publish recommendations in local paper and on web site. 	<ul style="list-style-type: none"> • Increase awareness of HIA recommendations • Develop support for recommendations and develop community support for their implementation • Identify potential support for short, medium, and long term recommendations • Increase awareness of the connection between physical activity and community design • Identify potential partnerships for implementation 	<ul style="list-style-type: none"> • SVMPO, Steering Committee • Community • SVUSD • Fort Huachuca, Raymond W. Bliss Army Health Center • Sierra Vista Medical Group • Community 	<ul style="list-style-type: none"> • 3rd Meeting of HIA Steering Committee
Provide final report	<ul style="list-style-type: none"> • Provide digital copy of the report to: <ul style="list-style-type: none"> • SVMPO • Be Healthy! Sierra Vista • County Health Department • City of Sierra Vista Planning Department 			At completion of project

Sharing the results, recommendations

MONITORING / EVALUATION

Stakeholder Engagement Activities	Format / Methodology	Purpose / Desired Outcome	Desired Participants	Proposed Date
Present regular updates indicating progress of the HIA	In person presentations at public meetings	Adoption of policies which increase rates of non-motorized transportation use, in order to improve health outcomes	<ul style="list-style-type: none"> • Be Healthy Sierra Vista • Community • Fort Huachuca • SVMPA 	After completion of HIA
Keep public and stakeholders informed	Partner with other communal organizations/communal leaders	Progress should be made available to the general public	Community	After completion of HIA

Tracking how the HIA affects the decision and its outcomes

APPENDIX E: Process Evaluation

meeting	page
JANUARY 20, 2016 KICK OFF MEETING	APPENDIX E-1
FEBRUARY 7, 2016 TAILGATE	APPENDIX E - 3
APRIL 7, 2016 STAKEHOLDERS AND STEERING COMMITTEE MEETINGS	APPENDIX E - 5
JULY 26, 2016 PRESENTATION TO SIERRA VISTA CITY COUNCIL	APPENDIX E - 11

JANUARY 20, 2016 KICK OFF MEETING

HEALTH IMPACT ASSESSMENT

Sierra Vista

Non-motorized Transportation



Project

Examine how non-motorized transportation facilities in Sierra Vista can result in a Healthier Community.

- Projects that can be informed about the intersection between health and transportation
 - Fry Boulevard design
 - North Garden Ave. design
 - Implementation of Sidewalk Implementation Plan (benefits of filling in the gaps in the sidewalk system).
 - Policy changes in City development code update.
 - School crosswalk policy updates.
 - Inform infrastructure planning at the Base



Project

Other Benefits

- Provide HIA capacity for County Health Department officials
- Identify areas for Healthy Transportation advocacy and activities



Presentation Outline

1. What is Community Health?
2. Purpose of a Health Impact Assessment (HIA)
3. Connection of Parks and Recreation to Transportation (Healthy Transportation)
4. Health Impact Assessment Process
5. Community Engagement
6. Data collection
7. Your ideas and questions



What is Community Health?



What Influences our Health?

Genetics
& Biology
10%



Physical Environment (10%)



Clinical Care (10%)



Health Behaviors (30%)



Social and Economic (30%)



Healthy Transportation

ACTIVE TRANSPORTATION



An HIA is.....

A structured, but flexible, process that:

- **Evaluates impacts of a proposed project or policy on the determinants of Health;**

AND provides information on:

- **UNanticipated future health outcomes of a decision/project;**

AND offers to decision-makers:

- **Balanced, well-informed and community-based recommendations that result in positive health outcomes or mitigate anticipated negative health outcomes of a proposed decision or project.**



An HIA is NOT USED.....

- To **STOP** a policy, plan, program or project
- To assess impacts **AFTER** implementation
- As a community assessment tool



Results From HIAs

Provides an assessment the multiple influences on community health that can occur as a result of social, economic, and environmental changes that could occur as a result of the proposal.



Source: http://www.cdc.gov/healthyplaces/types_health_assessments.htm



PLANet

Results From HIAs

Informed deliberations regarding from a public health perspective on a specific proposed activity or policy.



Source: http://www.cdc.gov/healthyplaces/types_health_assessments.htm



PLANet

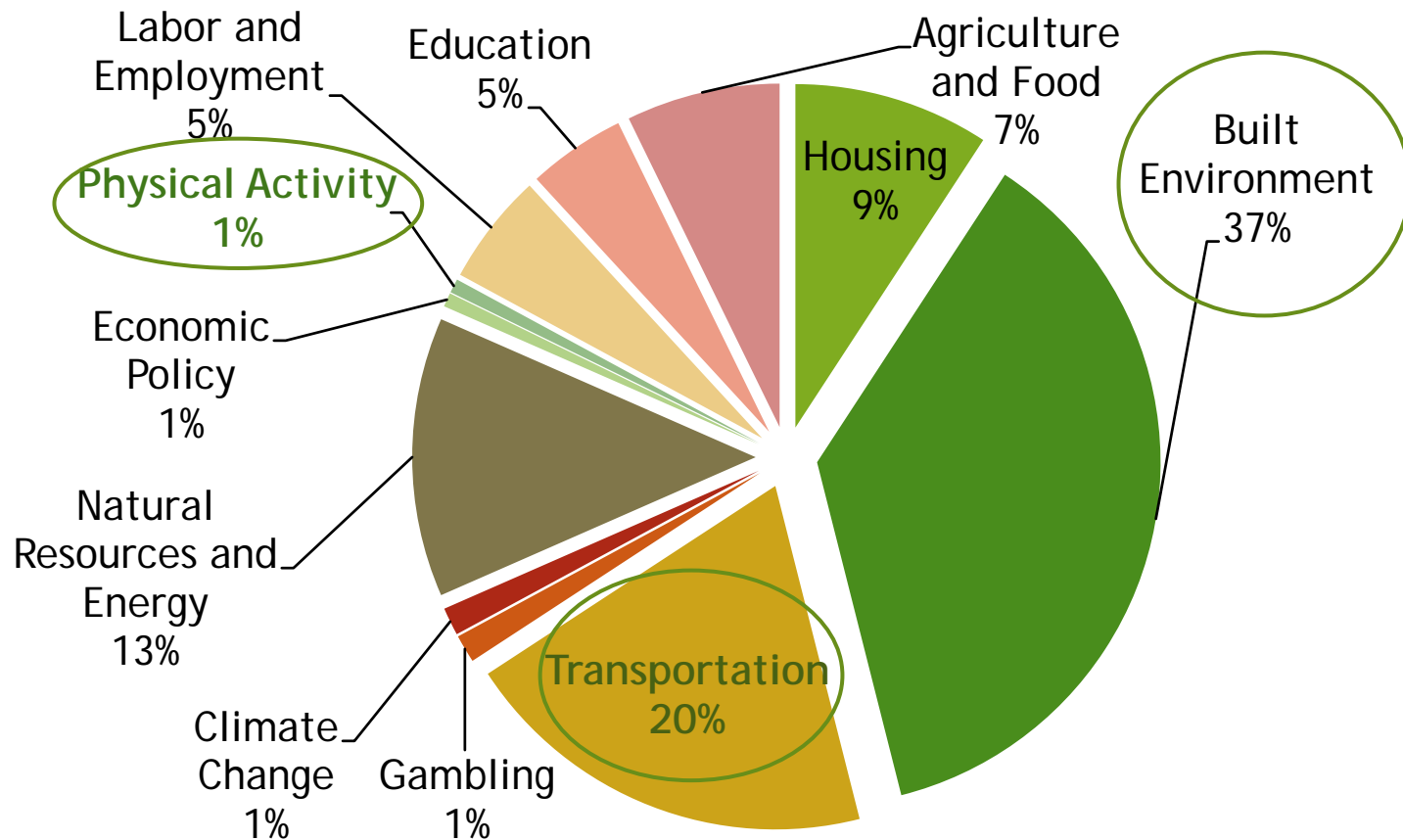
Results From HIAs

- Broadened and informed community discussion about the factors that influence individual behaviors affecting health
- Recommendations to decision makers to benefit community health
- Identification of leveraged opportunities to encourage changes in individual behaviors that cumulatively result in enhanced community well-being.



HIAs: A Broad Range of Topics

TOPICS ADDRESSED BY HIAS (NATION WIDE)



HIA Benefits

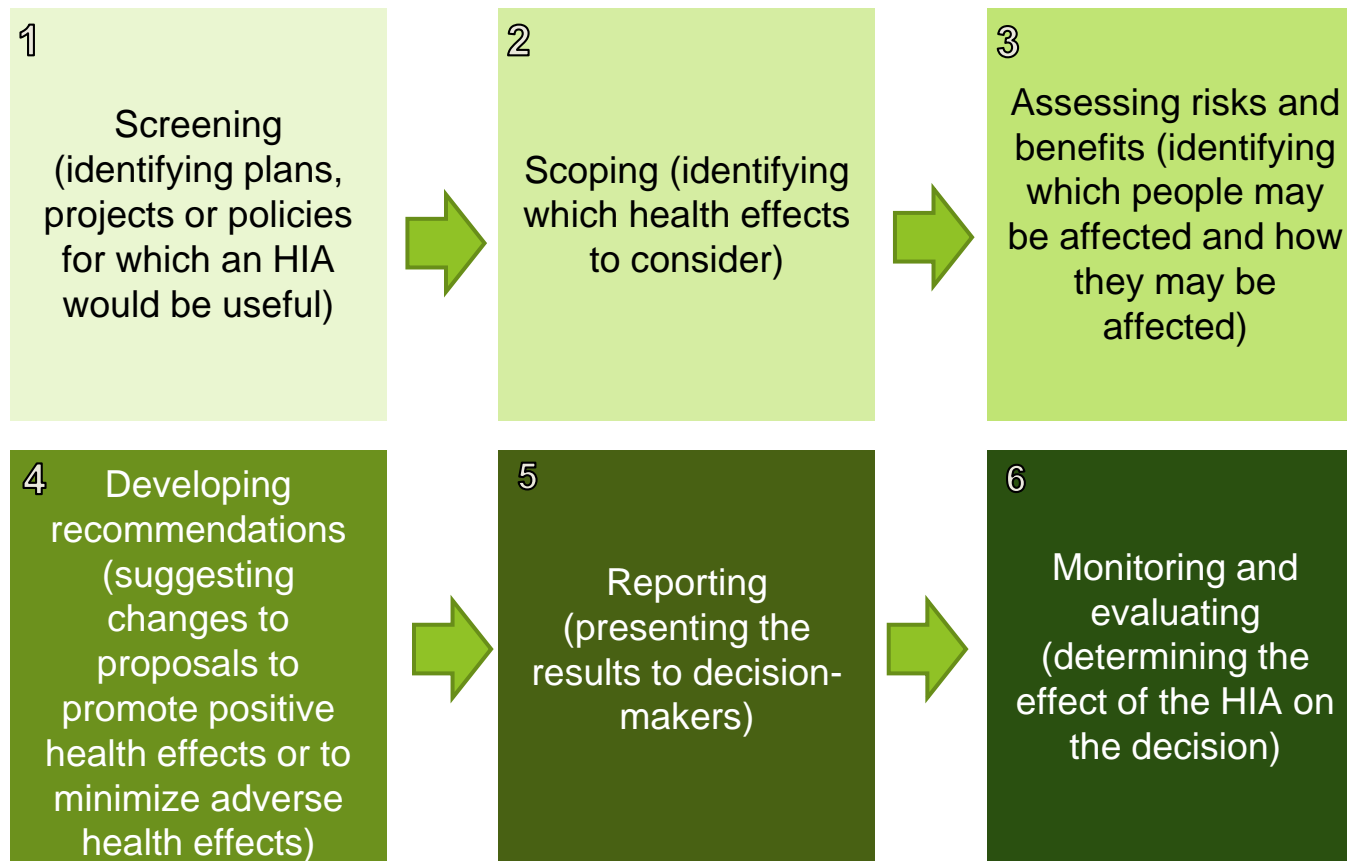
Conditions in the places where we live, work and play have a tremendous impact on Americans' health.

The benefits of this HIA will be to:

- Leverage transportation to contribute to community health
- Help to identify access barriers to physical activity
- Identify recommendations to design transportation facilities and support non-motorized transportation that will provide opportunities for increased physical activity



HIA Process



Source: Centers for Disease Control



HIA Data Sources

- Community Engagement
- Stakeholder meetings
- Community Health surveys
- County Health Assessments
- Transportation Studies
- Census
- Other?



Your Ideas and Questions

- What community health concerns do you have?
- How do you think this project could impact community health?
- What would you like to see this HIA accomplish?
 - Improve community awareness of relationship between transportation and health
 - Consider health in transportation design and planning
 - Provide transportation facilities that benefit the health of entire Sierra Vista region
 - Educate the decision-makers about the connection between parks and health
- Are there other studies/projects that could inform this HIA?



FEBRUARY 7, 2016 TAILGATE





Let's Make Sierra Vista Healthy!

The Sierra Vista Metropolitan Planning Association is assessing the health impacts of providing:

- A connected sidewalk system;
- Pedestrian and bicycle improvements along West Fry Boulevard and North Garden Ave.;
- School crosswalk policy updates; and
- Other healthy transportation options

Your participation in this process is important!

JOIN THE CONVERSATION!

Tell us how better and more sidewalks and bike lanes could impact your health! How could updating the school crosswalk policy affect community health? What other types of healthy transportation options would benefit the community?

Share your ideas on the project web site by:

- Scanning the image

OR

- Visiting the website:

<http://svhia.mysidewalk.com>



For more information contact Dan Coxworth, Administrator, Sierra Vista MPO
Telephone: 520.439.2178. **Email:** dan.coxworth@sierravistaaz.gov

Benefits of Healthy Transportation

" When neighborhoods have sidewalks and bicycle lanes, streets are well lit, and people who walk are shielded from traffic, residents are often found to have higher physical activity."

Source Role of built Environments in Physical Activity, Obesity, and Cardiovascular Disease. James F. Sallis Ph.D. et al.

Individual Health Benefits of Walking 30 Minutes a Day






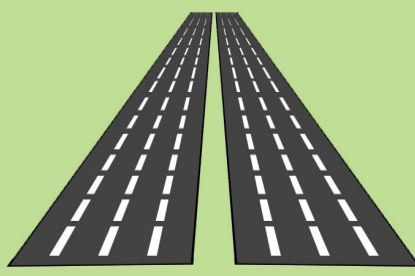



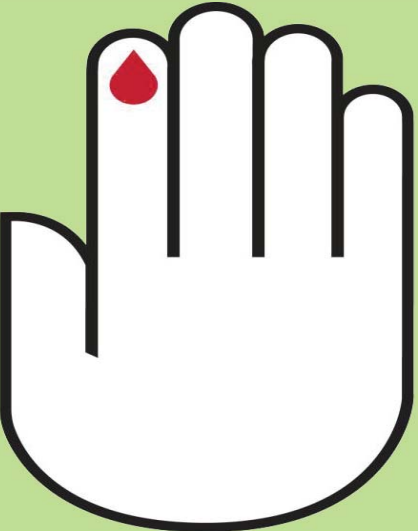


- Weight Control
- Reduce Risk of Cardiovascular Disease
- Reduce Risk of Type 2 Diabetes
- Reduce Risk of Some Types of Cancer
- Strengthens Bones and Muscles
- Improves Mental Health and Mood
- Improves Ability to Perform Daily Activities
- Prevents Falls
- Increases Chances of Living Longer
- Improves Blood Sugar Levels

Community Health Benefits from a Pedestrian Environment

- Increased Economic Vitality
- Increased Sense of Community and Community Interactions
- Reduced Short Distance/Short Trip Traffic
- Mid-block crossings/increased safety
- Connects destinations at intersections and along the roadway

- Positively Affects
- Negatively Affects

How Can Transportation Affect Community Health in the Sierra Vista Area?

	 Mid-block Crossings	 Convenient Transit	 Bicycle Paths & Lanes	 Sidewalks	 Shade/ Benches at along sidewalks	 Wider / Faster Roadways	 Connected Intersections and Developments	 Safe Routes To School Programs
Individual Health Benefits	 Obesity							
 Diabetes								
 Heart Disease								
 Community								

Your Ideas?

How Can Walking & Biking Help?

Promote Physical Activity and Health

Examples:



Safe-Routes to School

Disconnected sidewalks & bike lanes along routes that children use to walk to school and parks are unsafe. If these routes become safer, parents are more likely to allow their children to walk or bike, increasing physical activity.



Reduced Isolation

Isolation is associated with depression, substance abuse, and alcoholism. When people walk, bike, or take transit, the opportunities for connecting with other people in the community is increased.



Foot-Traffic for Business

Foot-traffic along commercial areas can bring an up-tick of economic activity. If businesses do better, jobs are created, and incomes can rise.



Mobility for More People

Some residents of Sierra Vista do not have access to a car or are unable to drive. Without access to connected sidewalks, bike-lanes, or transit, people can become isolated and have difficulty reaching services they need to live. Connected sidewalks, bike-lanes and transit provide healthy and affordable transportation options for people without cars.



Walking and biking is a great way for people of all ages to get their recommended amount of physical activity.

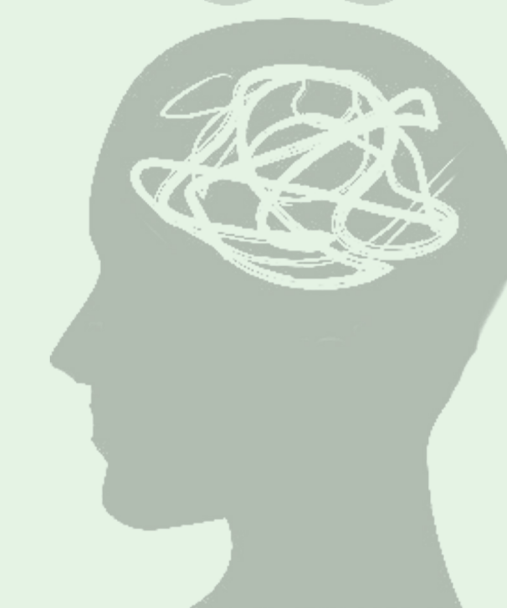
Means of Physical Activity

Community Health

Physical Health: Non-motorized transportation provides an opportunity for Sierra Vista to engage in physical activity, such as walking and bicycling. Engaging in physical activity can reduce rates of obesity and chronic disease.

Mental Health: Physical Activity via non-motorized transportation reduce isolation and strengthen the sense of community, Physical activity can reduce depression, substance abuse, and suicide rates.

Social/Economic Health: Pedestrian-oriented streets can increase foot-traffic near businesses, helping the local economy. Also, with more people out and about opportunities for social engagement increase.



