



**2012
CENTRAL
OREGON**

ON THE MOVE

ASSESSING THE HEALTH IMPACTS OF PUBLIC
TRANSPORTATION IN CENTRAL OREGON

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This project was made possible through a grant from the Northwest Health Foundation and community advisors who gave their time and expertise throughout the Health Impact Assessment (HIA) process.

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TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	1
INTRODUCTION.....	4
ABOUT THIS HIA.....	5
HIA METHODS & PROCESS.....	7
HIA COMPONENTS.....	7
STUDY AREA OVERVIEW.....	12
CROOK COUNTY OVERVIEW.....	14
DESCHUTES COUNTY OVERVIEW.....	16
JEFFERSON COUNTY OVERVIEW.....	18
THE CONFEDERATED TRIBES OF THE WARM SPRINGS INDIAN RESERVATION OVERVIEW...	19
COMMUNITY ENGAGEMENT.....	22
Response Data.....	23
LITERATURE REVIEW.....	25
RECOMMENDATIONS.....	28
APPENDIX.....	32



EXECUTIVE SUMMARY

Transportation and Health

With chronic disease and obesity on the rise in America, more and more focus is being placed on how transportation policy impacts community and population health. Historically, government transportation agencies and developers of transportation policy have placed emphasis on industry and expedience – moving goods and people as far and fast as possible. Today approximately 80 percent of federal transportation funding is directed towards highway projects (e.g. roads, bridges, etc), while only one-fifth (20%) are used for public transportation infrastructure. Funding to support active transportation through bicycle and pedestrian infrastructure is also very limited, or a mere 2% of overall transportation funds (Cohen and Bell, 2009).

As federal transportation policy has shaped our highway systems over the past several decades, a growing reliance on the automobile has in tandem shaped the landscape of our communities. This has dramatically changed how Americans access goods and services, and has had obvious health consequences including a substantial decrease in daily physical activity levels. An automobile-centered transportation system, as is the case in Central Oregon, has left many with limited access to important goods and social services such as healthy foods offered at full-service grocery stores and regular healthcare for individuals and their families. This is especially true for rural, low-income and senior citizens. Nationwide:

- 25% of low-income Hispanic/Latinos and 12.1% of low-income Non-Hispanic whites lack automobile access
- More than 1 out of 5 Americans age 65 and older do not drive
- Transportation is expensive – U.S. households earning \$20,000 to \$35,000 and living far from employment centers spend approximately 37% of their income on transportation

- A 2004 study found that for every additional hour spent travelling in a car, there was a 6% increase in the likelihood of obesity

Rural communities may feel the most significant impact of transportation-related health disparities. A widely publicized study that surveyed 2,500 residents of 13 rural communities cited transportation related factors as being linked to obesity and chronic disease. Barriers perceived by residents, and most often by obese residents, included distance from recreational facilities and full service grocery stores as well as safety concerns related to lack of sidewalks or walking/biking trails on most streets (Brownson, 2001).

There is a movement in Central Oregon to vastly improve the public transportation system to provide greater mobility in and between our communities. This HIA aims to inform transportation planners and policy makers by analyzing transit service in Central Oregon as it currently exists with a growing field of data and literature that establishes a link between adequate transportation and population health outcomes.

Project Overview

Health Impact Assessment (HIA) is an emerging practice in the United States, widely promoted by the Centers for Disease Control and Prevention (CDC) as a tool to influence policy, projects and programs that have short and long-term health consequences. With funding from the Northwest Health Foundation, Commute Options for Central Oregon and a team of community partners chose to implement a Health Impact Assessment (HIA) on planning efforts occurring at the local and regional level that would determine future transportation policy and initiatives for the tri-county region of Central Oregon: Deschutes, Jefferson and Crook Counties.

At the outset of the project, the HIA team established a question that would become an overarching guide for the 14-month project. “To what extent would a coordinated

regional transit system reduce health disparities and impact overall community health in Central Oregon?”

Specific aims of the HIA include:

- Identify key areas whereby the availability of transit plays a significant role in either reducing or supporting opportunities to maintain health;
- Present HIA findings to inform policy direction taken in local and regional plans;
- Provide policy makers a range of broad and specific policy recommendations that would reduce health disparities and enhance the positive health outcomes of transit; and
- Publicly disseminate HIA findings in collaboration with transit planners and operators to re-frame perceptions of transit investments in the context of health and well-being.

Methodology

The study used standard HIA steps as recommended by the CDC. These include: Screening, Scoping, Assessment, Reporting and Monitoring. In addition to this framework, the project used community engagement to form an advisory council, including representatives from the public health, county planning, transportation, social service, sustainable communities, Tribal communities and healthcare sectors as well as Central Oregon area residents. The Advisory Council informed key activities including the development of community surveys as well as identification of the scope of the HIA around four focus areas:

1. Opportunities for physical activity and healthy nutrition
2. Access to health care services

3. Access to employment
4. Safety

Findings & Recommendations

Central Oregon has very unique geographical issues related to transit. For example, Bend is only one of four Metropolitan Planning Organizations that does not encompass more than one city. This makes planning for true regional connectivity challenging. But the issues of access to goods and services, economic vitality and community health related to transit policy are felt throughout the region. Currently, the transit system is utilized most by the very populations who must rely on these services due to a lack of access to reliable transportation options.

Need riders, also referred to as “transportation disadvantaged,” encompass populations who experience the greatest health disparities, including senior citizens, rural community members, people living in poverty and racial and ethnic communities; specifically Hispanic/Latino immigrant families and Native American individuals living where goods and services are significantly limited. Individuals who would choose to ride public transportation to save on gas or simply for principle are referred to as “choice riders.” Transit service as it currently exists does not attract the critical mass of choice riders that will be needed in order to grow and enhance public transit service levels over time. Transportation planners are thus faced with a critical balance of serving both sides of the equation in order to achieve optimal transit use and public support that would ensure continued growth and connectivity where it is most needed within Bend and region-wide.

Given this critical balance, the HIA workgroup is recommending the following to inform transportation planning efforts into the future.

Overarching recommendation: Regional and local transportation plans support a strategic direction that recognizes the nexus between transportation and health, and enhances public and active transportation so it is safe and accessible for all people.