What Are Your Ideas?



Walking & Biking Provide:

**APRIL 7, 2016
STAKEHODLERS
AND
STEERING COMMITTEE
MEETINGS**

Leslie Dornfeld

From: Dan Coxworth <Dan.Coxworth@SIERRAVISTAAZ.GOV>
Sent: Monday, April 4, 2016 8:45 AM
To: leslie
Subject: Fwd: Input sought on health and transportation, Vistas highlights community health, and the Cultural Heritage Celebration is set for Saturday

For your records. City sent this out this morning.

Sent from my Verizon Wireless 4G LTE smartphone

----- Original message -----

From: City of Sierra Vista <pio@sierravistaaz.gov>
Date: 04/04/2016 6:01 AM (GMT-07:00)
To: Dan Coxworth <Dan.Coxworth@SIERRAVISTAAZ.GOV>
Subject: Input sought on health and transportation, Vistas highlights community health, and the Cultural Heritage Celebration is set for Saturday



Moving Forward Input sought on health and transportation

Local residents are invited to provide input on how to make Sierra Vista a healthier community through transportation. This Transportation Health Impact Assessment is taking a look at how Sierra Vista can add to its existing system of multi-use paths, bike lanes, and other transportation facilities that will improve the health of residents.



Citizens can offer their thoughts on this process [online](#) or by attending a public meeting set for April 7, from 1:00 to 2:00 p.m. at the Sierra Vista Public Library's Mona Bishop Room. The ideas gathered from the public will inform the development of the Sierra Vista Health Impact Assessment, which is being conducted by the Sierra Vista Metropolitan Planning Organization in coordination with the Arizona Department of Health Services. For more information on the assessment, please contact Sierra Vista Metropolitan Planning Organization Administrator [Dan Coxworth](#) at (520) 439-2178.

This assessment promises to build on significant work the City has already done to improve various transportation options in Sierra Vista. This includes a network of nearly 30 miles of multi-use paths and many bike lanes that help residents get around. To start exploring the City's paths, bike lanes, and bicycle-friendly routes around town, check out our [Bicycle and Multi-Use Paths Map](#), which is available for free at City facilities like the Sierra Vista Public Library, the Sierra Vista Aquatic Center "The Cove," and the Oscar Yrun Community Center.



City Spotlight VISTAS highlights health

One of the best aspects of Sierra Vista is that residents can get out and enjoy an active lifestyle year-round. Still, spring is a special time of year when the landscape begins to transform, wildlife becomes more active, and the weather is at its most inviting.

That makes it a perfect time to talk about how we cultivate a healthy community, which is just what our [April/May issue of Vistas](#) highlights. Hitting newsstands last Wednesday, the spring issue touches on the

many amenities, programs, activities, events, and partnerships that help make Sierra Vista such an active, healthy place to call home. That also translates into some economic development opportunities, as a healthy community is attractive to businesses that need to locate somewhere their employees want to live. It's also great from a tourism standpoint, as cyclists, mountain bikers, hikers, birders, and even climbers travel to Sierra Vista for its outstanding outdoor recreational opportunities.

As usual, *Vistas* is teeming with events, activities, sports, and classes that will give you ideas of new ways to enjoy the wonderful spring weather. You can pick up your free copy today at the Sierra Vista Public Library, City Hall, the Oscar Yrun Community Center, the Ethel H. Berger Center, or the Sierra Vista Aquatic Center "The Cove."

Extraordinary Outings

Thanks to the many families who have relocated to Fort Huachuca from around the world, Sierra Vista is a melting pot of many different cultures. Members of the public are invited to come celebrate the many different people who make up our community during the [Cultural Heritage Celebration](#) on Saturday, April 9, at Buena High School from 10:00 a.m. to 3:00 p.m.

This free event will feature exhibits, ethnic cuisine, and multi-cultural entertainment throughout the day. There will be free gifts for children and raffle tickets available for some great prizes. The event is sponsored by the Cultural Diversity Commission. For more information, contact [Laura Killberg](#) at (520) 439-2310.



Uncommon Recreation

Spring has arrived and with it comes America's greatest pastime. On Sunday, April 10, you can take a trip to Phoenix and watch the Arizona Diamondbacks play the Chicago Cubs. The best part? We'll take care of the driving!

Join us the first [Diamondbacks Baseball Game Trip](#) of 2016. The \$60 cost covers transportation and admission to the game with reserved seats. The trip is open to all ages but anyone under 18

must be accompanied by an adult.

Be sure to [register](#) soon! For more information, call (520) 458-7922.

Upcoming events

- [AARP Tax-aide](#) - Monday-Friday, 10:00 a.m.-2:00 p.m. until April 18.
- [Amazing Arizona - Arizona Rangers Past and Present](#) - Tuesday, April 5, 1:00 p.m.-end.
- [Sierra Vista Genealogy "Genie" Club](#) - Wednesday, April 6, 1:00 p.m.-4:00 p.m.
- [Movie Matinee](#) - Wednesday, April 6, 1:00 p.m.-end
- [Advanced Spanish](#) - Wednesday, April 6, 2:00-3:00 p.m.
- [Beginning Spanish](#) - Wednesday, April 6, 3:00-4:00 p.m.
- [City Council Meet and Greet](#) - Thursday, April 7, 10:00-11:30 a.m.
- [Transportation Health Impact Assessment Public Meeting](#) - Thursday, April 7, 1:00-2:00 p.m.
- [Digital Device Drop-in](#) - Thursday, April 7, 2:00-3:00 p.m.
- [Active Adults: Good Cookin' Potluck Lunches](#) - Friday, April 8, noon-1:30 p.m.
- [Star Party at Montezuma Pass](#) - Friday, April 8, 7:00-9:00 p.m.
- [Library After Dark: Bad Movie Night Featuring "Sharknado"](#) - Friday, April 8, 7:00-8:45 p.m.
- [FSPR Guided History Walk: Millville Ruins and Petroglyphs](#) - Saturday, April 9, 9:00 a.m.-end
- [Friends of the Library Book Sale](#) - Saturday, April 9, 10:00 a.m.-4:00 p.m.
- [Cultural Heritage Celebration](#) - Saturday, April 9, 10:00 a.m.-3:00 p.m.
- [Coronado National Memorial Ranger-led Tour: Coronado Cave](#) - Saturday, April 9, 10:00 a.m.-end.
- [Water Conservation Through Container Gardening](#) - Saturday, April 9, 10:30 a.m.-end.
- [Coronado National Memorial Ranger-led Hike: Coronado Peak](#) - Saturday, April 9, 2:00 p.m.-end.
- [Hummingbird Banding Session at the San Pedro House](#) - Saturday, April 9, 4:00-6:00 p.m.
- [Diamondbacks Baseball Game Trip](#) - Sunday, April 10, 9:00 a.m.-9:00 p.m.



Instagram Peek of the Week

Thanks to Denise Holmes for sharing this photo of her and Bill and Karen Guinn showing off their Sierra Vista sunglasses at the westernmost point of continental Europe, Cabo Da Roca in Portugal. What a spot for a #SierraVistaSelfie!

City Announcements

There are no City announcements this week.

Recent Business Licenses

There are no new business licenses to report this week.

Upcoming Meetings

City Council meetings

- [City Council Work Session](#) - Tuesday, April 5, 3:00 p.m.

Commission meetings

For info on City commissions and when they meet head [here](#).

Channel 12/Online

Check online to see a [daily television broadcasting schedule](#), [stream City Council meetings live](#), or [watch previous meetings](#).

Accommodations

For any special needs or accommodations, please notify Jenifer Thornton 72 hours prior to the meeting date. Reach Thornton at 458-3315 or through the Arizona Relay Service at 7-1-1.

STAY CONNECTED:



City of Sierra Vista | Economic Development Sierra Vista, City of Sierra Vista,
1011 N. Coronado Ave., Sierra Vista, AZ 85365

[SafeUnsubscribe™ dan.coxworth@sierravistaaz.gov](#)

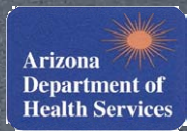
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Try it free today

Sierra Vista MPO Non-Motorized Transportation Health Impact Assessment 2016



What is a Health Impact Assessment?

- **WHAT:** To inform, from a public health perspective, recommendations and/or decisions resulting from a specific policy, plan, or project.
- **WHY:** Broaden the discussion of improving health beyond individual health and behaviors by considering social, economic, and environmental factors that impact and enhance community health and well-being.
- **HOW:** Assess the multiple influences on community health that can occur as a result of social, economic, and environmental changes that could occur as a result of the proposal.

Source: http://www.cdc.gov/healthyplaces/types_health_assessments.htm
Picture from www.pewtrust.org

The Steps of HIA	
1. SCREENING	↓ Determine whether an HIA is needed and likely to be useful.
2. SCOPING	↓ In consultation with stakeholders, develop a plan for the HIA, including the identification of potential health risks and benefits.
3. ASSESSMENT	↓ Describe the baseline health of affected communities and assess the potential impacts of the decision.
4. RECOMMENDATIONS	↓ Develop practical solutions that can be implemented within the political, economic or technical limitations of the project or policy being assessed.
5. REPORTING	↓ Disseminate the findings to decision makers, affected communities and other stakeholders.
6. MONITORING AND EVALUATION	Monitor the changes in health or health risk factors and evaluate the efficacy of the measures that are implemented and the HIA process as a whole.

Purpose of this HIA

- Identify how non-motorized transportation options can impact Community Health Concerns identified through public outreach:
 - *Obesity and related chronic diseases such as diabetes and hypertension*
 - *Asthma*
 - *Isolation/Depression/Substance Abuse.*
- Inform decision-making related to transportation and land use planning in Sierra Vista
- Educate the community about the intersection between active transportation and their health.
- Inform implementation of SVMPO's Safe Bicycle and Pedestrian Routes Plan, Sidewalk Implementation Plan, and other projects (i.e. zoning ordinance update).



Health & Transportation

- Physically Active People live longer and have lower risks for heart disease, stroke, type 2 diabetes, depression, and some cancers. ⁽²⁾
- Regular participation in aerobic exercise (such as walking) decreases overall levels of tension, elevate and stabilize mood, improve sleep, and improve self-esteem. ⁽⁶⁾
- People with depression generally have lower fitness levels. ⁽⁷⁾



(1) CDC.gov

(2) CDC- <http://www.cdc.gov/healthypplaces/healthtopics/physactivity.htm>

(3) NHTSA 2009 – Bicycling and Walking in the U.S. 2016

(4) Bicycling and Walking in the U.S. 2016

(5) Role of Built Environments in Physical Activity, Obesity, and Cardiovascular Disease. [James F. Sallis](#), PhD; [Myron F. Floyd](#), PhD; [Daniel A. Rodríguez](#), PhD; [Brian E. Saelens](#), PhD

(6) <http://www.adaa.org/understanding-anxiety/related-illnesses/other-related-conditions/stress/physical-activity-reduces-st>

(7) <https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/depression-and-exercise>

(8) <http://archives.drugabuse.gov/StressAlert/stressalert.html>

Health & Transportation Challenges

- Most people drive or take transit. On average, in the U.S. only 1 in 10 trips involve active transportation such as walking or biking.
- Low income persons are most likely to walk or bike. (3) The average U.S. commuter cycling distance is less than 10 miles. For people who typically walk (seniors and young) the typical walking distance is between ¼ to one mile. For places with no or limited public transportation, access to food, and health and medical care may be limited for this population group.
- Perception of a lack of safety, connectivity, or efficiency, stops many from walking, biking. (4) Unlit, discontinuous, narrow sidewalks and a lack of bicycle lanes can make an area feel unsafe.



(1) CDC.gov

(2) CDC- <http://www.cdc.gov/healthypplaces/healthtopics/physactivity.htm>

(3) NHTSA 2009 – Bicycling and Walking in the U.S. 2016

(4) Bicycling and Walking in the U.S. 2016

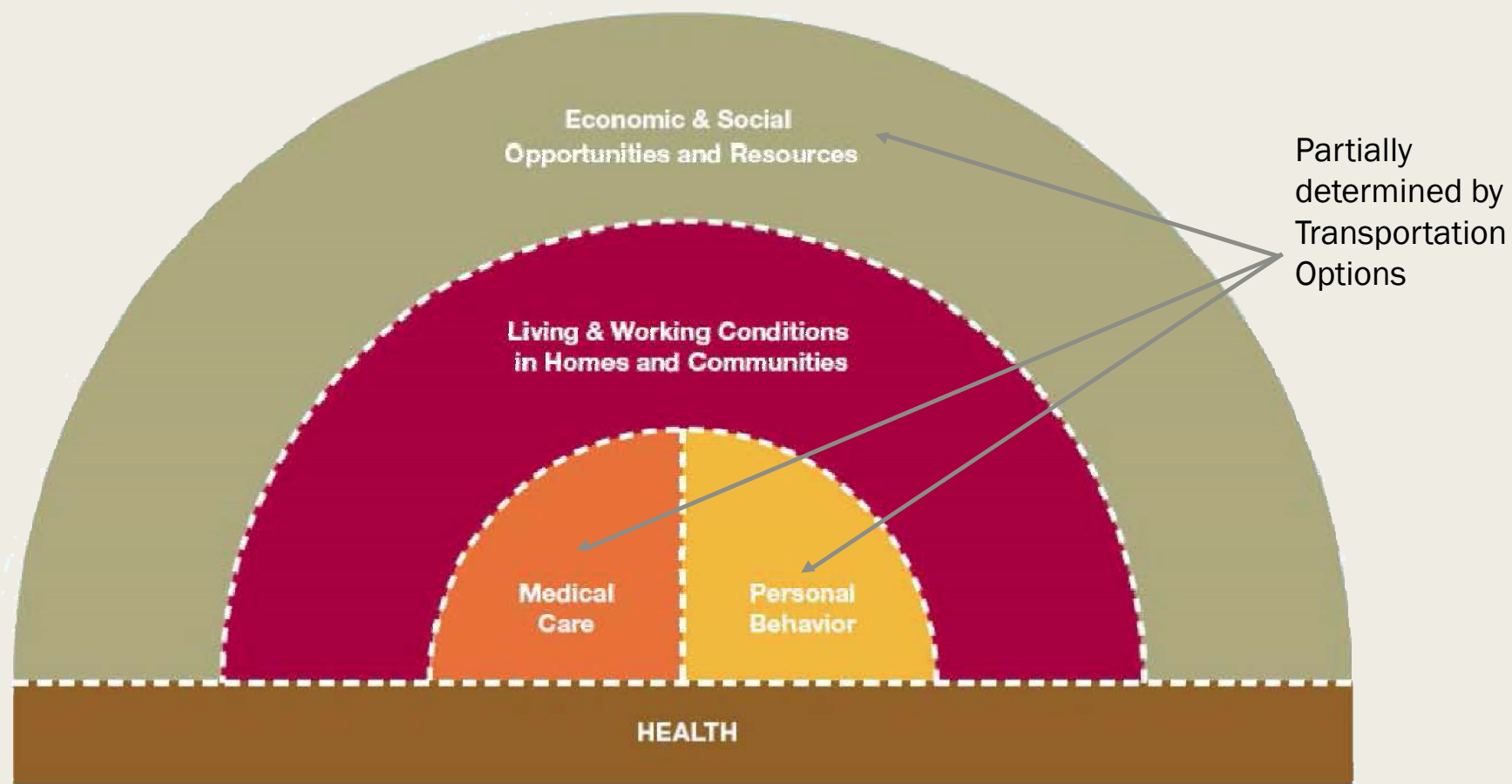
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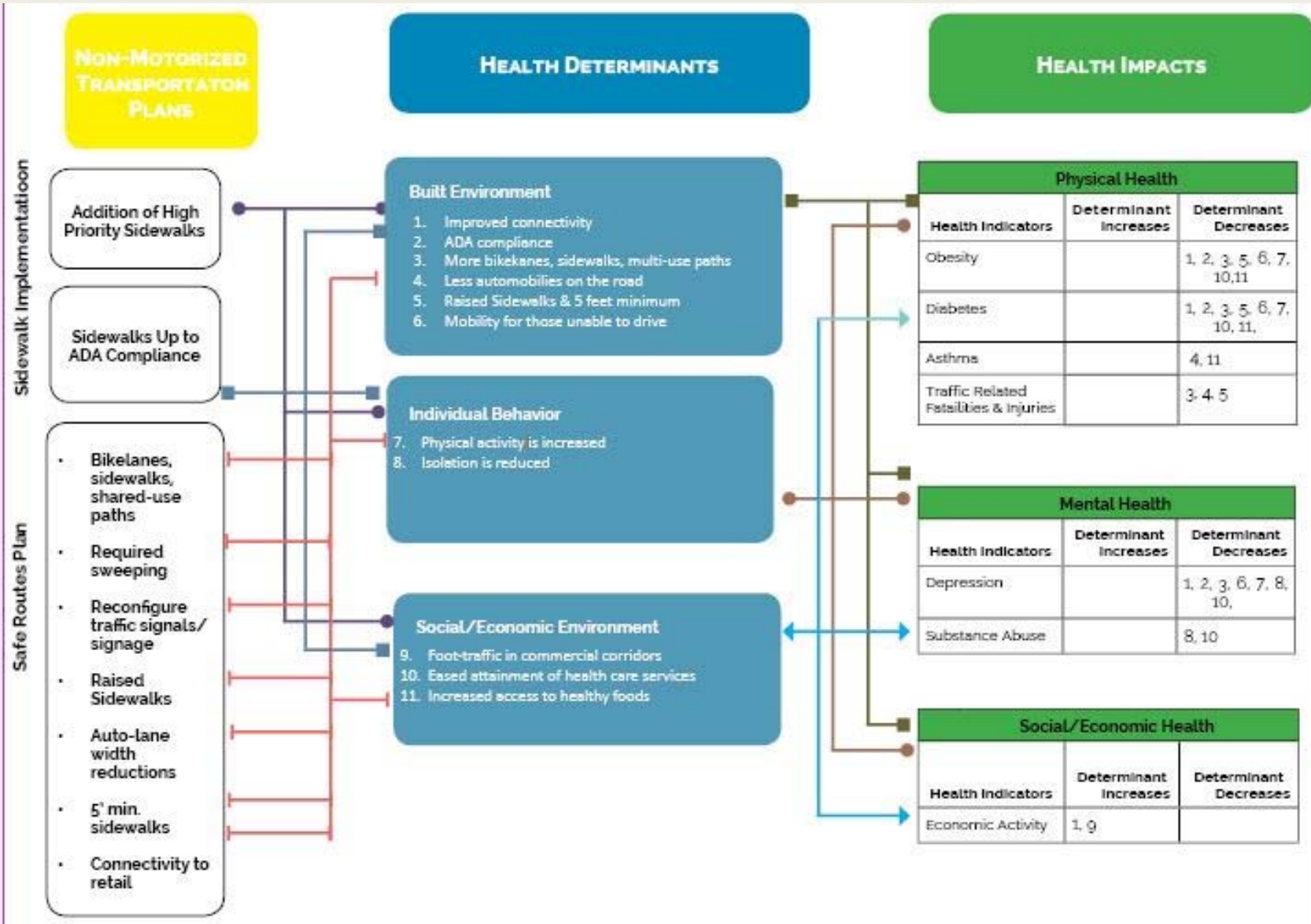
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(7) <https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/depression-and-exercise>