FOCUS AREAS

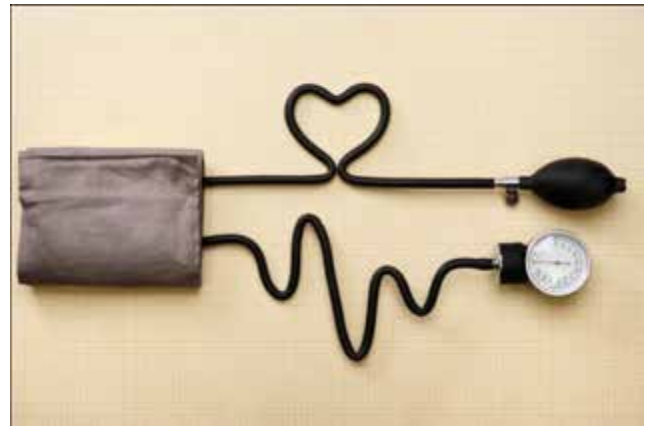
& KEY RECOMMENDATIONS

PHYSICAL ACTIVITY AND HEALTHY NUTRITION



Invest in strategies that increase use of active & public transportation.

ACCESS TO HEALTH CARE SERVICES



Increase access to health care services for rural & transportation disadvantaged populations.

ACCESS TO EMPLOYMENT



Increase access to employment opportunities for rural & transportation disadvantaged populations.

SAFETY



Consider the safety & needs of all road users (including vulnerable populations) in land-use planning & road design standards.

INTRODUCTION

About Public Health

The health industry in America faces an uphill climb in meeting its primary objective - reducing the burden of disease and injury. Considerable barriers continue to persist including:

- A growing un and underinsured population
- Skyrocketing health care costs
- Ineffective and inefficient management of chronic illness
- Long-standing health disparities related to race, ethnicity and poverty
- Epidemics of obesity, diabetes and asthma

Many of these problems are preventable and, despite successes in some areas, have proven too complex for the health sector to solve alone. This is in essence where public health comes into play. Public health is the science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organizations, public and private, communities and individuals (Winslow, 1920). The science of public health practice involves investigation and cultivation of knowledge from research, population health trends, evidence-based best practices, assessment of threats to population health and the drivers or factors that impact these trends. The art of public health is in action – bringing society together to move collectively on an issue. Public health researchers, practitioners and advocates recognize that policies from many fields can significantly affect health. Policies about the crops we grow, the parks we build, land development patterns, and the roads we travel have widespread impact on our health and wellness.

Public health initiatives, such as Health Impact Assessment (HIA), feature partnerships consisting of leaders and organizations from multiple sectors of society. Though more research is needed, it is generally accepted that this collective action can stimulate policy, systems and environmental changes that make healthy choices easier and more accessible to all people, including populations experiencing the greatest health disparities. When people have convenient access to resources that help them lead an overall healthy lifestyle, they are more likely to eat better, be more active and, in turn, reduce their risk for future disease. Figure 1 depicts different factors in a person’s context that influence health and quality of life – beyond a person’s individual health choices, substantial research has shown that social, cultural and environmental conditions impact health at individual and community levels.

Largely preventable and highly manageable chronic diseases account for 75 ¢ of every dollar we spend on health care in the U.S.

In contrast, we spend less than 5¢ on prevention, even though the World Health Organization and Centers for Disease Control and Prevention have estimated

80% of heart disease and type-2 diabetes &

40% of cancers could be prevented by doing 3 things:

EXERCISING MORE

EATING BETTER

AVOIDING TOBACCO

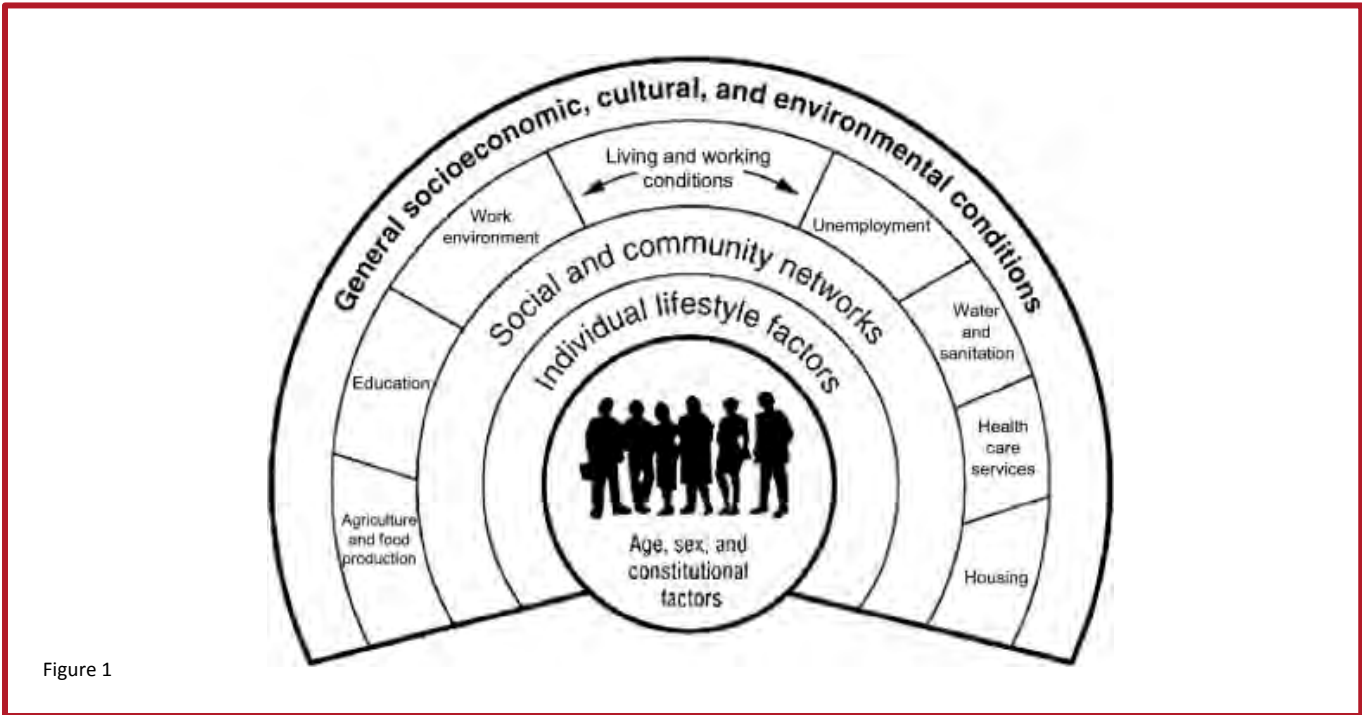


Figure 1

In the U.S. and around the world, there is a growing recognition that transportation systems are central in determining accessibility of health related community resources. Transportation policies, for example, can play a major role in traffic injury incidence or impact noise and air pollution to nearby public or residential areas. Conversely, transportation and land use policies that are

developed with the intent to improve health outcomes will both help reduce these risks as well as promote healthy behavior choices such as walking and cycling. These systems also have significant impact on the way a region develops and on the quality of life of its residents because our transportation choices influence what, when, where and how often resources are accessed.

ABOUT THIS HIA

Health Impact Assessment (HIA) is an emerging practice in the United States and it is widely promoted by the Centers for Disease Control and Prevention (CDC) as a tool to influence decisions that have short and long-term health consequences. HIA is commonly defined as “a combination of procedures, methods, and tools by which a policy, program, or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population” (Gothenburg, 1999).

In early 2011, a HIA process was initiated in Central Oregon to support public transit planning efforts that are occurring at regional and local levels. A multi-sector advisory council was formed including leaders from public health, transportation planning, environmental and social advocacy, health care delivery, recreation and transportation demand management organizations. For the first time in the region’s history, transit was examined with a health lens. This report highlights key findings and recommends a variety of policy initiatives that promote

and protect the health of the people in Central Oregon through health-oriented transportation policy.

This HIA specifically informs four transportation planning efforts and explores opportunities that exist for collaboration toward increased regional connectivity. These plans include:

1. Bend Public Transit Plan. The Bend Metropolitan Planning Organization (MPO) received a Transportation Growth Management (TGM) grant to develop a long-term Public Transit Plan for the Bend portion of the CET service area.
2. The Central Oregon Regional Transit Master Plan. The Central Oregon Intergovernmental Council, operator of Cascades East Transit (CET), was also the recipient of a

TGM grant and is conducting a study to identify what transit services are desired by the residents and leaders of each Central Oregon community (outside Bend) and the region as a whole, and options to fund it.

3. The Central Oregon Transportation Options Plan (COTOP). COIC is also developing this regional policy plan, which will provide actual costs and benefits of increasing regional transit service and other travel demand programs. The outcome will be an integrated policy for transportation investments in the region..
4. The Confederated Tribes of the Warm Springs Indian Reservation (CTWS) are also updating the reservation's transportation plan, which will establish future direction and amenities for a new fixed route bus system, bicycling and walking.

Aims and Objectives

The overarching aim of this HIA is to assess the linkages between public transit services in Central Oregon and health determinants and outcomes. Specific project objectives include:

Identify key areas whereby the availability of transit plays a significant role in either reducing or supporting opportunities to maintain health;

Present HIA findings to inform policy direction taken in local and regional plans;

Provide policy makers a range of broad and specific policy recommendations that would reduce health disparities and enhance the positive health outcomes of transit;

Publicly disseminate HIA findings in collaboration with transit planners and operators to re-frame perceptions of transit investments in the context of health and well-being.

HIA METHODS & PROCESS

A Regional Transit HIA core workgroup implemented this project according to a framework that has been established by the North American HIA Practice Standards Association. The Core Workgroup consisted of representatives from each County that the Central Oregon Intergovernmental Council's (COIC) Cascades East Transit (CET) system serves: Jefferson, Crook and Deschutes Counties. Core Workgroup members included:

- Scott Aycock, COIC (regional, transportation planner)
- Kim Curley, Commute Options (regional)
- Muriel De Lavergne-Brown, Crook County Health Department (Crook County)
- Lonny Macy, The Confederated Tribes of the Warm Springs Indian Reservation (Warm Springs Reservation and Jefferson County)
- Therese Madrigal, Deschutes County Health Services (Deschutes County)
- Kate Wells, PacificSource Community Solutions / St. Charles Health System (regional)

HIA Components

Health Impact Assessment uses quantitative, qualitative and community participatory techniques to help decision makers make choices about alternatives and improvements that can be made to prevent disease/injury and actively promote health. (World Health Organization, 2010). HIAs are implemented including the following five steps:

1. Screening – Determining the need and value of a HIA.
2. Scoping – Determining which health impacts to evaluate, the methods for analysis, and the plan to complete the assessment.

3. Assessment – Using data, research, expertise, and experience to judge the magnitude and direction of potential health impacts.
4. Reporting – Communicating the results to stakeholders and decision makers.
5. Monitoring – Tracking the effects of the HIA recommendation and the decision on health.

This report concludes the implementation of the first three steps of the Central Oregon Regional Transit HIA process (screening, scoping, assessment). Stage four (reporting) and five (monitoring) will be a longer term process as information related to HIA findings will be disseminated to correspond with transportation planning efforts and, ultimately, the final adoption of the three local and regional transit plans.

Guiding Principles

Among standard HIA procedures, an overarching set of principles are adhered to throughout each step of the process (Principles adapted by HIA Practice Standards Workgroup from Quigley et al, 2006). These include:

Democracy – emphasizing the right of people to participate in the formulation and decisions of proposals that affect their life, both directly and through elected decision makers. In adhering to this value, the HIA method should involve and engage the public, and inform and influence decision makers. A distinction should be made between those who take risks voluntarily and those who are exposed to risks involuntarily (World Health Organization, 2001).

Equity – emphasizing the desire to reduce inequity that results from avoidable differences in the health determinants and/or health status within and between different population groups. In adhering to this value, HIA should consider the distribution of health impacts across populations, paying specific attention to vulnerable

groups and recommend ways to improve the proposed development for affected groups.

Sustainable development – emphasizing that development meets the needs of the present generation without compromising the ability of future generations to meet their own needs. In adhering to this value, the HIA method should judge short and long-term impacts of a proposal and provide those judgments within a time frame to inform decision makers. Good health is the basis of resilience in the human communities that support development.

Ethical use of evidence – emphasizing that transparent and rigorous processes are used to synthesize and interpret the evidence, that the best available evidence from different disciplines and methodologies is utilized, that all evidence is valued, and that recommendations are developed impartially. In adhering to this value, the HIA method should use evidence to judge impacts and inform recommendations; it should not set out to support or refute any proposal, and it should be rigorous and transparent.

Systems approach to health – emphasizing that physical, mental and social well-being is determined by a broad range of factors from all sectors of society (known as the wider determinants of health). In adhering to this value, the HIA method should be guided by the wider determinants of health.

Context, Screening & Rationale

Until recently, Bend was the only western metropolitan area without a public bus system. Measure 927 would have created a transit district November 2004 ballot, but was defeated 53 to 41 percent. The City launched Bend Area Transit (BAT) in August 2006. In 2008, a second measure was defeated, 51 to 49 percent. Nonetheless the Bend City Council mandated a more comprehensive

system to meet demand and better serve urban land-use patterns. In parallel, the region’s Council of Governments – COIC – launched a regional transit system in 2008, Cascades East Transit (CET). CET was established to provide local transit service in the 7 other incorporated cities of Central Oregon, and to connect those communities with each other and with Bend through a system of “community connector shuttles.” In 2010, COIC and the city of Bend agreed to merge the two systems to create one integrated regional system. COIC now operates all regional transit services under the name Cascades East Transit.