(8) <http://archives.drugabuse.gov/StressAlert/stressalert.html>

Determinants of Health





Data Collected

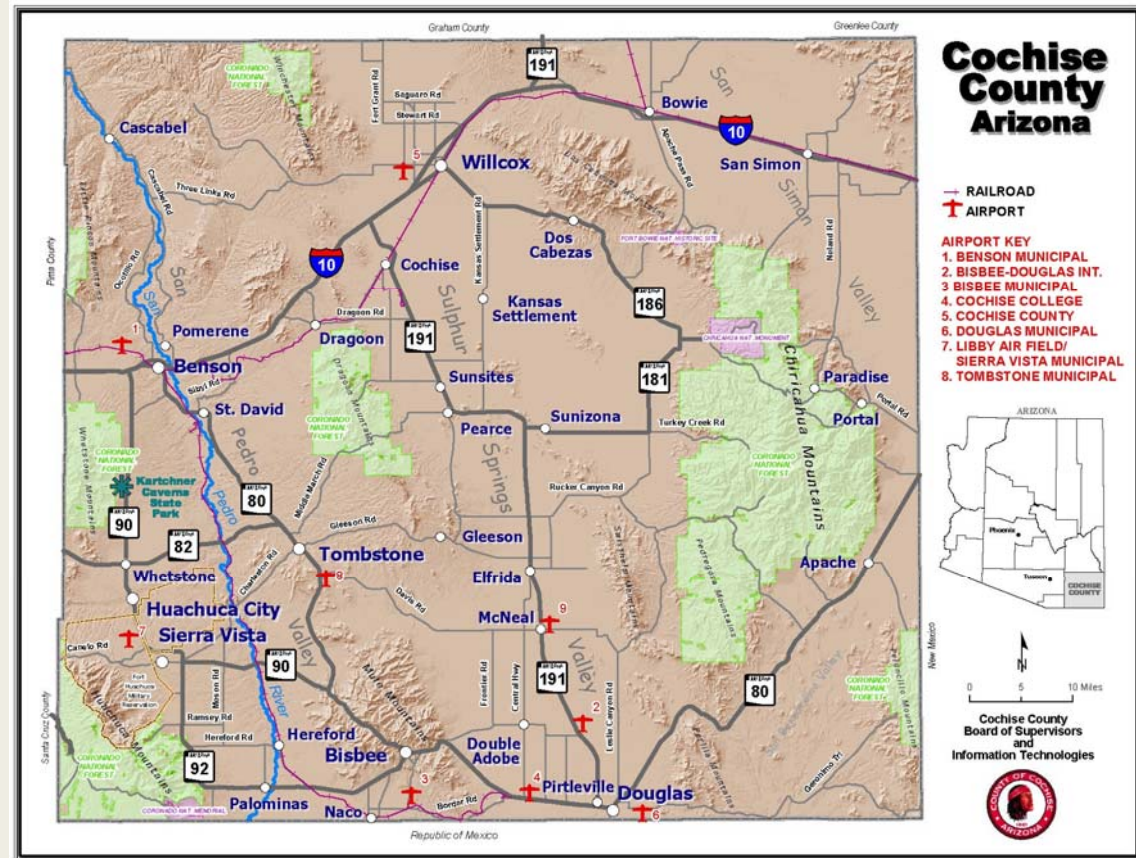
DATA REQUESTS	✓ / ()
All SVMPO Planning Documents	✓
Data linking Transportation to Health	✓
Sierra Vista Demographic Data	✓
Health Data for Sierra Vista	Ongoing. Will include survey of hospices, BMI survey
Health Data for Cochise County	✓
Health Data for Fort Huachuca	✓

- Looking for City Specific data on: obesity, diabetes, asthma

Existing Health Conditions Overview

Cochise County Data

- 8.6% percent of the population has asthma (4)
- Adult Obesity – 25% of the population in Cochise County (1)
- Diabetes – 11% of the population in Cochise County (1)
- Self Reported Physical Inactivity – 23% of the population in Cochise County (1)
- Self Reported Excessive Drinking – 15% of the population in Cochise County (1)



(1) <http://www.countyhealthrankings.org/app/arizona/2016/rankings/cochise/county/factors/overall/snapshot>

(2) <http://www.cdc.gov/CommunityHealth/profile/currentprofile/AZ/Cochise/50011>

(3) ACS 2014

(4) <http://www.azasthma.org/Common/Files/Asthma%20Plan.pdf>

Existing Health Conditions Overview

Cochise County Data

- 28.8% households live alone according to ACS 2014 – 13% of which are 65 + (3)
- Veterans population according to ACS 2014 – 18,931 (14.4% of the total population) (3)
- 21.3% of the population (under age 65 years) has a disability (3)
- 17.5% of Cochise County's population is living in poverty (3)
- Median income: \$45,974
- Mean travel time to work is 18.9 minutes (3)
6% of households in Cochise County have no car (3)

Sierra Vista Data

- Chronic Disease: 2% of Sierra Vista residents die from diabetes (2) (move to county)
- Isolation: 26.1% of householders live alone according to ACS 2014 – 10% of which are 65 + (3)
- Veterans population according to Census Quick Facts - 8,153 (18.6% of the total population) (3)
- 9.6% of the population (under 65 years) has a disability (3)
- 12.6% of Sierra Vista's population is living in poverty (3)
6.3% of households **living in poverty** in Sierra Vista have no car (3) – correlate
- Median Income: \$58,818
- Mean travel time to work is 16.3 minutes (11 minutes lower than the AZ Average) (3)

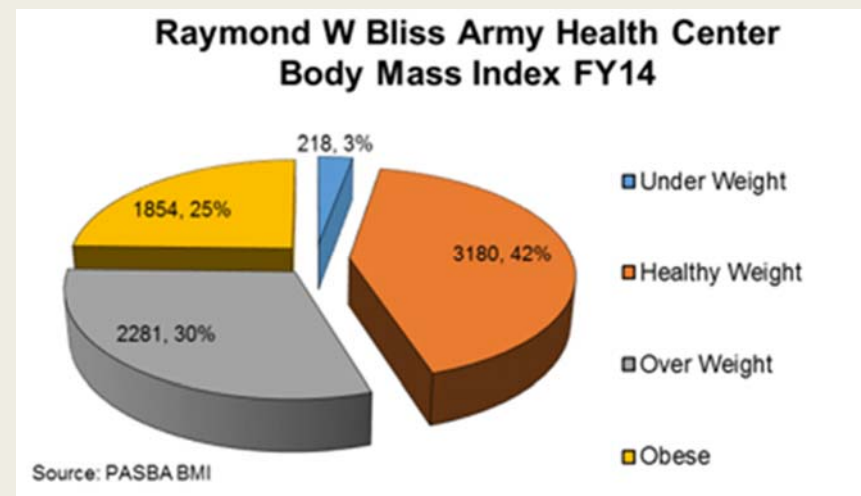
(1) <http://www.countyhealthrankings.org/app/arizona/2016/rankings/cochise/county/factors/overall/snapshot>

(2) <http://www.azdhs.gov/CommunityHealth/profile/currentprofile/62/Cochise/50011>

(3) ACS 2014

(4) <http://www.azasthma.org/Common/Files/Asthma%20Plan.pdf>

55% of the military population at Fort Huachuca are obese or overweight based on BMI



	Active Duty	Retired	Non Active Duty Adult	Dependent Children
Over Weight	53.13%	37.76%	31.57%	3.54%
Obese	17.32%	48.85%	33.20%	10.11%

Patient Administration Systems & Biostatistics Activity at Army Medical Command. All patients seen at Raymond W. Bliss Army Health Center (including Soldier Clinic, 2014)

- Obesity affects more than 1/3 of retired military and non-active duty military.
- More than 1/2 of all active military are overweight
- Obesity affects 10% of all dependent children

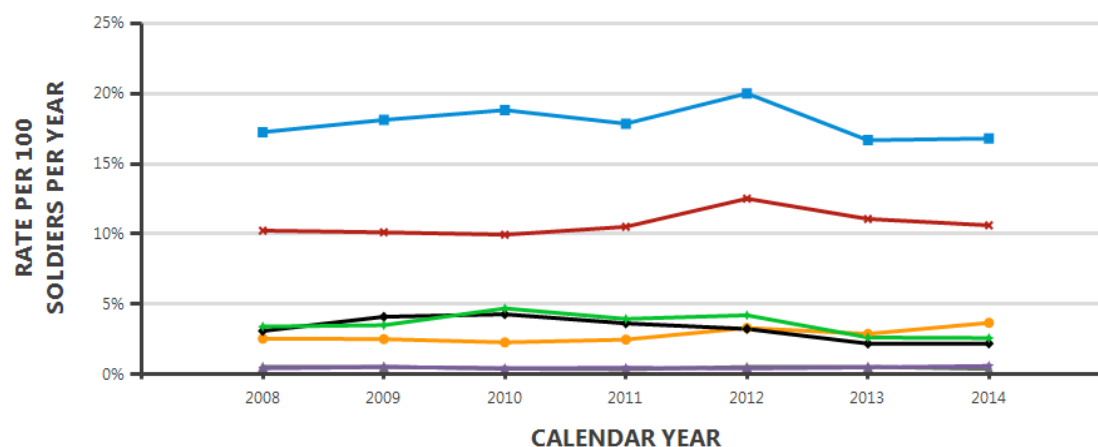
Existing Health Conditions Overview – Fort Huachuca

Obesity related diseases that can be managed with diet and exercise such as (cardiovascular disease and COPD) make up the largest portion of chronic diseases among the military at Fort Huachuca.

CHRONIC DISEASE RATES BY DIAGNOSIS CATEGORY, ACTIVE DUTY



Fort Huachuca // Calendar year 2008 - 2014



	2008	2009	2010	2011	2012	2013	2014
Any Chronic	17.3%	18.1%	18.8%	17.9%	20.0%	16.7%	16.8%
Arthritis	2.6%	2.5%	2.3%	2.5%	3.3%	2.9%	3.7%
Asthma	3.1%	4.1%	4.3%	3.6%	3.2%	2.2%	2.2%
Cancer	0.5%	0.6%	0.4%	0.4%	0.5%	0.6%	0.4%
Cardiovascular	10.2%	10.1%	10.0%	10.5%	12.5%	11.1%	10.6%
COPD	3.4%	3.5%	4.7%	4.0%	4.2%	2.6%	2.6%
Diabetes	0.4%	0.5%	0.5%	0.5%	0.4%	0.5%	0.6%

Existing Health Conditions Overview – Fort Huachuca

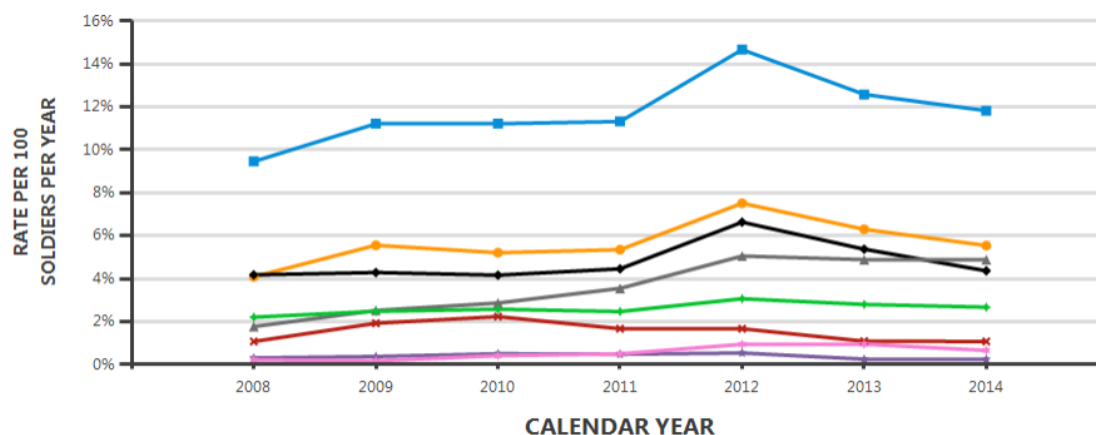
Behavioral Health problems that are reduced through social engagement and connection with community comprise the largest portion of chronic diseases among the military at Fort Huachuca.

Walking for transportation and recreation increases face to face interactions with the community.

BEHAVIORAL HEALTH DIAGNOSIS RATES BY YEAR AND DIAGNOSIS CATEGORY, ACTIVE DUTY



Fort Huachuca // Calendar years **2008 - 2014**



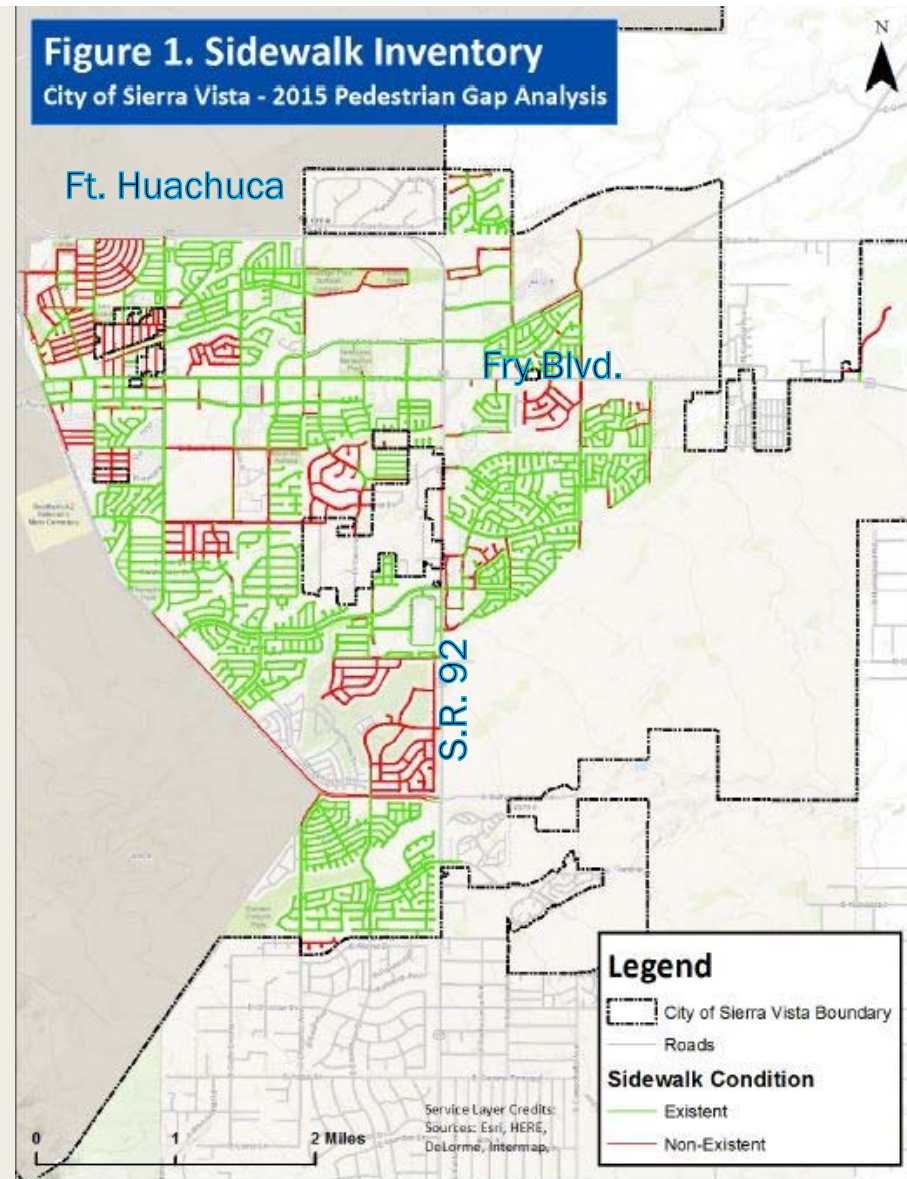
	2008	2009	2010	2011	2012	2013	2014
Any BH Disorder	9.5%	11.2%	11.2%	11.3%	14.7%	12.6%	11.8%
Mood Disorder	4.1%	5.6%	5.2%	5.4%	7.5%	6.3%	5.5%
Adjustment Disorder	4.2%	4.3%	4.2%	4.5%	6.6%	5.4%	4.4%
Other Anxiety Disorder	1.8%	2.5%	2.9%	3.5%	5.1%	4.9%	4.9%
Substance Disorder	1.1%	1.9%	2.2%	1.7%	1.7%	1.1%	1.1%
PTSD	2.2%	2.5%	2.6%	2.5%	3.1%	2.8%	2.7%
Personality Disorder	0.3%	0.4%	0.5%	0.5%	0.5%	0.3%	0.2%
Psychosis	0.2%	0.2%	0.4%	0.5%	0.9%	0.9%	0.7%

HOW THE PHYSICAL ENVIRONMENT MAY IMPACT HEALTH

Sidewalks contribute to a safe, comfortable, and connected environment for pedestrians.

West Fry, which also includes low income communities, has the least sidewalks in Sierra Vista.

A lack of sidewalks may discourage people from walking; and make it harder for those without vehicles to walk to access healthy food, health care, and community services and amenities.



HOW THE PHYSICAL ENVIRONMENT MAY IMPACT HEALTH

Perception of a lack of safety, connectivity, or efficiency, stops many from walking, biking.

10% of the children of active military are obese.

A lack of sidewalks around school may discourage children from walking to school. Walking helps reduce obesity in children and adults.

Students who walk to Sierra Vista middle and elementary schools report walking in the street and missing crosswalks on the way to school. Some report that their children feel unsafe walking to school.