CASCADES EAST TRANSIT (CET) SERVICES:

LOCAL FIXED ROUTE available in Bend, including:

- * 7 primary fixed routes;
- *2 special seasonal routes to summer and winter recreational activities;
- *“Complementary paratransit” service available anywhere within the city limits to provide curb-to-curb service to persons physically unable to utilize the fixed route system. (Curb-to-curb service requires a reservation at least 24 hours in advance).

LOCAL DEMAND-RESPONSE SERVICE providing curb-to-curb service in all 7 remaining cities:

Culver, La Pine, Madras, Metolius, Prineville, Redmond, and Sisters.

- *This service requires a reservation at least 24 hours in advance, but customers can also set up a “subscription trip” with regular trips at regular hours.

COMMUNITY CONNECTOR SHUTTLES connecting all 8 incorporated cities and Warm Springs.

- *The shuttles operate on a regular schedule, but many routes require a reservation for a ride to be secured.

BEND FIXED ROUTE RIDES

Number of Rides 09/2010 through 01/2012

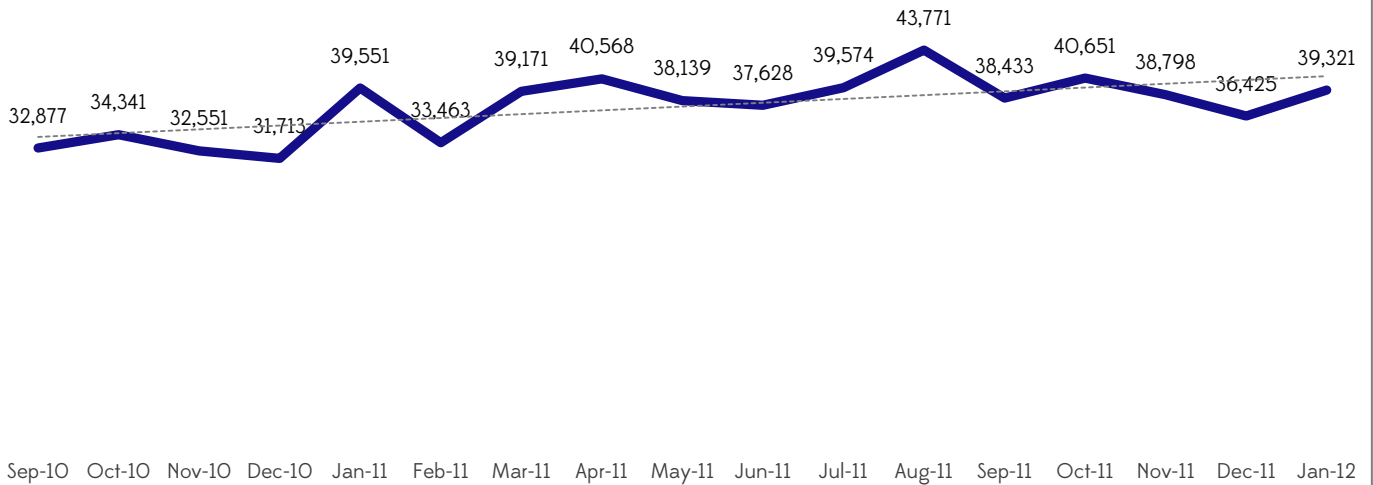


Figure 2

NON-BEND FIXED ROUTE RIDES

Number of Rides for All Other Services 09/2009 through 01/2012

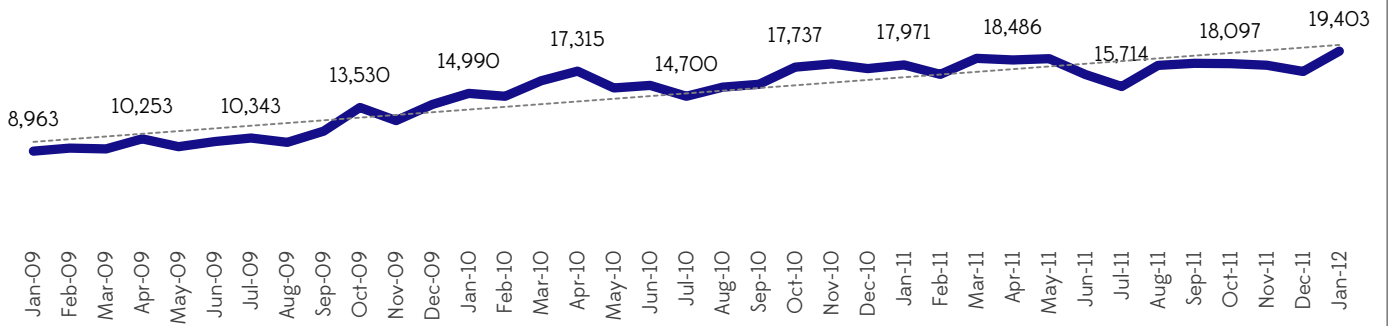


Figure 3

Figures 2 and 3 depict local Bend fixed route rides. While ridership has leveled off the past couple years, rides on the rest of the CET system – local demand-response and community connector shuttles – grew rapidly the first couple years and have now leveled off as well. More information on Cascades East Transit service can be found at: <http://www.cascadeseasttransit.com>

Despite an uneven past, many believe public will to invest in transit is moving in the right direction. With COIC taking over operations of both the Cascade East Transit (CET)

and Bend Area Transit (BAT), and with fledgling fixed route services in Warm Springs and soon Redmond, the groundwork is being laid for a coordinated regional public transit system. The process, however, will be laden with political, jurisdictional and practical issues. City/County governments, ODOT and Tribal administrators will need to agree on policies and coordinate funding strategies to implement transit changes. The decision to implement an HIA that corresponds with the development of transit plans was made in an effort to inform the more broad strategic direction of each plan in the context of

population health improvement. This screening decision was in contrast with the more generally utilized HIA approach, which critiques a policy, program or project that has already been developed and proposed. This rationale is in part because the workgroup sees an opportunity to inform the strategic direction of each transit plan as well as the public around the health impacts of transit. Shedding light on transit as a health determinant is an important, but not as common, viewpoint. This increased understanding may lead to enhanced community will for sustainable, long-term transit investments and, in turn, a coordinated and more convenient regional transportation system.

Scoping

Scoping is the foundation of HIA. This is the phase in which stakeholders identify the key areas of focus for the

HIA. Typically, these areas rise to the surface in discussion as key health determinants related to the HIA policy or project being examined.

Stakeholder Advisors

The HIA Workgroup formed a stakeholder advisory council (AC) consisting of core workgroup members, community advocates and transportation planners to set a framework for the scope, research and community engagement components of the project. The council included 20 people all of which were invited to attend a total of six workshops to introduce the project, conduct and revise scoping, review data, and review, discuss and revise the HIA final report (see page 1 for a list of advisory council members). Email was used often to share resources and gather AC and workgroup feedback.