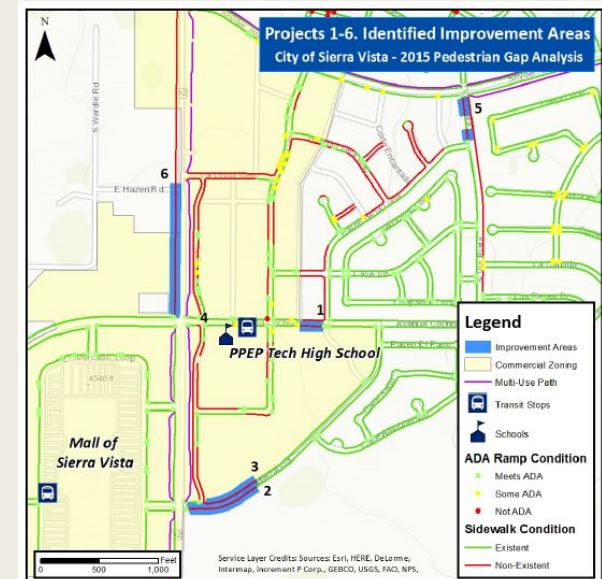
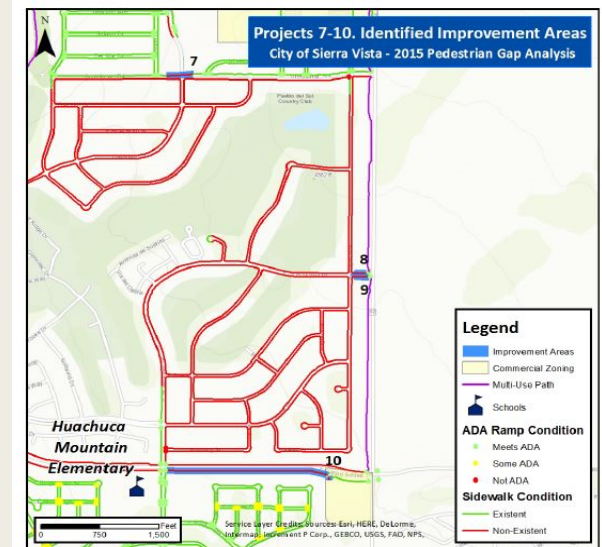
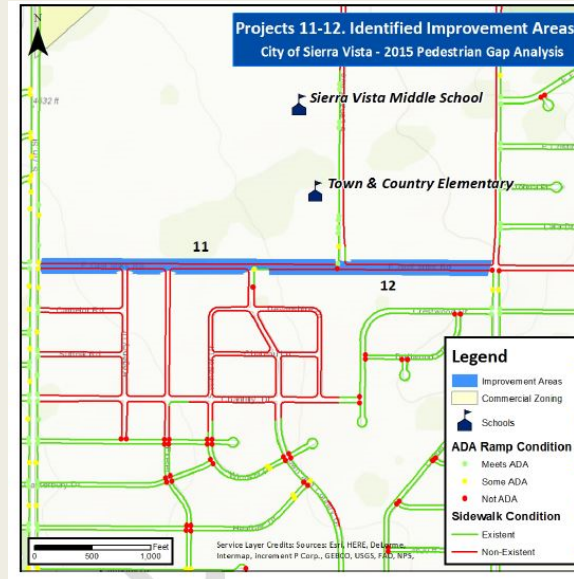
Survey Question	Pueblo Del Sol	Joyce Clark
Students have to walk in the street?	15% YES	27% YES
See Missing Crosswalks on Route?	26% YES	48% YES
Kids feel safe walking or biking to school?	5% NO	7% NO

Fort Huachuca: Parent Comments & Concerns on Biking/Walking to School

- Missing sidewalks on various streets.
- No crosswalks or signs saying watch for kids in some areas
- Lack of complete streets
- Overgrown trees take away parts of the sidewalk
- Crosswalks need to be repainted
- No designated bike-lanes

HOW THE PHYSICAL ENVIRONMENT MAY IMPACT HEALTH

Areas around Sierra Vista Schools lack sidewalks, reducing the separation between children and moving vehicles in the roadway. The lack of sidewalks contributes to making these areas unsafe and disconnected from other areas with sidewalks.

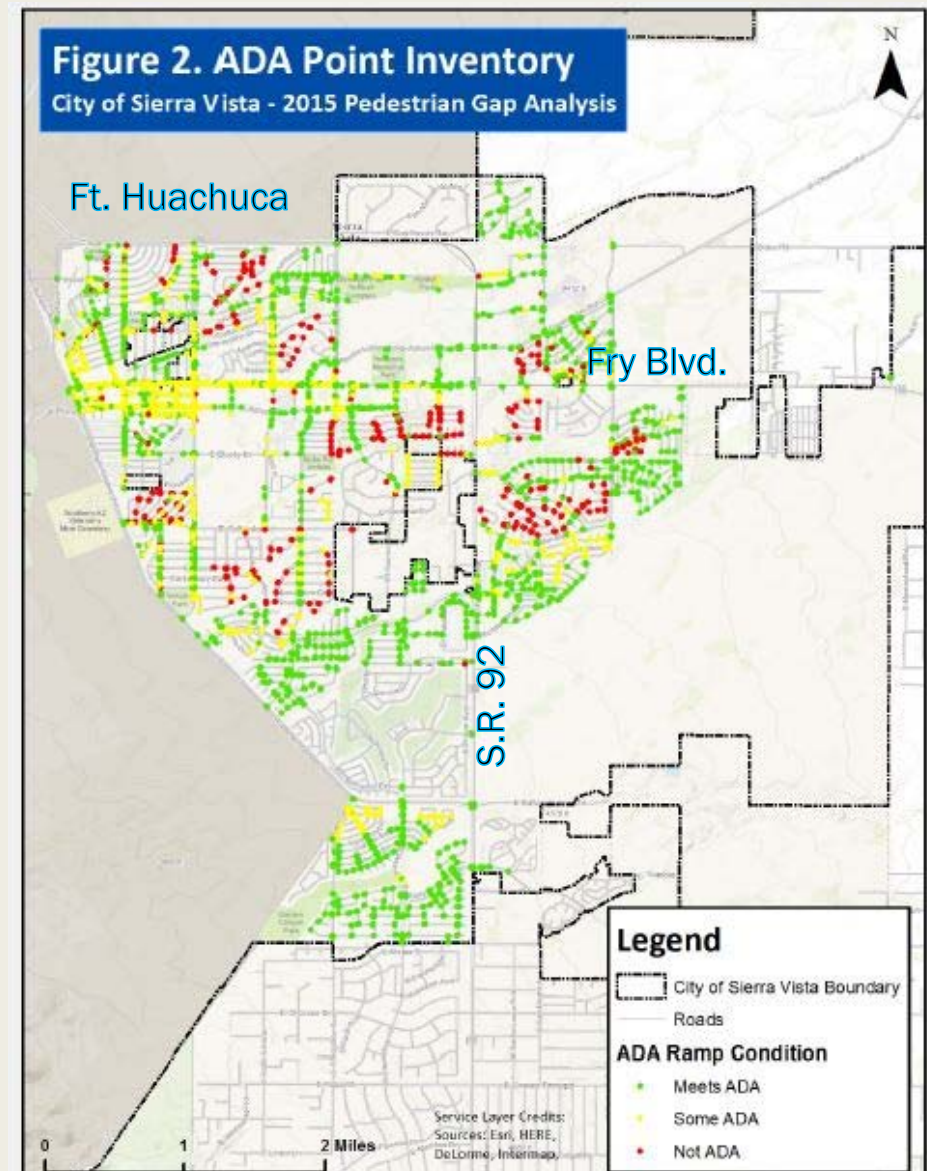


HOW THE PHYSICAL ENVIRONMENT MAY IMPACT HEALTH

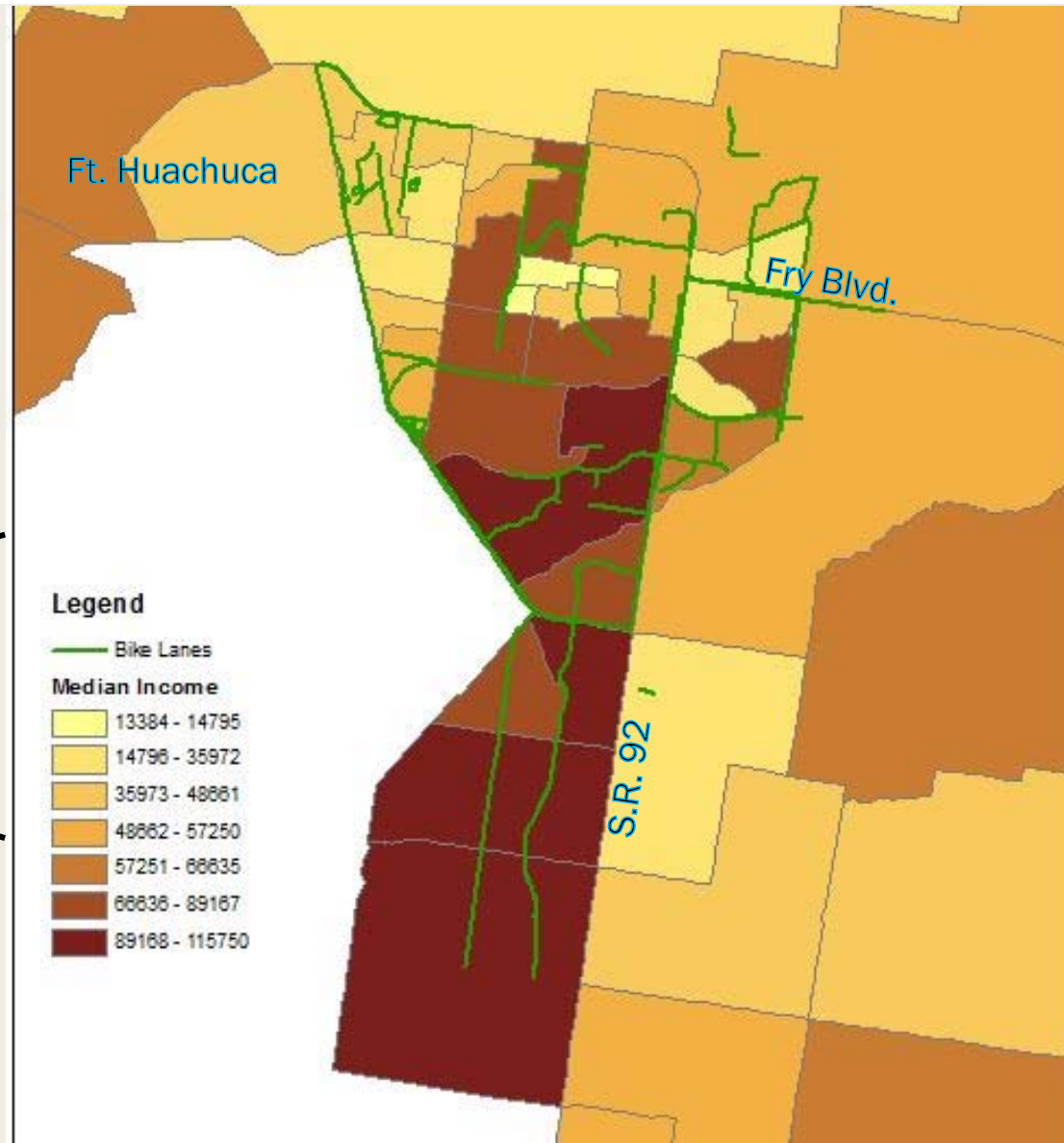
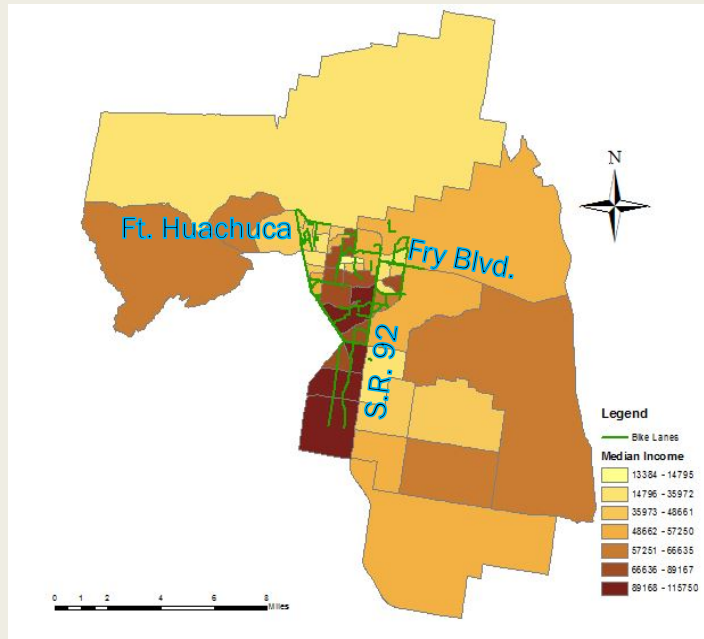
23% of the Cochise County Population report having mental or/and physical disabilities.

This map shows that ADA access is inconsistent throughout the community.

Inconsistent access for those using wheelchairs may make it hard to independently access healthy food, healthcare, and community services and amenities.



6% of all households in poverty have no car. Bicycle lanes are not evenly distributed throughout the community and are mostly located in higher income communities.

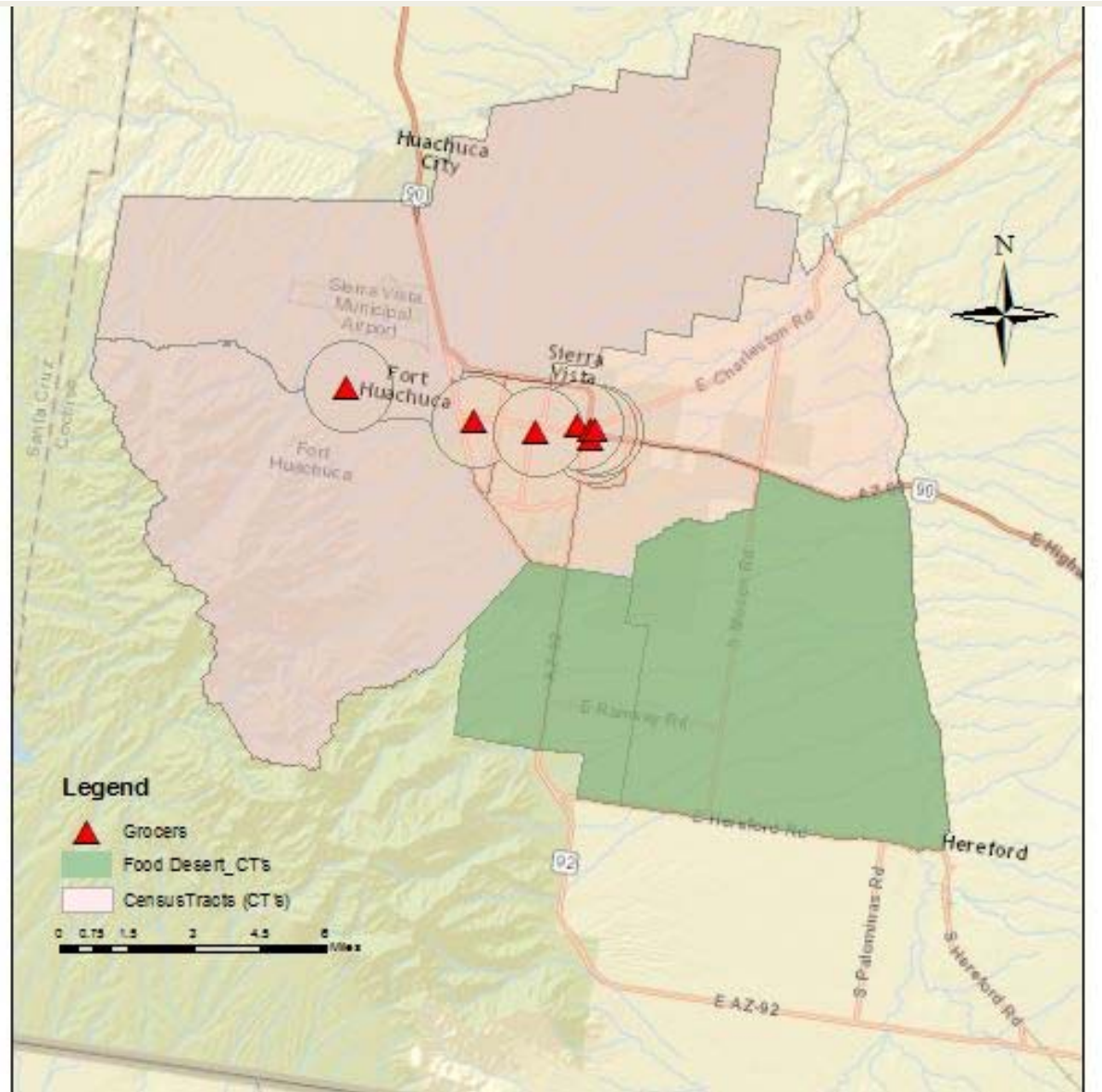


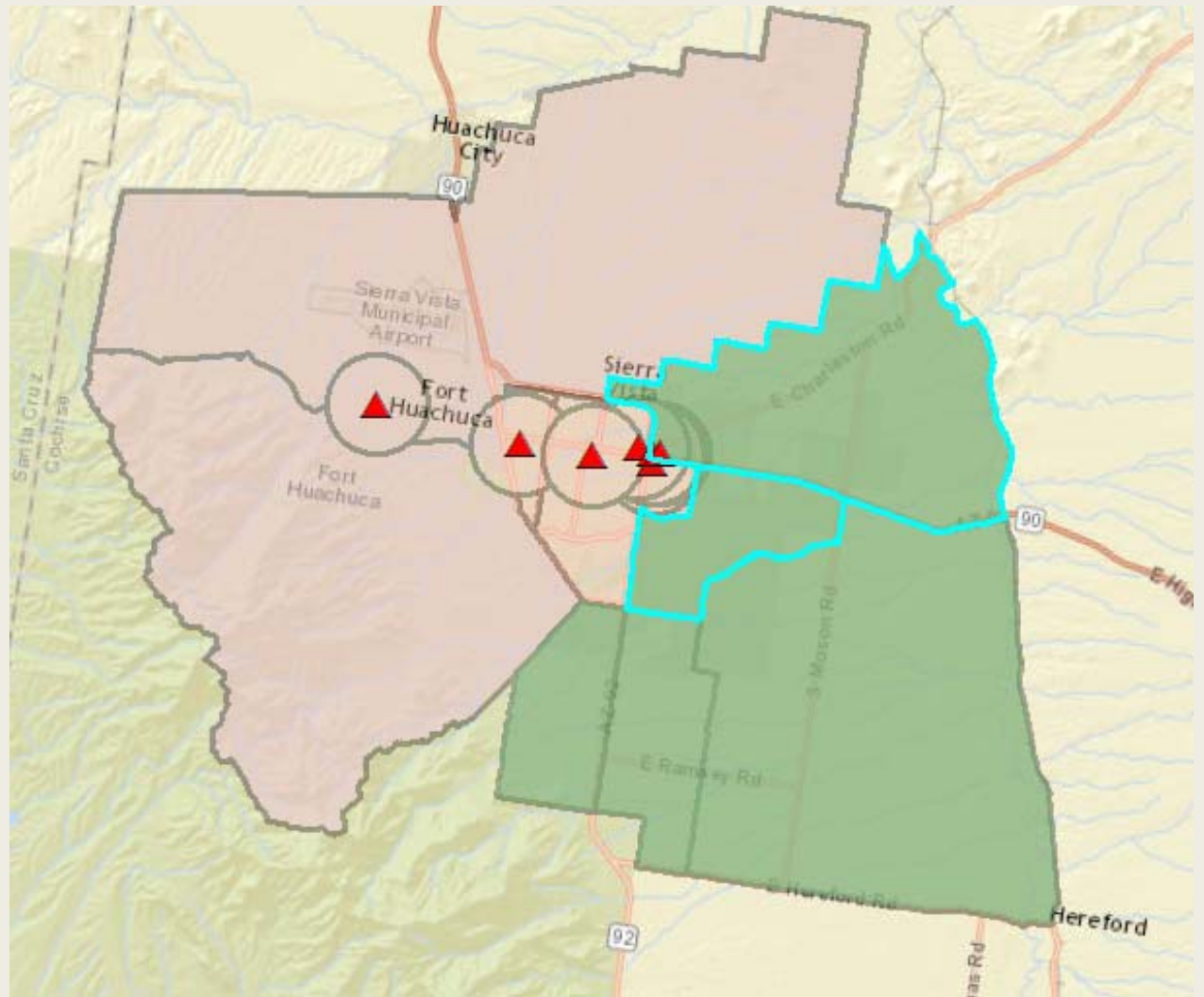
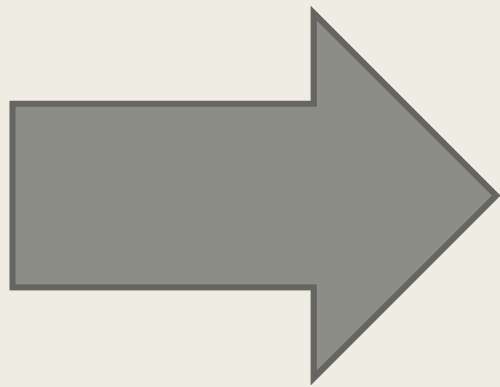
HOW THE PHYSICAL ENVIRONMENT MAY IMPACT HEALTH

A large portion of the community is located more than 1 mile from a grocery store; making it difficult to access healthy food without taking a bus or driving.