FOCUS AREAS

The HIA workgroup convened the AC in a scoping workshop and therein the AC identified the following four (4) general policy areas to evaluate in this HIA:



Other proximal impacts that may be related but which this project did not focus on because of time constraints and/or data uncertainty include:

- | | |
|------------------|-------------------------|
| RURAL LIVABILITY | AIR AND NOISE POLLUTION |
| MENTAL HEALTH | SOCIAL CAPITAL |
| CLIMATE CHANGE | |

THE TERM “TRANSPORTATION DISADVANTAGED”

describes members of the population who cannot obtain their own means of transportation due to a disability, age or income level.

THE “TRANSIT- DEPENDENT”

(low-income, minorities, youth, elders, etc) must often rely on public transportation not only to travel to work, but also to get to school, obtain medical care, attend religious services and shop for basic necessities such as groceries.

Many who are transit dependent have lower incomes and thus, in addition to facing more difficulties getting around, they face economic inequities as a result of transportation policies oriented toward travel by car.

(Moving to Equity: Addressing Inequitable Effects of Transportation Policies on Minorities, 2003)

Key Populations of Interest

Transportation funding and decision-making over the past 40 years has focused primarily on moving people, goods and services across longer distances. We have poured extensive funding into creating a network of roads and bridges to support freight and automobile mobility with little or no attention being paid to meeting the needs of rural and/or underserved communities. While this strategy helps fuel the nation’s economic engine, there are unintended consequences. According former Congressman James Oberstar, Chairman of the House Transportation and Infrastructure Committee, “The failure to link transportation and land use decision making, and to consider the public health effects of these choices, has led to a tilted playing field that has made driving the easiest—and often the only—option available in many parts of the country (Cohen, 2009).” An advantage we have being located in Oregon has mandated bicycling infrastructure funding since 1971. The state has also mandated that sidewalks and bike lanes be added to all new and reconstructed arterial and collector roads since 1991. These two requirements have greatly expanded the bicycle and sidewalk networks throughout Oregon and put us 20+ years ahead of most of the U.S.A.

Consistent with HIA practice principles, equity and social inequalities are important to informing both general and specific policy recommendations. Populations who are transportation disadvantaged generally do not have equal access to basic needs such as healthy foods, primary and preventive medical care or employment and educational opportunities (Surface Transportation Policy Project. Transportation and Poverty Alleviation. Available at www.transact.org/library/factsheets/poverty.asp). This is especially true for rural, low-income and senior citizens:

- 25% of low-income Latinos and 12.1% of low-income whites lack automobile access
- More than 1 out of 5 Americans age 65 and older do not drive
- Transportation is expensive – U.S. households earning \$20K to \$35K and living far from employment centers spend approximately 37% of their income on transportation
- A 2004 study found that for every additional hour spent by car, there was a 6% increase in the likelihood of obesity (Frank, 2004)
- A widely publicized study that surveyed 2,500 residents of 13 rural communities cited environmental factors as being linked to obesity. Barriers perceived by residents, and most often by obese residents, included distance from recreational facilities/grocery as well as safety concerns related to lack of sidewalks or walking/biking trails on most streets (Brownson, 2001).

This HIA considers the perspectives and challenges that transit disadvantaged populations may face. Specifically, the following groups are considered key populations of interest:

SENIOR CITIZENS

LOWER SOCIO-ECONOMIC COMMUNITIES

PEOPLE WITH DISABILITIES

PEOPLE LIVING IN RURAL AND/OR ISOLATED AREAS

CHILDREN AND YOUTH UNDER THE AGE OF 16

Assessment

This HIA assessment presents a general overview of the region's population health as well as key findings from community engagement strategies employed to gain an understanding of the current nature of transit utilization. More detailed statistics on regional health and social characteristics can be found in the Central Oregon Regional Health Assessment, which can be found here: <http://cohealthcouncil.org/resources/regional-health-assessment>

Study Area Overview

On the whole, Central Oregon is rural – separated from the more densely populated Interstate 5 corridor by the Cascade Mountains. Geographic isolation is a major factor that contributes to health and social outcomes in most Central Oregon communities. For example, people living in outlying communities may have to travel distances greater than 20 miles for employment. Because each

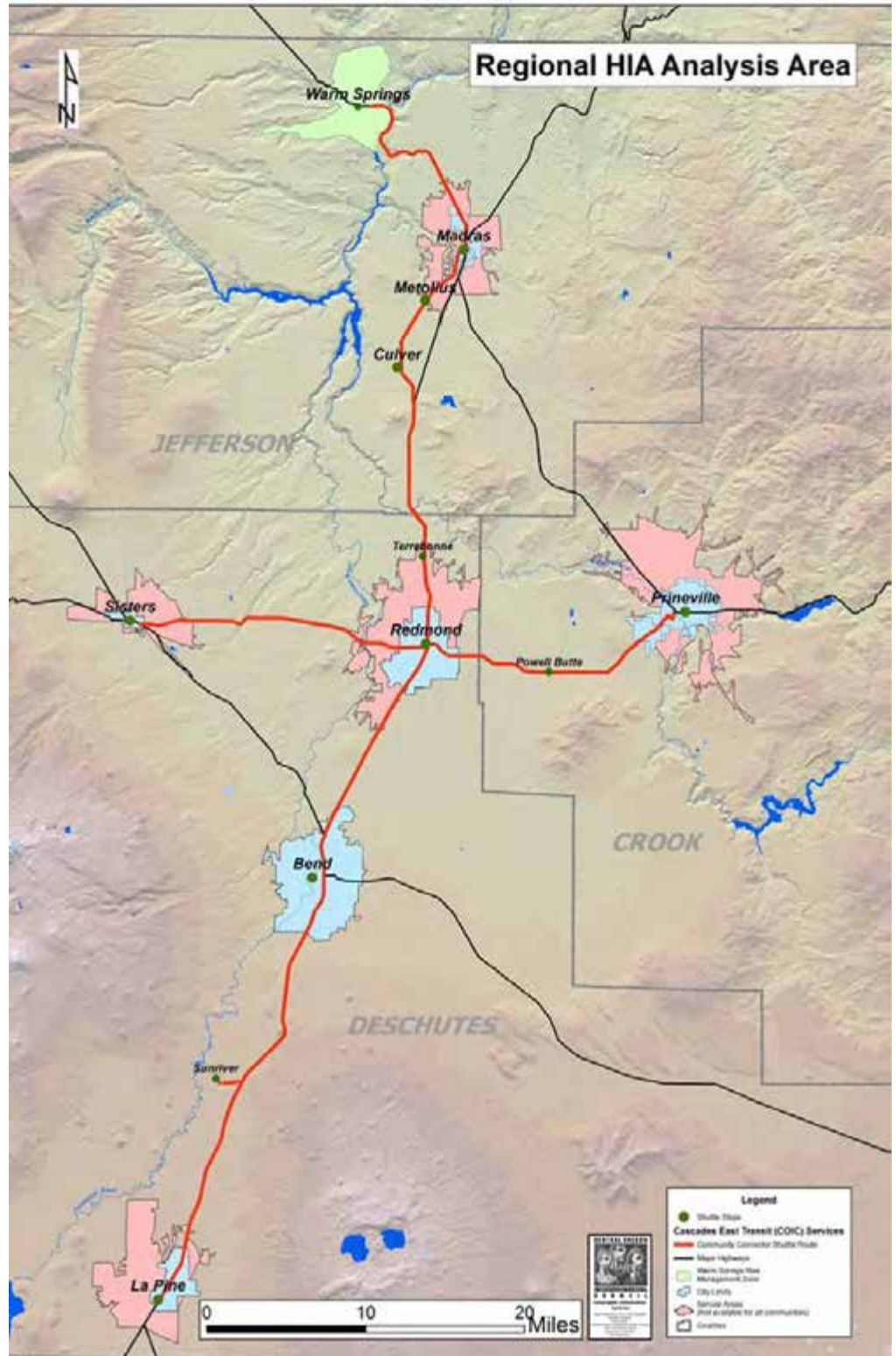
community varies widely from the next, health, social, economic and environmental conditions also vary widely.

Between 1995 and 2007, the Central Oregon population grew by an incredible 73%. From 1990 to 2010, the population increased in Crook from 14,111 to 20,978, in Deschutes from 74,958 to 157,733, and in Jefferson from 13,676 to 21,720 residents (Central Oregon Regional Health Assessment, 2012). Most of this growth was due to in-migration. During this time, Bend became the region's only metropolitan-designated city. Though the recession has slowed growth region-wide, Deschutes County continues to outpace state population growth. With its current population of 76,639, Bend ranks seventh among Oregon cities. Estimates suggest that Bend will break the 100,000 mark by 2020 (Economic Development for Central Oregon, <http://www.edcoinfo.com/regional-facts/population/tri-county-current-population-data/default.aspx>)

Every public transportation bus operating in Central Oregon (outside the Warm Springs Reservation) is operated by CET. Dial-A-Ride is a door-to-door, alternative mode of flexible passenger transportation that does not follow fixed routes or schedules. In Bend, the service is limited to individuals who, because of a disability, are prevented from using the City's fixed-route bus service. Dial-A-Ride is currently available to all people where there is not a fixed route service including Madras, Culver, Sisters, Redmond, La Pine, and Prineville.

Dial-A-Ride can have both positive and negative impacts on health. Door-to-door service, for example, may actually reduce levels of daily physical activity versus other alternatives such as walking, cycling, or in some cases even driving one's own personal vehicle. Conversely, the service provides access to healthcare, food and other important resources for transportation disadvantaged populations.

Figure 4. Overview of the study area region and the current inter-community connector routes.



Crook County Overview

Crook County has an older population as well as more dependent-age residents for every working-age resident. Poverty compared to the rest of Oregon is relatively high in Crook County. 26% of all children—more than 1 in 4 under age 18—live in poverty. Unemployment is high but trending downward at 14.4%. Food insecurity is believed to impact 22.2% of Crook residents which is the highest rate in the tri-county area. 16 % of low-income residents live more than one mile to a full-service grocery store and 3.15% live more than 10 miles. (Economic Research Service & USDA, 2006-2008 data).

THE NEW SILICON VALLEY?



In 2010, social media marvel Facebook established a data center in Prineville, where the local government struck a deal with the company to provide tax breaks in the hope its influence will boost a struggling local economy and create new jobs. Facebook has just announced that they are planning to build two more data centers in Jefferson County in the future Just recently (2012) Apple announced it would follow suit with a new data center to expand its network for Internet storage. While the jury is still out, many local Prineville residents have felt a positive impact and hope the high-tech and Internet giants will bring both a boost to the economy as well as community pride and good will. Given this context, there is significant opportunity to leverage and fuel economic growth through public and active transportation services and infrastructure investments that would build on a new energy and increased interest in the community as a place live, work and play.

Age-adjusted rates of overweight and obesity are 39.1% and 31.5% respectively. 69.4% of adults meet the recommended 30 minutes per day of physical activity and 14% meet the daily recommendation of 5 servings of fruits and vegetables – almost half the rate of Deschutes and Jefferson adults. Crook County’s adult smoking rate is among the highest in the state at 23%.

The top three causes of death in Crook County are as follows:

1. Cancer: 24.3%
2. Heart Disease: 17%
3. Chronic Lower Respiratory Disease: 9.8%

(Central Oregon Regional Health Assessment, 2012)

Cascades East Transit and its Dial-A-Ride operations currently serve the Crook County’s main community of Prineville. Recently, Crook County and the city of Prineville conducted a HIA on a bicycle and pedestrian safety plan with the goal of creating an “Active Community,” or place where residents and visitors can readily participate in everyday physical activity (Crook County Bicycle and Pedestrian Safety HIA, 2011). With the recent move by Facebook and Apple to establish data centers in Prineville, there may be reason to anticipate things changing in Prineville over the next decade. Due to this, there is potential for synergy among city, county and