Many people pick up prescriptions at grocery stores. As a result, those with disabilities may also need to take transit or drive to pick up needed medication.

At community meetings, residents stated that the transit stops are located in remote areas of parking lots and in locations that are difficult to access.





Source: Census 2010

HOW TRANSPORTATION CAN IMPROVE HEALTH

HEALTH INDICATORS

Recommendations	Obesity	Diabetes	Asthma	Isolation	Depression/ Substance	Abuse Economic Activity	Traffic Fatalities/ Injuries
Additional Sidewalks: Near Schools	✓	✓					✓
Additional Sidewalks: Fixed Transit Areas	✓	✓		✓	✓		✓
Additional Sidewalks: Commercial Areas	✓	✓		✓	✓		
Additional Sidewalks: Parks & Rec. Areas	✓	✓		✓	✓		✓
Additional Sidewalks: Volume Accident Areas	✓	✓		✓	✓		✓
Increase ADA Compliance				✓	✓		✓
Redesign of Fry Blvd.	✓	✓				✓	✓
Program of regular sweeping of bike lanes, shared roadways, and shared-use paths.							✓
Install or reconfigure video detection of bicyclists at traffic signals				✓			✓

HOW TRANSPORTATION CAN IMPROVE HEALTH

HEALTH INDICATORS

Recommendations	Obesity	Diabetes	Asthma	Isolation	Depression/ Substance	Abuse Economic Activity	Traffic Fatalities/ Injuries
Consider installation of raised pedestrian refuge crossing islands	✓	✓		✓	✓		✓
Routinely Provide a Sidewalk (5' minimum) or Pathway on BOTH sides of the Street.	✓	✓		✓	✓		✓
Develop and Adopt a Complete Streets Policy.	✓	✓		✓	✓	✓	✓
Promote non-motorized over motorized transportation.	✓	✓	✓	✓	✓		✓
Bicycle/pedestrian safety campaign.							✓
Connectivity between residential & major shopping & employment locations.	✓	✓		✓	✓	✓	✓

Sierra Vista HIA Community Meeting: April 7th, 2016 PROCESS EVALUATION		
	YES	NO
This meeting improved my understanding of how transportation is related to health.	12	2
This meeting provided me with information about the relationship between physical activity and the health of my community	13	1
At this meeting, I was able to provide my ideas about how non-motorized transportation could be used to impact the health of my community.	14	0
At this meeting, I gained a better understanding of Health Impact Assessment.	14	0
Other Comments?		
Great presentation. Looking forward to supporting recommendations for our community and seeing some self-improvement.		
Great presentation with great information.		
Excellent presentation and needed information to the community		
Was very good at giving answers. Need to get this out to more people.		
Great presentation to make me aware of S.V. issues at hand. More multi-purpose bike and walking paths for safety		
Always excellent to talk and brainstorm additional ideas to (understand) the connection between activity and health.		
This is a good start!		
Presenter was extremely knowledgeable, concise and presented materia very well. My overall understanding and my ability to relate whjat was discussed to my community (improved). Very well done!		
Can't wait to see final report!		

Sierra Vista Health Impact Assessment January 28, 2016 Community Meeting Process Evaluation					
Entry #	Community Health	Comments	Relationship	Purpose	Comments
1	No	But I have a better understanding between Community Health Assessments & HIA's	Yes	Yes	
2	Yes		Yes	Yes	
3	Yes		Yes	Yes	Good info. Leslie provided excellent facilitation.
4	Yes		Yes	Yes	Interesting-Will follow, thanks.
5	Yes		Yes	Yes	
6	Yes	Connections between walk/sidewalk & health/illness	Yes	Yes	Review of existing needs
7	Yes		Yes	Yes	
8	Yes		Yes	Yes	
9	Yes		Yes	Yes	
10	No	Knew too much to start with!:)	No	Yes	Got the scope more nailed down (will send you the data I have)
TOTAL	8/10	3 comments	9/10	1 comment	4 comments

As a result of this meeting do you feel you have a better understanding of:

-Community Health?; The relationship between health and available transportation choices?; The purpose of this Health Impact Assessment?



JULY 26, 2016

**PRESENTATION TO SIERRA
VISTA CITY COUNCIL**



Active Transportation in Sierra Vista & on Fort Huachuca Health Impact Assessment 2016



What is a Health Impact Assessment?



- **WHAT:** To inform, from a public health perspective, recommendations and/or decisions resulting from a specific policy, plan, or project.



- **WHY:** Broaden the discussion of improving health beyond individual health and behaviors by considering social, economic, and environmental factors that impact and enhance community health and well-being.



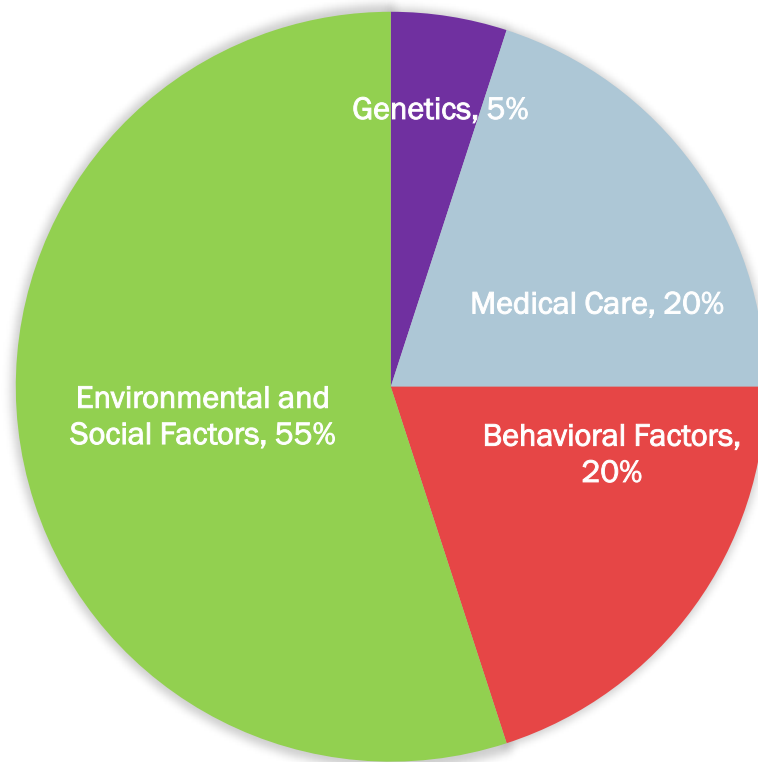
- **HOW:** Assess the multiple influences on community health that can occur as a result of social, economic, and environmental changes that could occur as a result of the proposal.

Source: http://www.cdc.gov/healthyplaces/types_health_assessments.htm

Picture from www.pewtrust.org



What Determines Our Health



Source: WHO



Health & Active Transportation

- Physically active people live longer and have lower risks for heart disease, stroke, type 2 diabetes, depression, and some cancers. ⁽¹⁾
- Regular participation in aerobic exercise (such as walking) decreases overall levels of tension, elevate and stabilize mood, improve sleep, and improve self-esteem. ⁽³⁾
- People with depression generally have lower fitness levels. Active transportation increases physical activity which benefits mental health. ⁽⁴⁾
- Walkable / bike-able access to appropriate sites motivates people to participate in physical activity and to do so more frequently. ⁽⁵⁾
- Of people with safe places to walk within ten minutes of home, 43% achieve physical activity targets, compared with just 27% of less walkable area residents. ⁽⁶⁾



(1) CDC- <http://www.cdc.gov/healthyplaces/healthtopics/physactivity.htm>

(2) Role of Built Environments in Physical Activity, Obesity, and Cardiovascular Disease.

James F. Sallis, PhD; Myron F. Floyd, PhD; Daniel A. Rodríguez, PhD; Brian E. Saelens, PhD

(3) <http://www.adaa.org/understanding-anxiety/related-illnesses/other-related-conditions/stress/physical-activity-reduces-st>

(4) <https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/depression-and-exercise>

(5) http://www.cdc.gov/healthyplaces/types_health_assessments.htm

(6) Litman, Todd Victoria Transport Policy for the American Public Transportation Association



Purpose of the HIA

- Identify how active and healthy transportation options can impact Community Health in Sierra Vista and Fort Huachuca:
 - *Obesity and related chronic diseases such as diabetes and heart disease / hypertension*
 - *Asthma*
 - *Isolation/Depression/Substance Abuse*
- Educate the community about the intersection between active transportation and their health.
- Inform decision-making related to transportation and land use planning in Sierra Vista
- Inform implementation of SVMPO's **Sidewalk Implementation Plan, Safe Bicycle and Pedestrian Routes Plan**, the **W. Fry Blvd. and North Garden Ave. Plans**, proposed development code update, and proposed projects on the Fort.



Desired Outcomes (Significance & Value)

Significance:

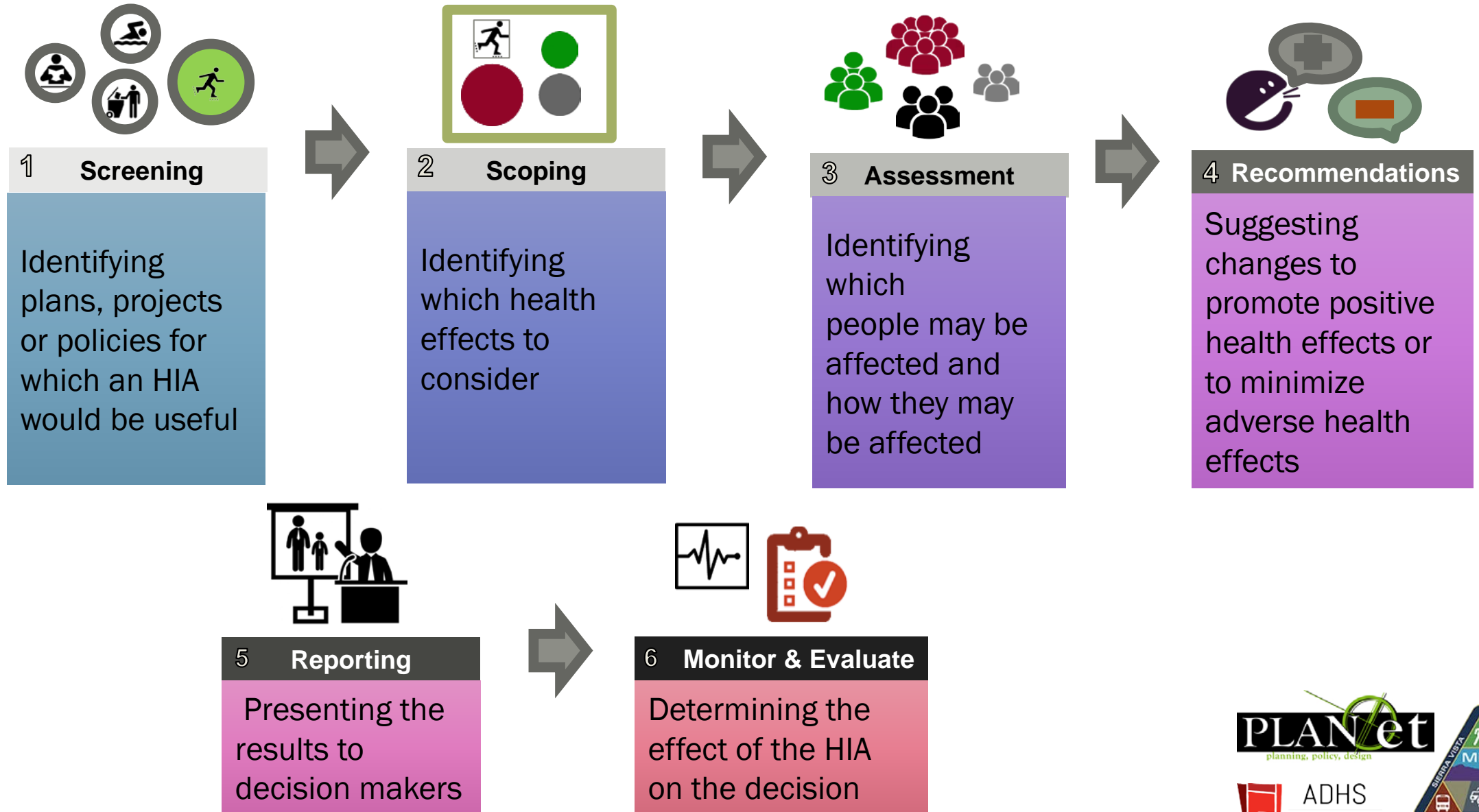
- HIA could affect the implementation of a variety of plans that will substantially change the non-motorized transportation environment in Sierra Vista.
- These policies will have health impacts on the residents of Sierra Vista (reduction in obesity, mental health, and better access to healthy food, etc.).

Value: The following projects can be evaluated...

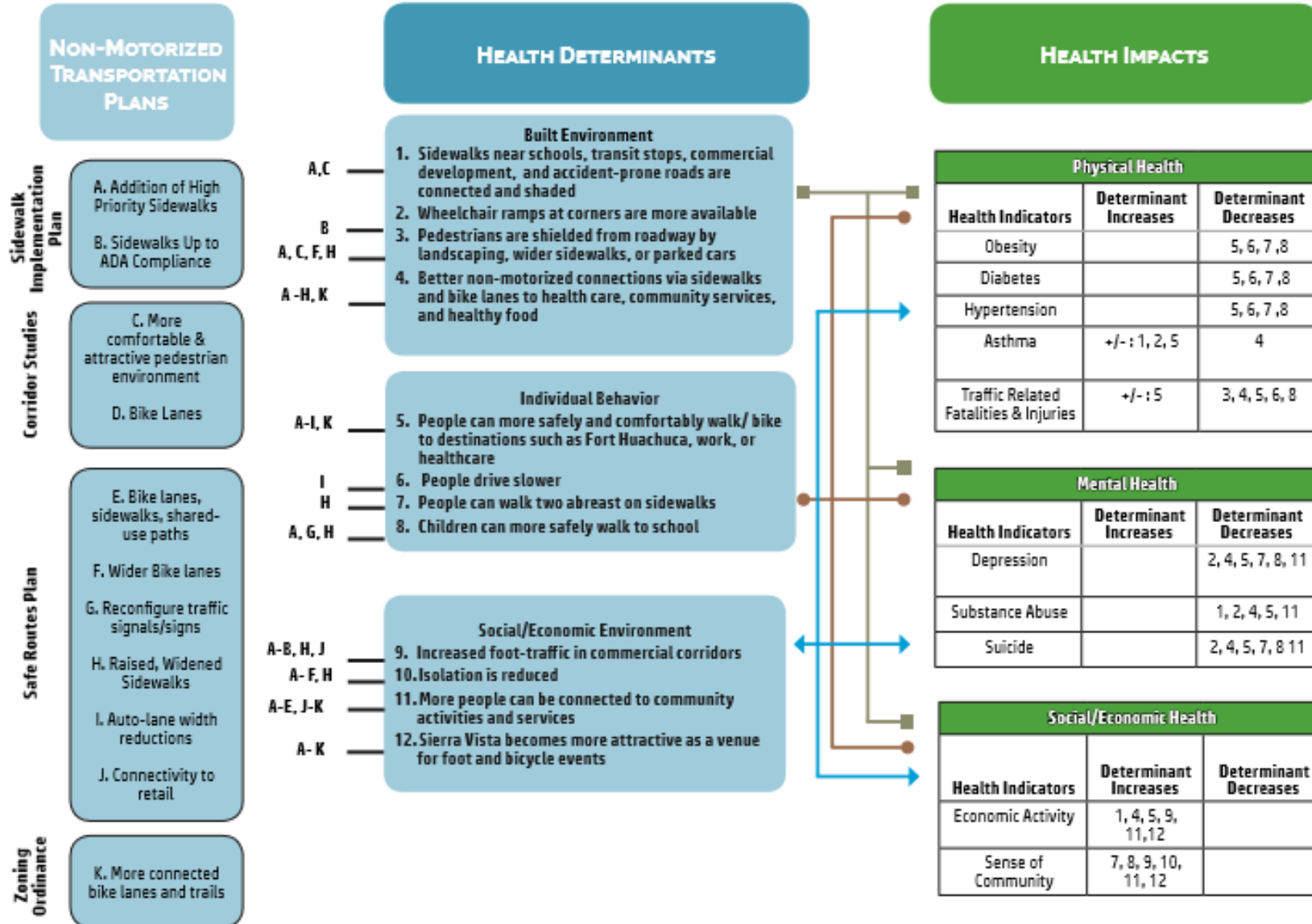
- Sidewalk Implementation Plan
- Safe Bicycle and Pedestrian Routes Plan
- West Fry Boulevard Corridor Stud
- North Garden Avenue Corridor Study
- Future updates to the City of Sierra Vista's Development Code



HIA Process



Connecting Transportation to Health



Connecting Transportation to Health

Sidewalk Implementation Plan
Corridor Studies
Safe Bicycle & Pedestrian Routes
Plan
Ordinance Update

Determinants of Health
Impacted

Individual and Community
Health Impacts

Better connections for those who
do not drive to school, shopping,
and health care services

More and better connected ADA
compliant sidewalks

Safer, more comfortable, and
more convenient sidewalks and
bike lanes

Better signalization and signing
for non-motorized traffic

More Connected Trails and Bike
Routes



Built Environment
Individual Behavior
Social and Economic
Environment



Physical Health

Obesity
Diabetes
Hypertension
Asthma
Traffic-related fatalities and
Injuries

Mental Health

Depression
Substance Abuse

Community Health

Economic Activity
Sense of Community



Data Types

Sierra Vista

- Demographics
- Waist to Hip Ratio Survey
- Transportation Surveys
- Existing Infrastructure Mapping
- Fort Huachuca Health Data

Cochise County

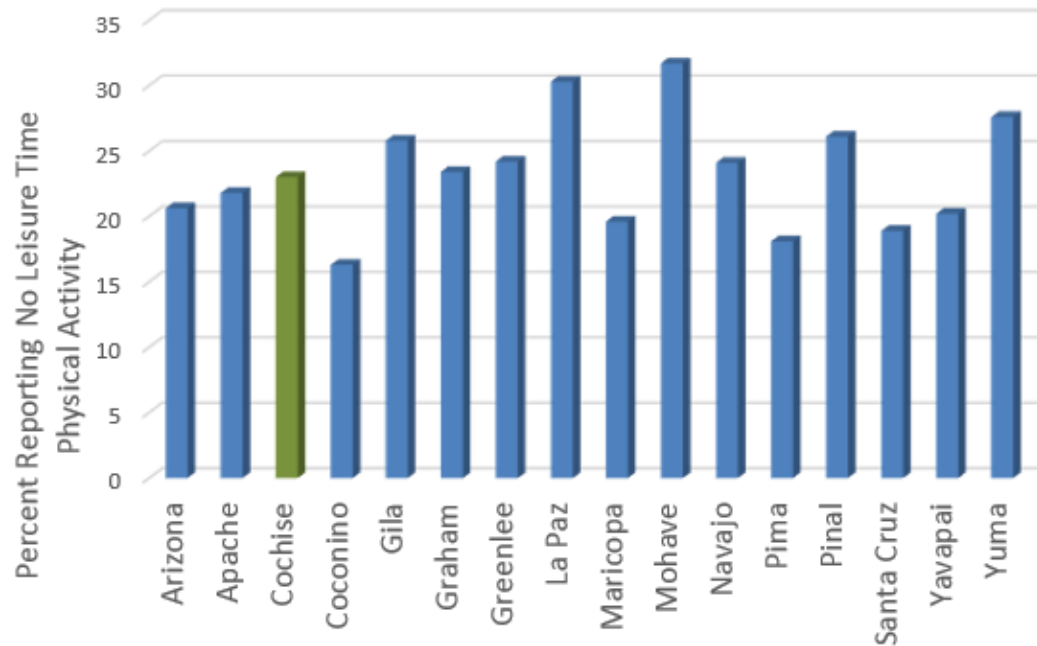
- Demographics
- Morbidity of Health Conditions
- Mortality from Health Conditions

Health Reporting: Cochise County

- **Physical Inactivity:** 23% of the population self-report being physically inactive. 27% have no access to exercise opportunities. ⁽¹⁾

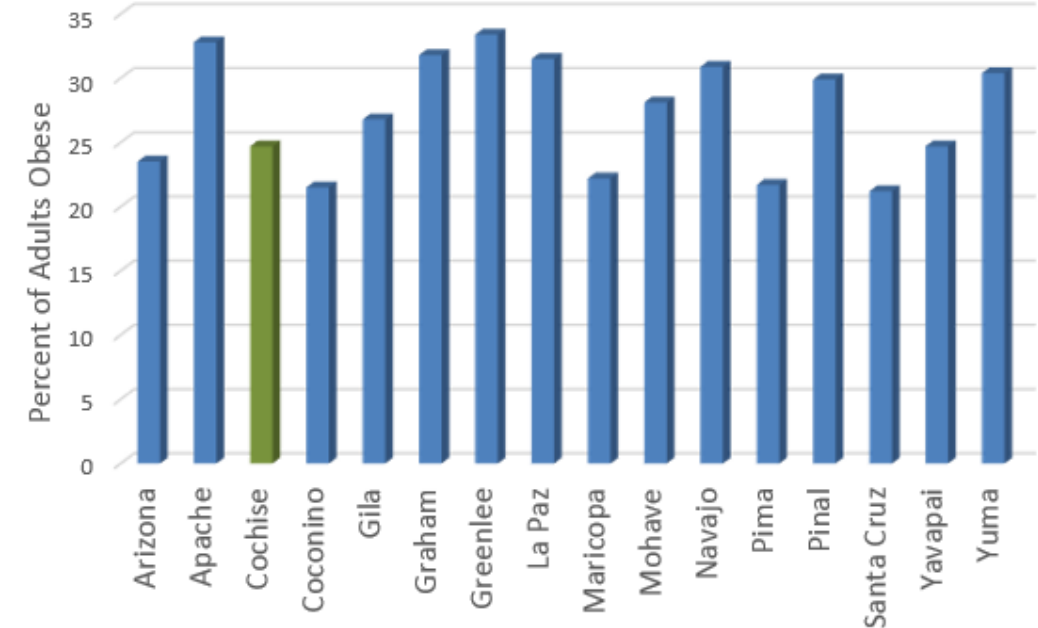
Obesity: 25% of the adult population in Cochise County is obese. 58.57% of Cochise residents are over-weight or obese. ⁽²⁾

Figure 17: 2016 Physical Inactivity: Arizona Counties



Source: Robert Wood Johnson Foundation County Rankings and Roadmaps. Access date: April 4, 2016.

Figure 18: Obesity Among Adults in Arizona Counties

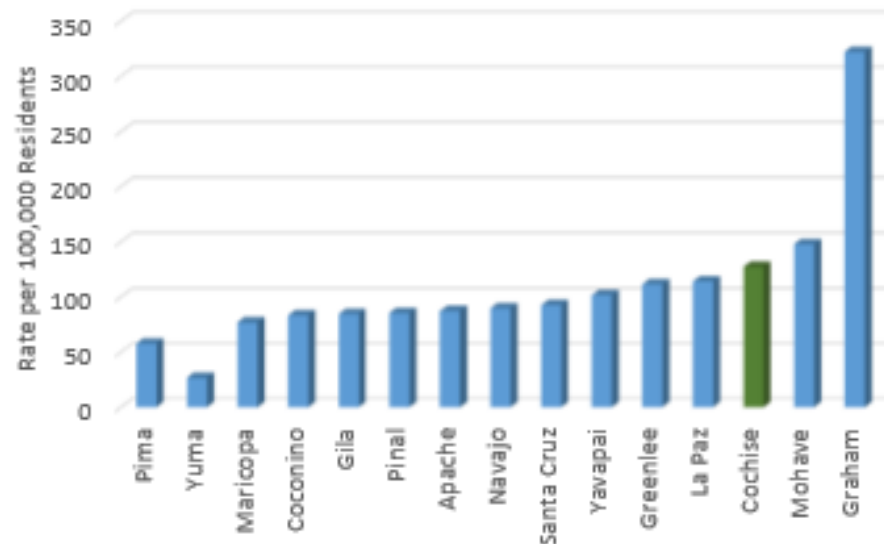


Source: Robert Wood Johnson Foundation County Rankings and Roadmaps. Access date: April 6, 2016

Health Reporting: Cochise County

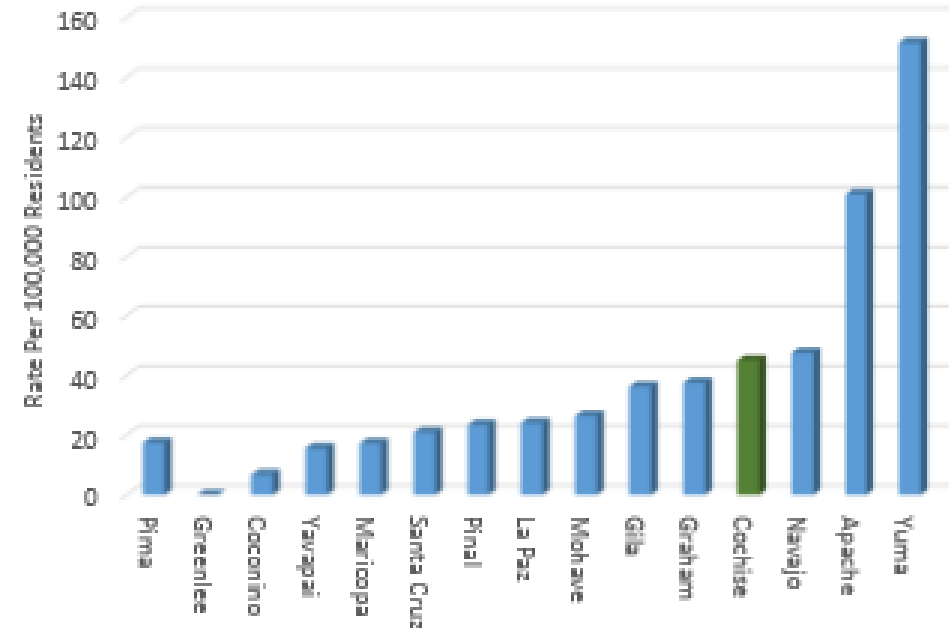
- **Diabetes Rate:** 13.4% of the population in Cochise County is diabetic. ⁽¹⁾
- **Uncontrolled Diabetes:** Cochise has the third most number of people with complications from diabetes and the fourth largest number of people with uncontrolled diabetes.

Figure 19: Short Term Complications From Diabetes per 100,000 Arizona Counties (2013)



Source: AZDHS Community Profiles Dashboard. Access Date June 25, 2016.

Figure 20: Rates of Uncontrolled Diabetes per 100,000 Arizona Counties (2013)



Source: AZDHS Community Profiles Dashboard. Access Date June 25, 2016.

Health Reporting: Cochise County

Figure 18: Cochise County Morbidity Factors per 100,000 Persons (2013)				
Morbidity Factor	Rate per 100,000 Persons		Rank (All Counties)	Causes
	Arizona	Cochise County		
COPD	299.50	923.8	6	Smoking, breathing in secondhand smoke, irritants, or chemicals (NIH)
Uncontrolled Diabetes	20.10	45	3	Genetics, obesity (National Diabetes Foundation)
Complications from Diabetes	83.10	127.2	4	Genetics, obesity (National Diabetes Foundation)
Hypertension	299.50	326.1	3	Obesity, lack of physical activity, alcohol. (NIH)
Congestive Heart Failure	53.70	24.20	9	Heart disease, hypertension (high blood pressure) (NIH)
Drugs	289.30	242	8	Mental illness, depression, social factors, genetics
Alcohol Use	950.5	661.8	14	Depression, mental illness, social factors, genetics
Chronic Diseases (arthritis, obesity, cancer)	4,503.70	5,919.9	5	Obesity, smoking, lack of physical activity, high cholesterol, alcohol (NIH)

Source: Arizona Department of Health Services Community Profiles Dashboard. Access date: May 30, 2016

Health Reporting: Cochise County

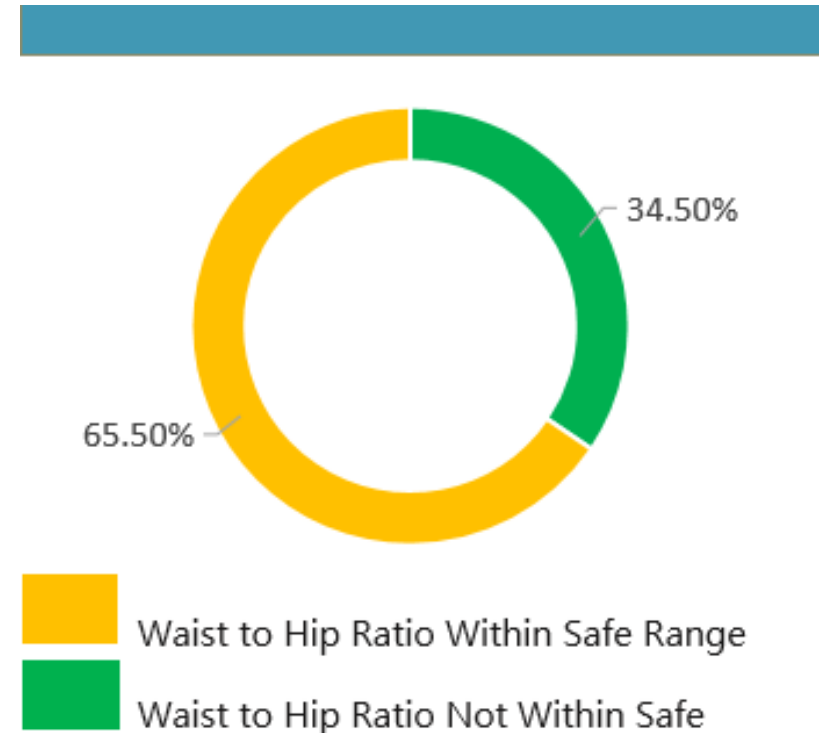
Figure 15: Cochise County Mortality Factors per 100,000 Persons (2013)

Cochise County	Indicator	AZ	Per 100,000	Rank in AZ	Main Cause
Mortality	All Death	693.7	737.9	7	
	Chronic Lower Respiratory Diseases	45.2	43.9	7	Tobacco smoke, outdoor air pollution (WHO, 2015)
	Diabetes	23.8	23.9	13	Genetics, obesity
	Stroke	28.4	40.1	2	Age, high blood pressure, diabetes, smoking. (National Institute of Health)
	Hypertension	9.8	8.7	6	Obesity, lack of physical activity, alcohol. (NIH)
	Heart Disease	144.2	179.4	3	
	Drug Induced	16.9	7.9	12	Often brought on by depression/mental distress
	Suicide	16.9	19.6	8	Often brought on by depression/ mental distress

Source: Arizona Department of Health Services Community Profiles Dashboard. Accessed: June 18, 2016

Community Feedback

- Cochise County Health & Social Services (CHSS) conducted a waist to hip ratio survey of over 200 Sierra Vista residents. (Respondents: 66.7% Female, 33.3% Male)
- Waist to hip ratio measures abdominal fat surrounding the liver and other organs, which increase the risk of diseases like type 2 diabetes and heart disease.
- WHR is found by dividing the circumference of ones waist, by the circumference of ones hips. Men that score below 0.95 and women that score below a 0.80 are considered within the safe range.



Source: CHSS Waist to Hip Ratio Experiment: May 2016

Sierra Vista Community Profile

- Total Population: 47,314 (35% of Cochise County population)
- Median Age: 32.9 years
- Median Income: \$58,818
- Uninsured: 11%
- Physical Disability: 17% of the population
- No Access to a Car: 5.6% of the population

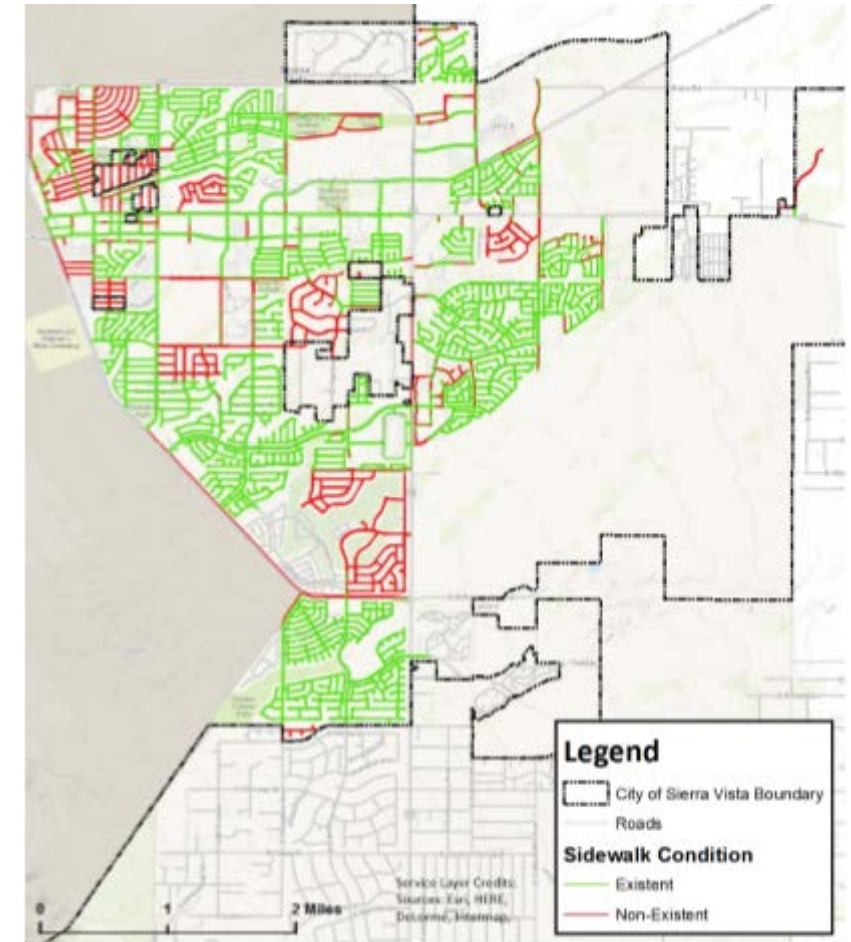


Source: ADOA (Population) and 2010 Census



Sierra Vista's Sidewalks

- Sidewalk Implementation Plan includes 26 recommendations for new sidewalks
- Currently, fixed transit stops, schools, commercial areas, and parks in the city are surrounded by inadequate sidewalks, which create obstacles to accessing them.
- A 2001 study by the American Journal of Public Health found that 61% of respondents positively associate the presence of sidewalks with physical activity.
- According to the 2012 Survey of Bicyclists and Pedestrian Attitudes and Behavior, 24% of pedestrian injuries from walking occur from tripping on uneven or cracked sidewalks.