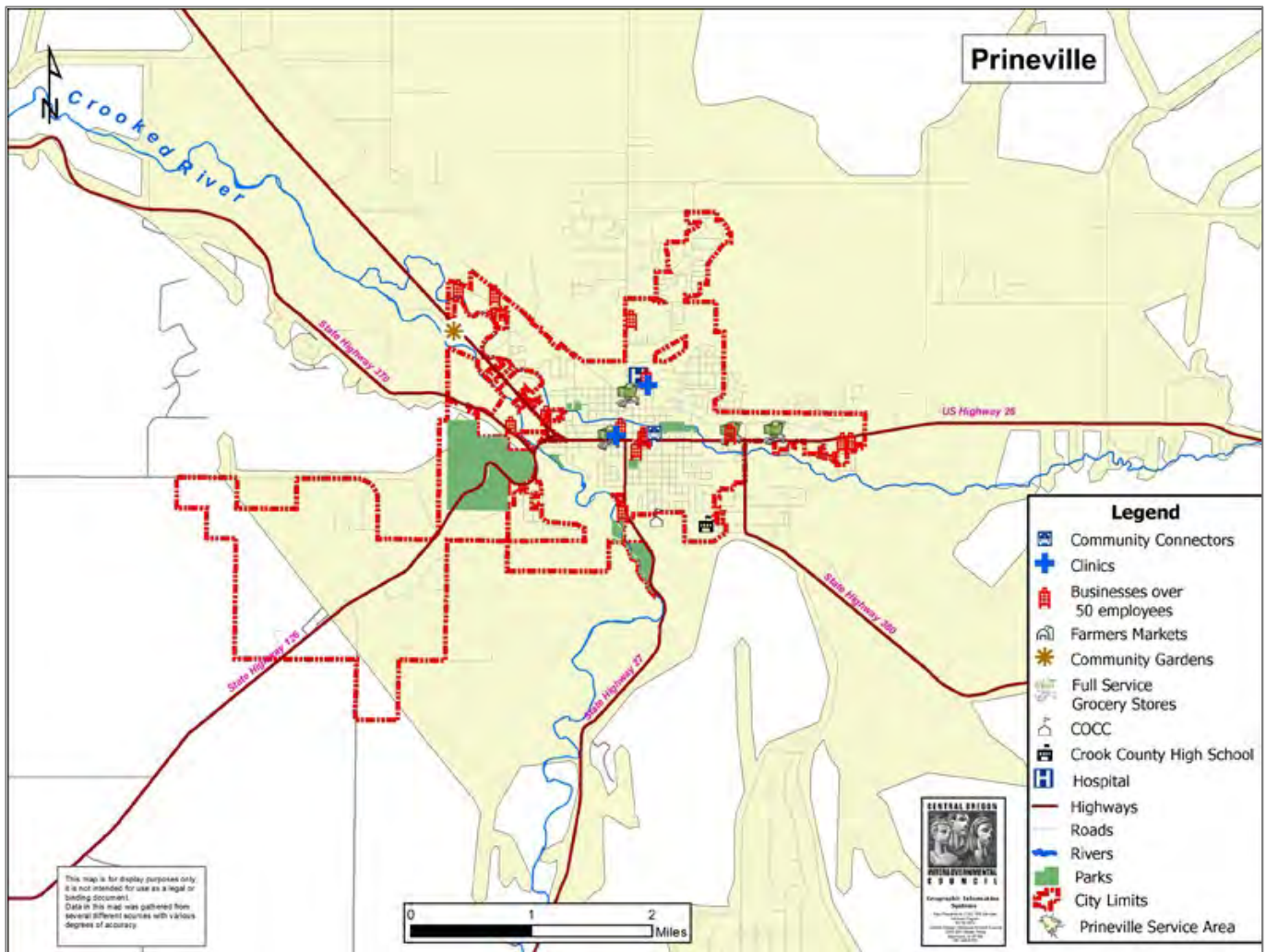


Figure 1. Prineville Transit Service Area

In the most recent survey results of Oregon teens in schools,
 More than **72%** of all Central Oregon 8th and 11th
 graders surveyed said they have had a **CAVITY** at least
 once in the past.

Prevention, affordable and convenient access to high quality dental care for all Central Oregonians are areas of concern.

(Central Oregon Regional Health Assessment, 2012)

Deschutes County Overview

Deschutes County has the largest population in the tri-county region, 157,733 people, and includes the modest-sized metropolitan city of Bend. Deschutes County is the most urban in Central Oregon. Only 27.6% of residents live in rural locations. There is also a higher population density as compared to Crook and Jefferson Counties,

however, density is still relatively low as compared with larger Oregon cities. The median age in Deschutes County is 40 years old, with 23% of the population under the age of 18 and 15% over the age of 65. The County has fewer dependent-age residents for every working-age resident and higher per capita income. Unemployment in the

county is currently at 11.3%; still high as compared with Oregon (8.8%) and the rest of the country (8.3%). More than 19% of all children—fewer than 1 in 5 under age 18—live in poverty. 13% of low income residents live more than one mile to a full service grocery store. (Economic Research Service & USDA, 2006-2008 data)

Life expectancy is the highest in the region at 81.1 years. Age-adjusted rates of overweight and obesity in Deschutes County are 41% and 15.7% respectively. More than 60% of adults meet the recommended 30 minutes per day of physical activity and 26% consume at least 5 servings of fruits and vegetables per day. The top three causes of death in the county are as follows:

1. Cancer: 23.8%
2. Heart Disease: 20.6%
3. Chronic Lower Respiratory Disease: 6.61%

(Central Oregon Regional Health Assessment, 2012)