Source: Sierra Vista Sidewalks Inventory and Implementation Plan 2015. Sierra Vista Metropolitan Planning Organization

Sierra Vista Feedback: Bike & Walk

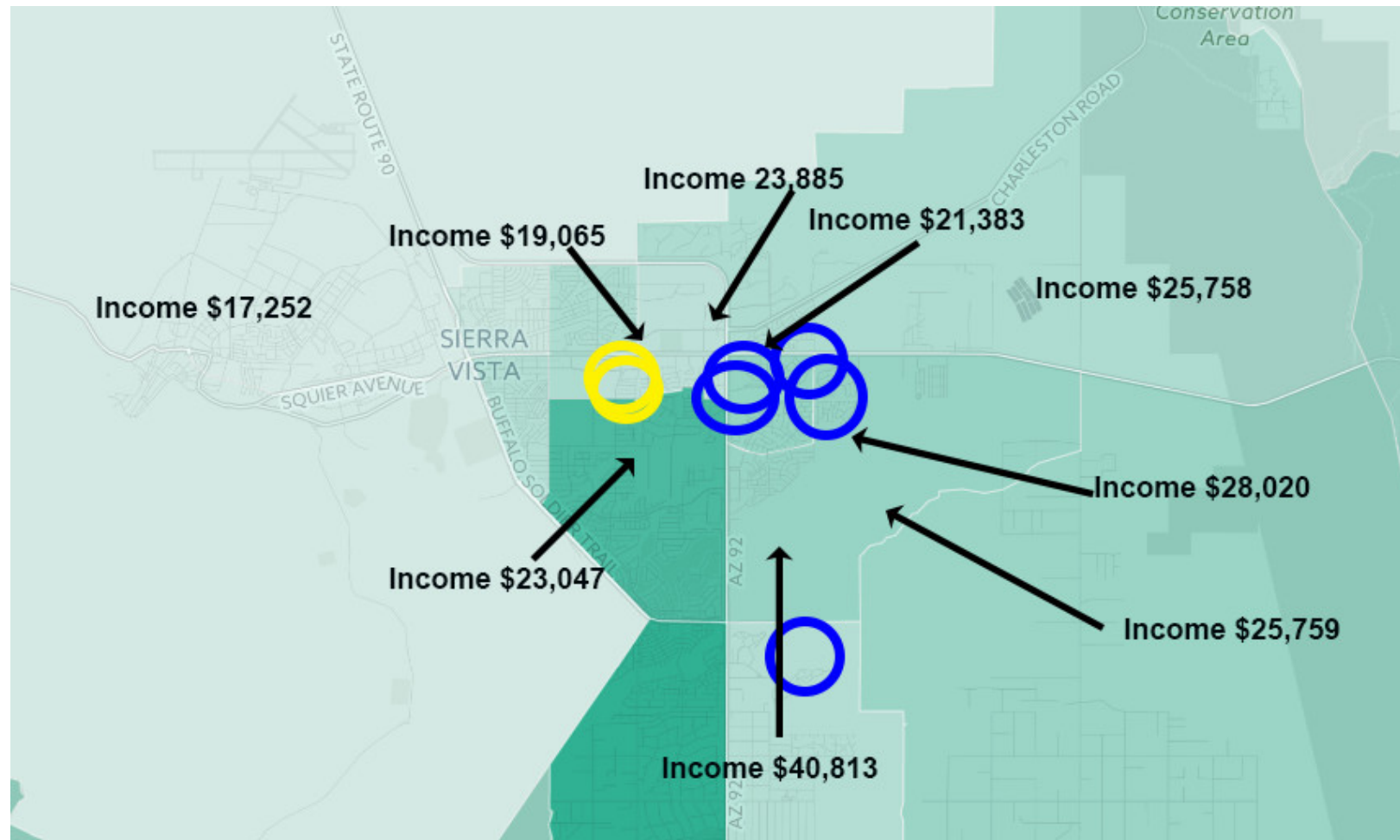
- No sidewalks or crosswalks on route to school is safety concern.
- The largest percentage of respondents walked everyday.
- Presence of sidewalks and crosswalks in a community could encourage more physical activity

Survey Question	Pueblo Del Sol	Joyce Clark
Students have to walk in the street?	15% YES	27% YES
See Missing Crosswalks on Route?	26% YES	48% YES
Kids feel safe walking or biking to school?	5% NO	7% NO

How Often Do You Walk to School During the Week?				
Number of days	1 day	2 day	3 - 4 days	Everyday
	15	8	9	30
	12	4	6	17

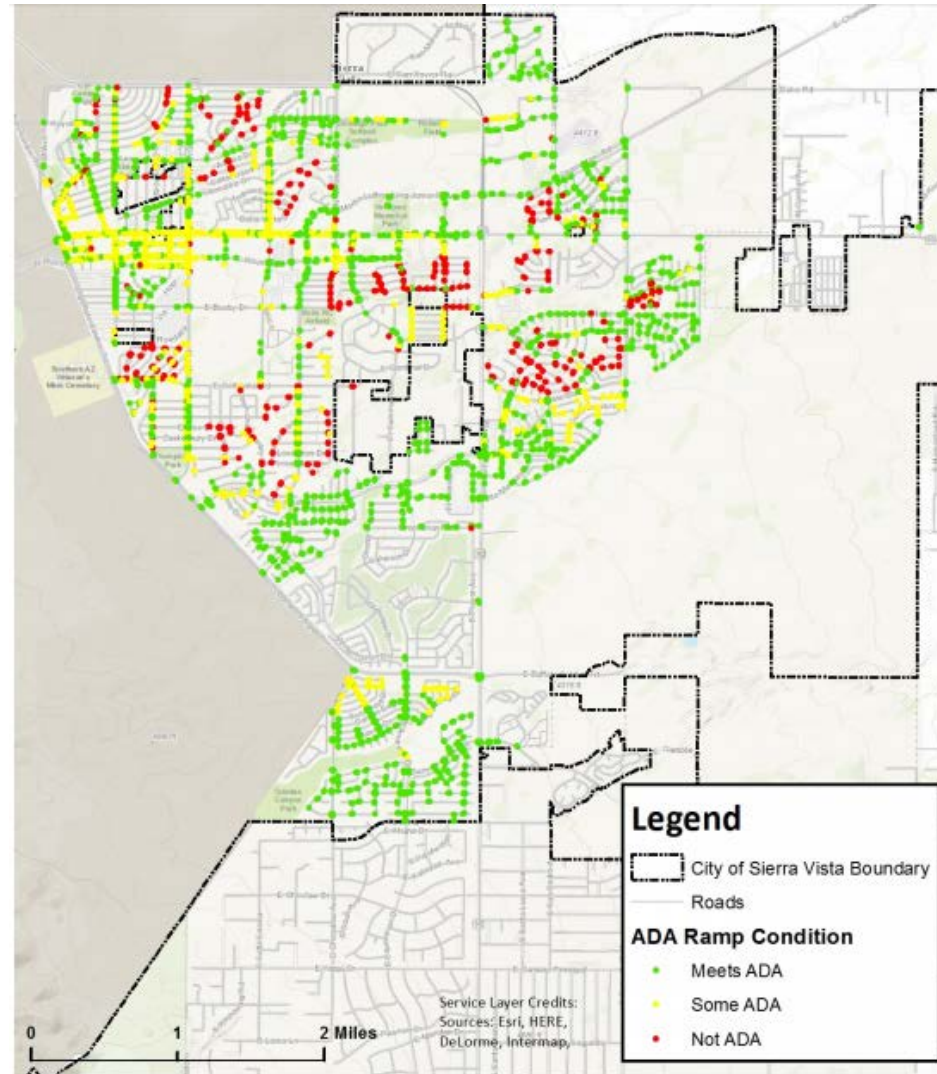
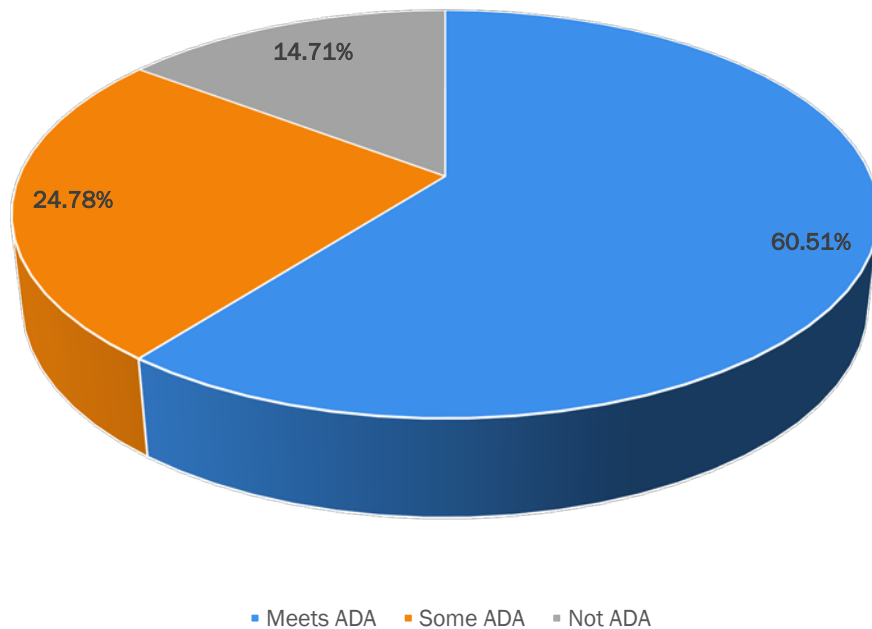
Access to Healthy Food

- Lowest income neighborhoods would benefit from non-motorized facilities to provide access to healthy food



Sidewalks: ADA Compliance

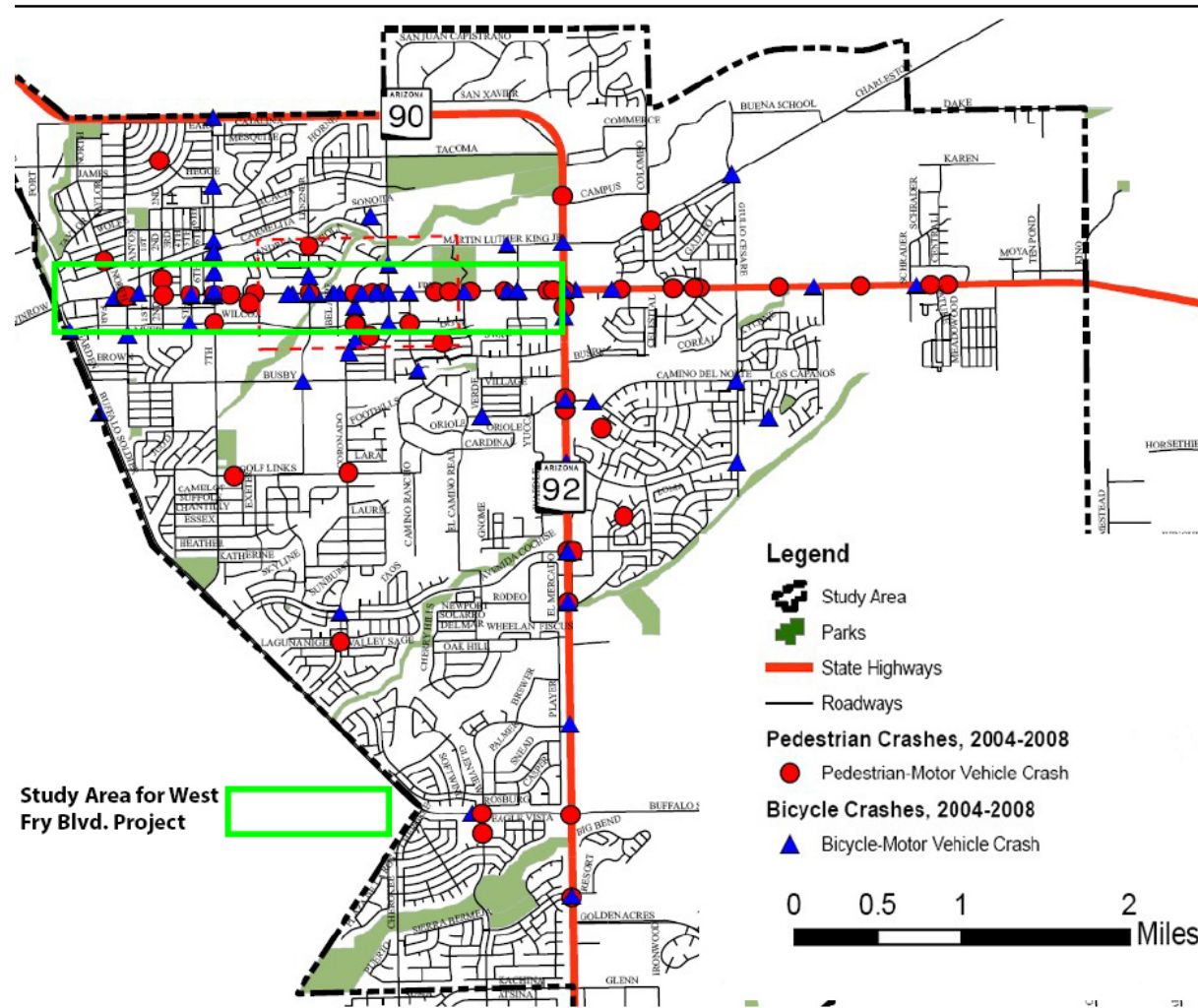
Some Census Tracts have a rate of physical disability as high as 1 in 5 residents.



Source: Sierra Vista Sidewalks Inventory and Implementation Plan 2015. Sierra Vista Metropolitan Planning Organization

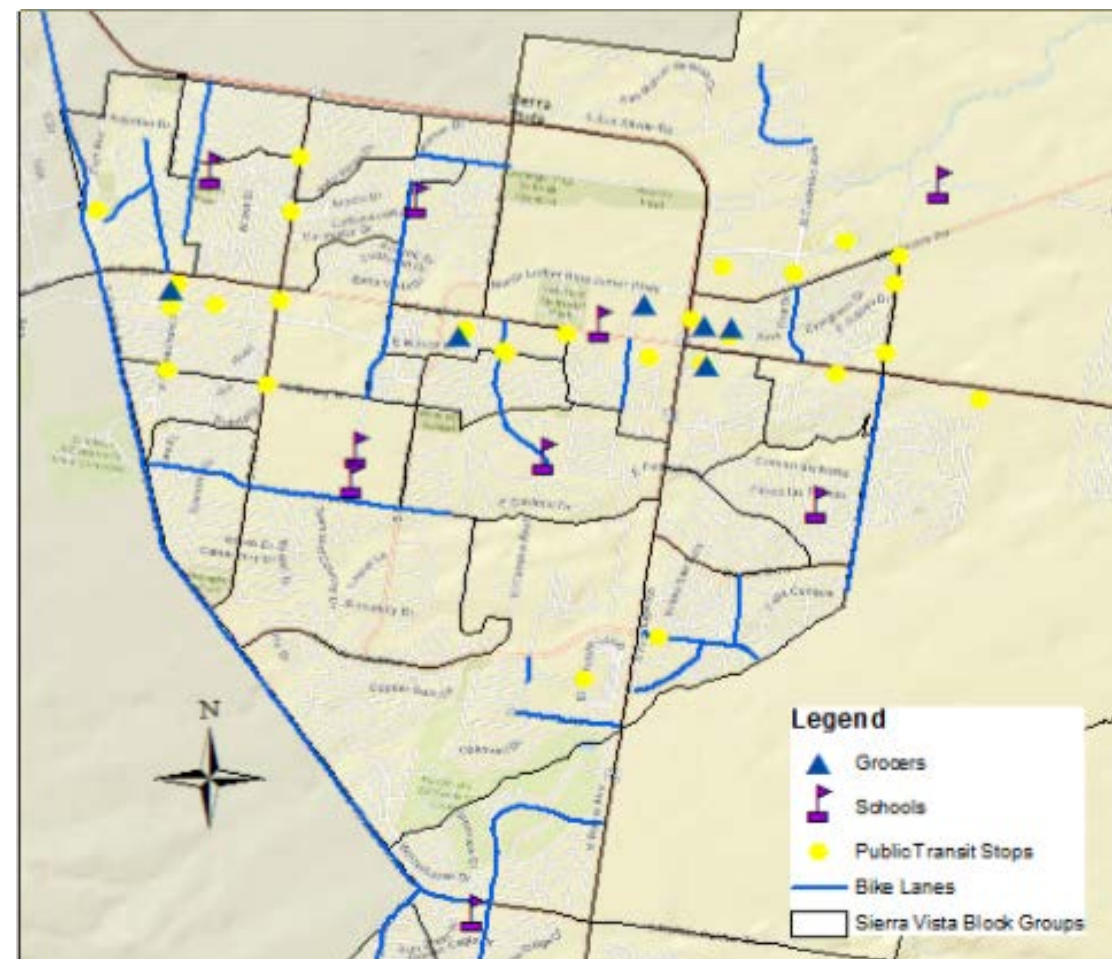
Safe Bicycle & Pedestrian Routes

- The highest number of crashes between bicycles and vehicles and pedestrians and vehicles are along Fry Boulevard; where most of Sierra Vista retail and services are located.



Safe Bicycle & Pedestrian Routes

- Roads with bike lanes have injury rates 50% lower.
- The risk of injury on protected bike lanes is a 90% lower.
- Shared use paths are found to reduce injury by 60%. (1)



Source: SVMPO GIS

(1) Schmitt, A. (2012, October 22). Study: Protected Bike Lanes Reduce Injury Risk Up to 90 Percent | Streetsblog USA. Retrieved from <http://usa.streetsblog.org/2012/10/22/study-protected-bike-lanes-reduce-injury-risk-up-to-90-percent>

W. Fry Blvd. & N. Garden Ave. Redesigns

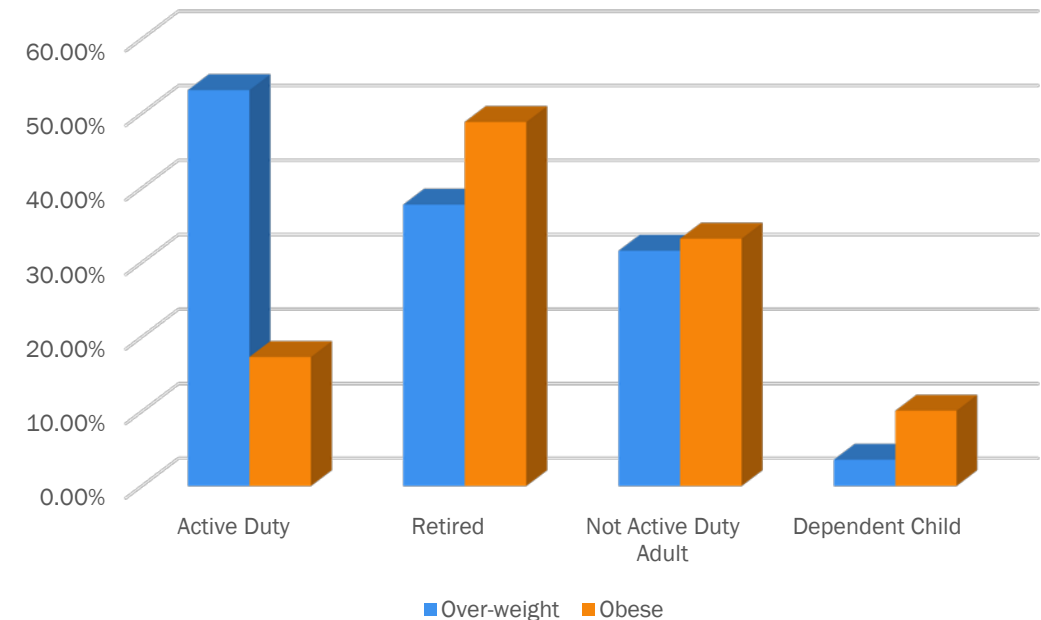
- West Fry Boulevard Corridor Study includes retrofits to the street-scape that would widen sidewalks, and landscaping that would provide shade and separate pedestrians from traffic.
- North Garden Ave. project has three options to redevelop a commercial area and foster a walkable urban environment through improved streetscape.



Health Reporting: Fort Huachuca

- 55% of the military population on Fort Huachuca are obese or overweight based on BMI.
- Obesity affects more than 1/3 of retired military and non-active duty military.
- More than half of all active military are overweight.
- Obesity affects 10% of all dependent children.

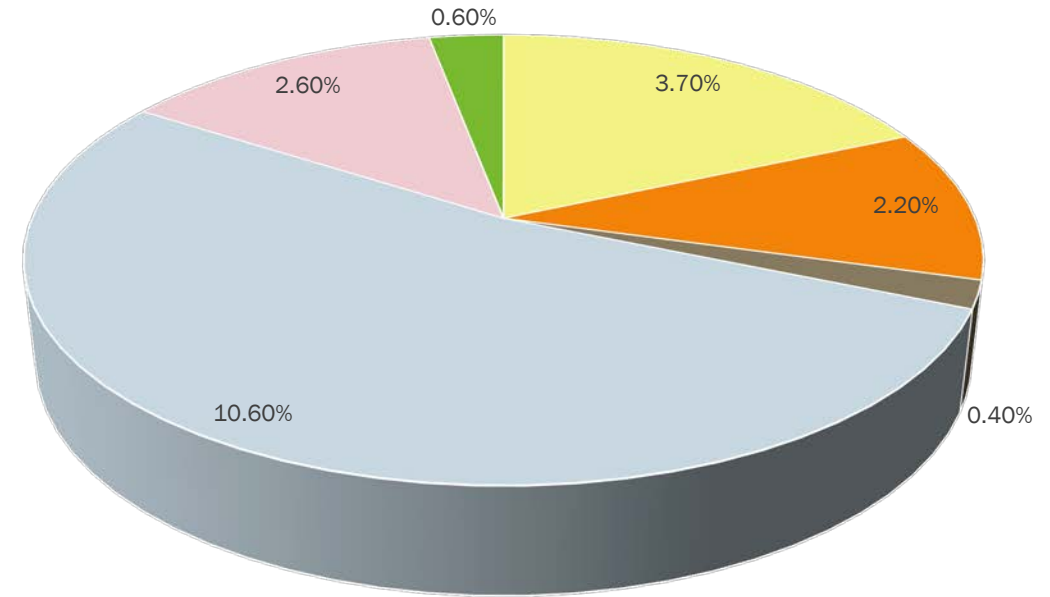
Obese and Over-weight Military Personnel



Health Reporting: Fort Huachuca

Obesity related diseases that can be managed with diet and exercise such as (cardiovascular disease and COPD) make up the largest portion of chronic diseases among the military at Fort Huachuca

Chronic Disease Rates by Diagnosis Category



■ Arthritis ■ Asthma ■ Cancer ■ Cardiovascular ■ COPD ■ Diabetes

Raymond W. Bliss Medical Center

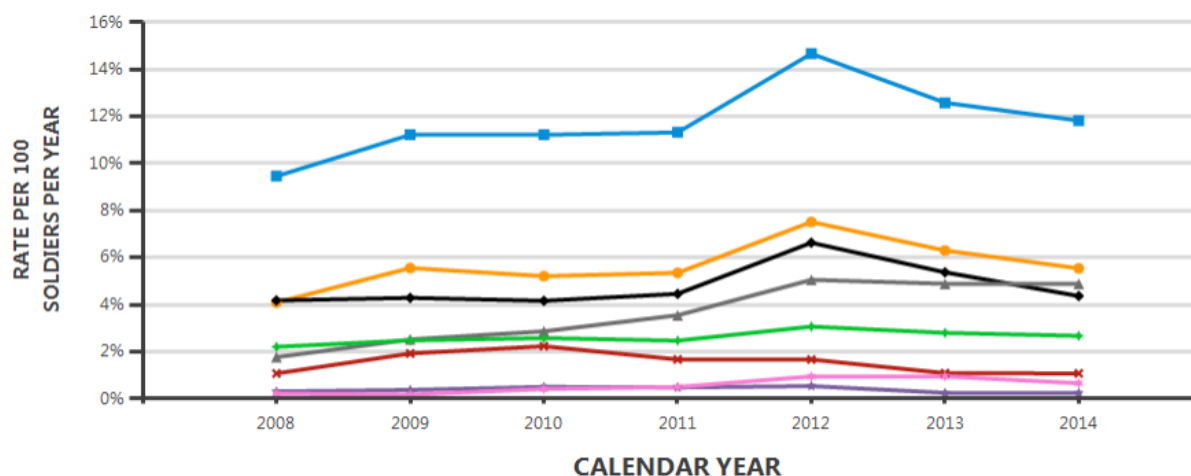
Health Reporting: Fort Huachuca

Behavioral Health problems that are reduced through social engagement and connection with community that occurs through face to face contacts comprise the largest portion of chronic diseases among the military at Fort Huachuca

BEHAVIORAL HEALTH DIAGNOSIS RATES BY YEAR AND DIAGNOSIS CATEGORY, ACTIVE DUTY



Fort Huachuca // Calendar years **2008 - 2014**



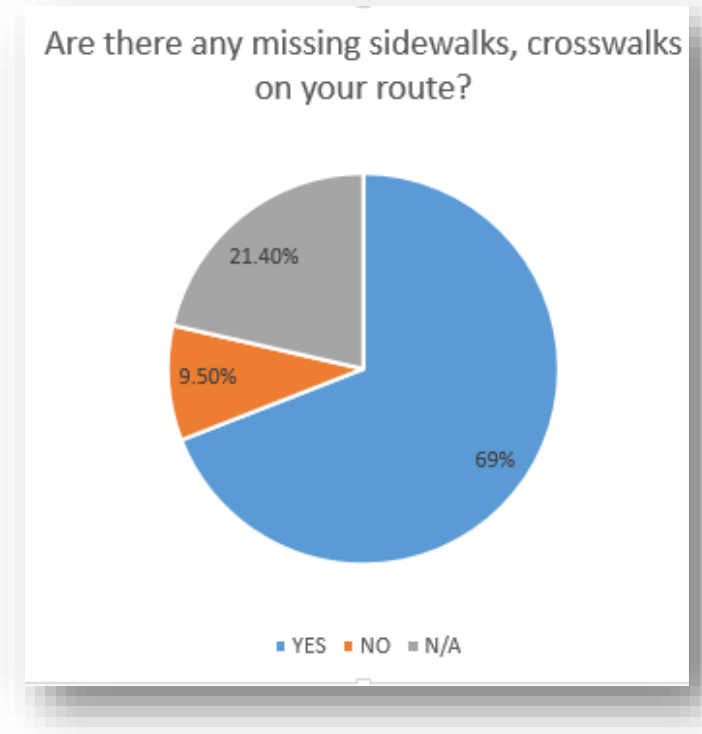
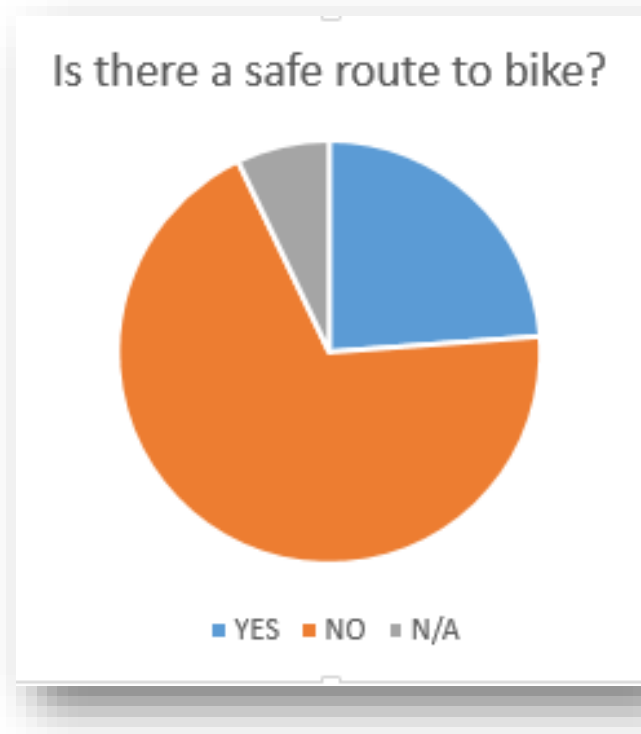
	2008	2009	2010	2011	2012	2013	2014
Any BH Disorder	9.5%	11.2%	11.2%	11.3%	14.7%	12.6%	11.8%
Mood Disorder	4.1%	5.6%	5.2%	5.4%	7.5%	6.3%	5.5%
Adjustment Disorder	4.2%	4.3%	4.2%	4.5%	6.6%	5.4%	4.4%
Other Anxiety Disorder	1.8%	2.5%	2.9%	3.5%	5.1%	4.9%	4.9%
Substance Disorder	1.1%	1.9%	2.2%	1.7%	1.7%	1.1%	1.1%
PTSD	2.2%	2.5%	2.6%	2.5%	3.1%	2.8%	2.7%
Personality Disorder	0.3%	0.4%	0.5%	0.5%	0.5%	0.3%	0.2%
Psychosis	0.2%	0.2%	0.4%	0.5%	0.9%	0.9%	0.7%

planning, policy, design

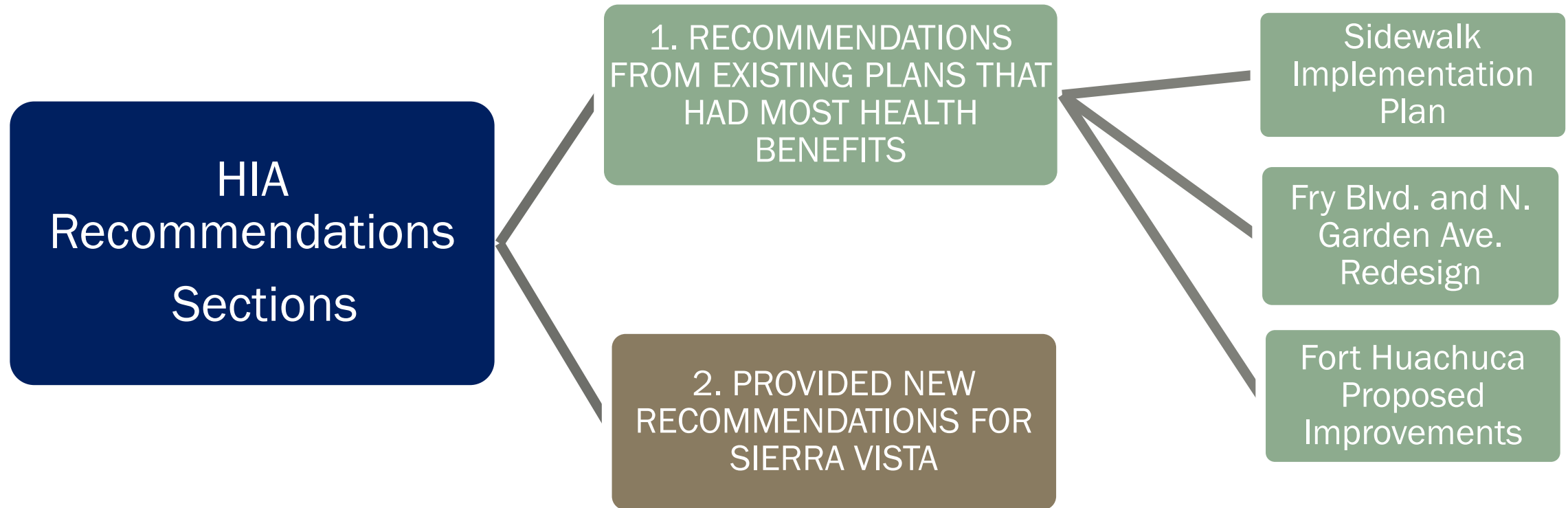


Fort Huachuca Feedback: Bike & Walk

- The majority of respondents to the survey do not live on Fort Huachuca (83.7%), and work on post (97.1%).
- Out of this response rate 65% bike to work, 7% bike and walk to work.



Recommendations



- HIA recommendations include recommendations from adopted plans and other suggestions that would result in transportation options with the most health benefits. The recommendations for Fort Huachuca were provided by Fort staff.

Existing Plan Recommendation

Pedestrian
Safety

Bicyclist Safety

SRTS

Access to
healthy food

Access to
parks/
services

Mobility for
vulnerable
populations

Access to
Health Services

SIDEWALK IMPLEMENTATION PLAN

Provide a connection between N. Carmichael Avenue where it terminates at N. Railroad Avenue to West Fry Boulevard

✓

Provide additional sidewalk along Avandia Cochise between Paseo San Luis and Calle Mercancia, with ADA upgrades.

✓

✓

✓

✓

✓

Provide additional sidewalk along SR92 between E. Hazen and Avandia Cochise, with ADA upgrades. (Project 4)

✓

✓

✓

Provide additional sidewalk on S. Carmichael Ave between Sheila Lane and Timothy Lane, with ADA upgrades (Project 13).

✓

✓

✓

✓

Provide additional sidewalk between N. Colombo Ave between E. Evergreen Dr. and E. Galieleo Dr. (Project 17)

✓

✓

✓

✓

✓

Existing Plan Recommendation

	Pedestrian Safety	Bicyclist Safety	SRTS	Access to healthy food	Access to parks/ services	Mobility for vulnerable populations	Access to Health Services
FRY BOULEVARD AND N. GARDEN AVE. REDESIGN							
The Sierra Vista City Council Strategic Objective goal is to implement a plan to beautify public infrastructure that makes Fry Boulevard and North Garden Avenue more walkable and bike-able.	√	√		√	√	√	√
FORT HUACHUCA PROPOSED IMPROVEMENTS							
Additional sidewalks on Burns Street	√		√	√	√		
Additional sidewalk connecting H Street and Col. Johnston.	√		√		√		
Additional sidewalk connecting Bonnie Blink to Old Post	√				√		
Bike lanes / shared use paths on Arizona Street (Between Irwin St. & Brainaird Rd.)	√	√					
Whitside Road bike lane/ Shared use path proposal	√	√					

Existing Plan Recommendation

	Pedestrian Safety	Bicyclist Safety	SRTS	Access to healthy food	Access to parks/ community services	Mobility for vulnerable populations	Reducing Isolation
Hatfield Street (To Main Gate) bike lane/ shared use path proposal	✓	✓					
Allison to Winrow bike lane/ shared use path proposal	✓	✓					

New Recommendation

Rationale

Include census tract income, proportion of disabled, and persons over 65 in overall sidewalk connectivity priority area determination for sidewalks

Income, disability, and age are important corollaries of access to health care, healthy food, and obesity and obesity related diseases. Including these considerations in sidewalk priorities will help identify areas that need access to healthy and non-motorized transportation areas the most.

Develop a “walk the Fort” program aimed at Fort residents and employees. Advertise the program through Fort literature and website

Providing information about the benefits of walking and bicycling to Fort residents will make them more aware of facilities that are available, and help to create a database that can be used to make Fort residents more aware of new facilities that may be close to them and they could easily access. This may help to increase the number of people who are aware of facilities as well as the number of people who might consider using these facilities.

New Recommendation

Rationale

Require all development to provide ADA compliant sidewalks along local streets

Provide connections from within all new development to existing and planned bicycle routes and shared use paths and trails.

Provide bicycle and pedestrian connections between commercial developments

Provide pedestrian facilities through parking areas located between the street and commercial buildings

When possible, place buildings close to the street

If a development can connect to planned or existing sections of an existing or a planned bicycle route, or shared use path or trail, require the development to provide the connection and allow public access

Providing healthy transportation options helps to reduce obesity and obesity related diseases such as diabetes and hypertension. Walking and bicycling increases social interaction and reduces isolation; which contributes to depression and related diseases such as substance abuse.

Reducing the distance pedestrians have to travel from the street to a commercial building could encourage people to use transit or walk.

Providing connections between commercial developments could result in people walking between them, instead of driving their car from one parking lot to another.



New Recommendation

Rationale

Develop a Safe Routes to School Plan and Program for Sierra Vista Unified School District and Fort Huachuca Accommodation Schools.

Adopt a Complete Streets Policy

A Safe Routes To School Plan will result in identified routes that include facilities that make it safe and enjoyable to walk to school. This could result in more children walking to school, and increased physical activity among the youth population. This could help to reduce childhood obesity.

Complete streets include facilities for all modes of travel. Increasing the availability of non-motorized transportation facilities throughout Sierra Vista and the Fort will result in more people walking or bicycling using safe facilities. This will help to reduce physical injuries from auto/pedestrian/bicycle collisions, increase physical activity and help reduce obesity-related disease. Shade is important to help mitigate potential effects from the sun.



Thank You!