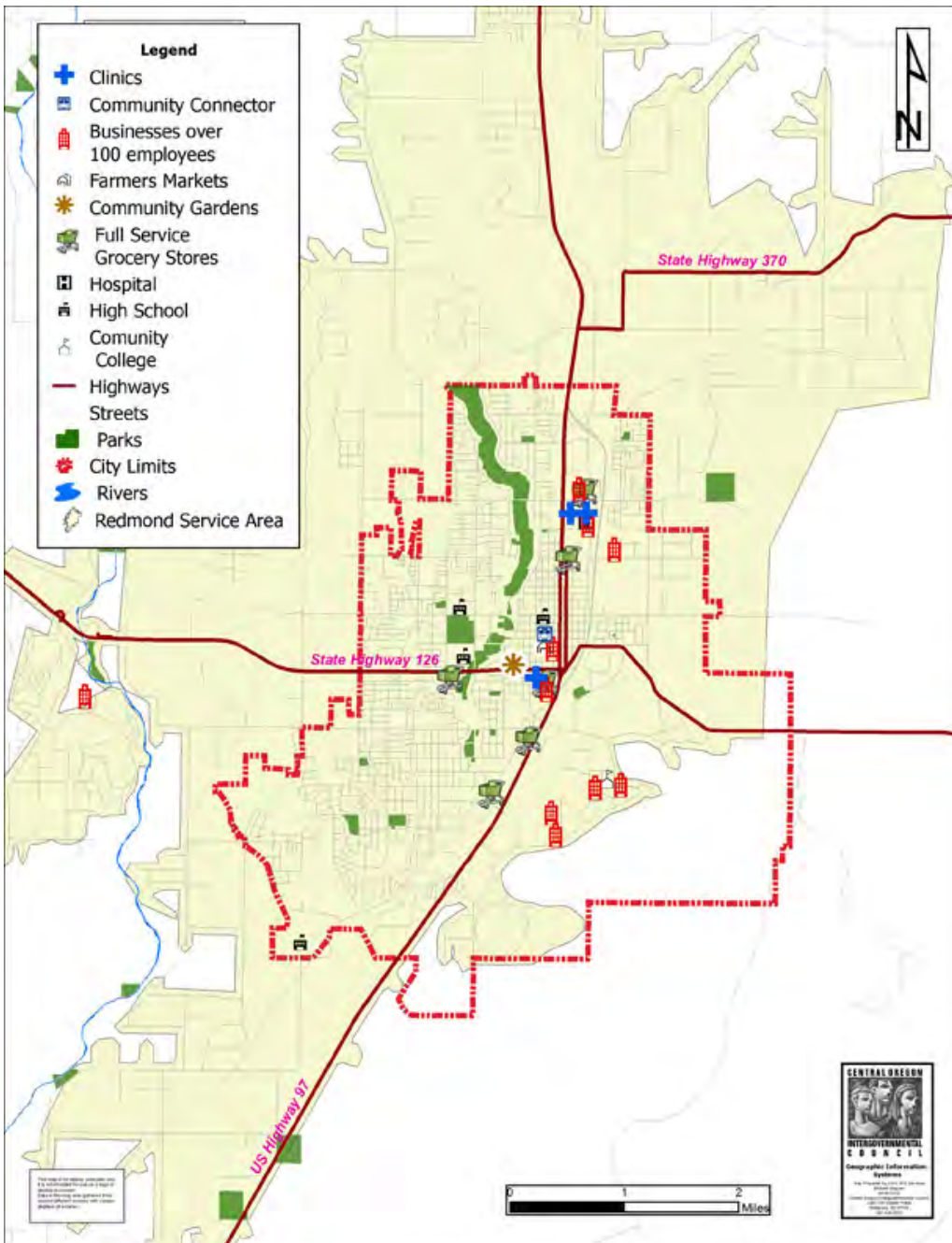


Figure 2. Redmond Transit Service Area

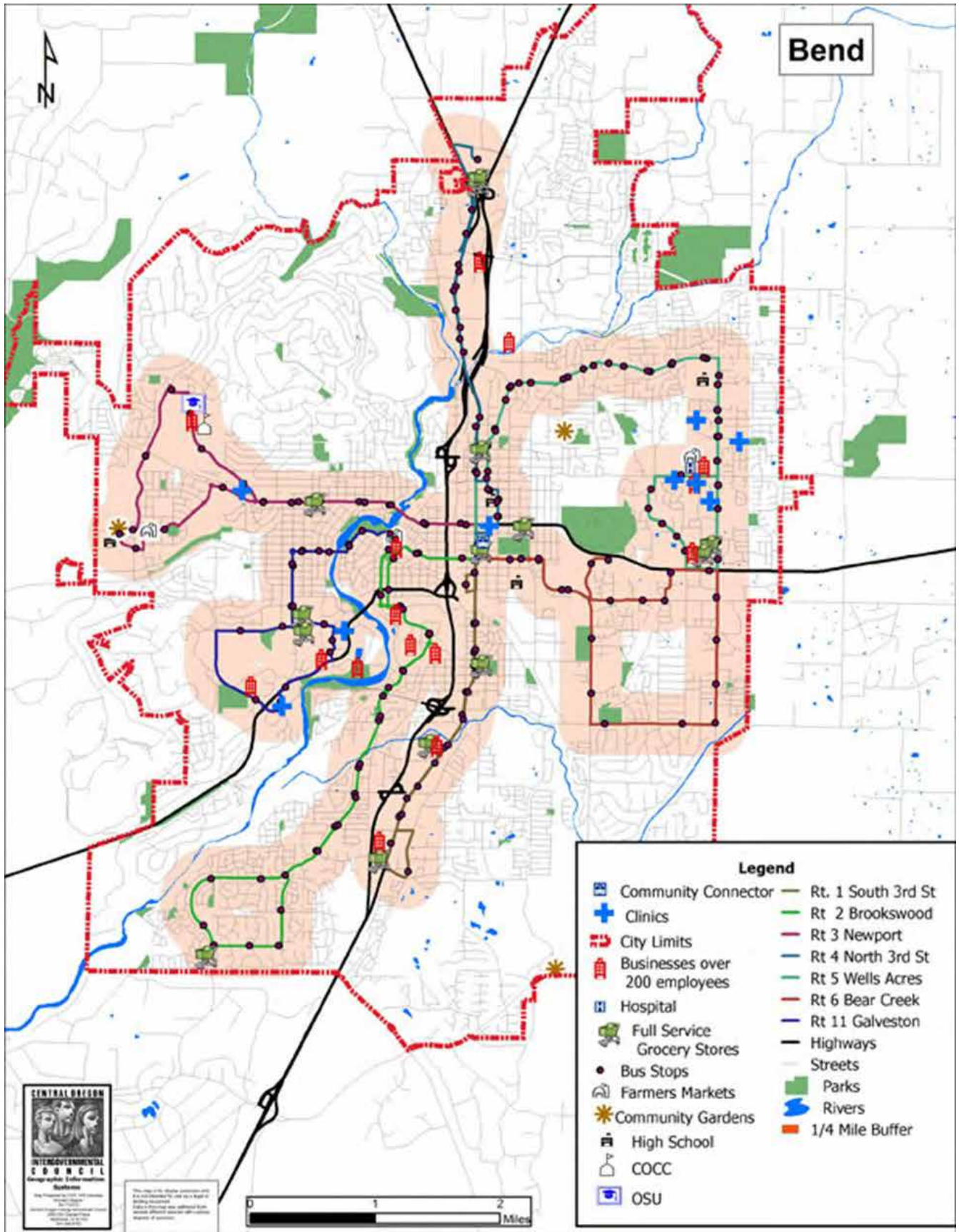


Figure 3. Bend Area Transit Service Area

Jefferson County Overview

Jefferson County encompasses the cities of Madras, Culver, Metolius and the reservation community of Warm Springs. Jefferson County is an area with exceptional population health disparities. The majority of residents live in rural locations (63%). This is also Oregon's most racial and ethnically diverse county with Hispanic/Latino and American Indian/Alaskan Native populations at 19.3% and, 16.9% respectively. Unemployment in Jefferson County is currently at 12.8%, however, that number is considered to be as high as 60% on the reservation. Nearly 30% of all children—approx. 1 in 3 under age 18—live in poverty.

Life expectancy in Jefferson County is 75.8 years, the lowest in the region, and this is the only county in Oregon where the average has declined since the year 2000. Both the birth rate and the percent of residents younger than 18 years old are the highest in Central Oregon and more than 1 in 4 residents in Jefferson are younger than 18 years old.

Age-adjusted rates of overweight and obesity in Jefferson County are 41.9% and 25.3% respectively. Only half of the adults in the county meet the recommended 30 minutes per day of physical activity and 32% consume at least 5 servings of fruits and vegetables per day – higher than both Deschutes and Crook Counties. More than one quarter of low-income people live more than one mile from a full-service grocery store and 7.83% live more than 10 miles away.

The top three causes of death in the county are as follows:

1. Cancer: 20.3%
2. Heart Disease: 13.9%
3. Unintentional Injury; 7.9% Jefferson County's rate of death from motor vehicle crashes is more than Crook and Deschutes County rates combined.

(Central Oregon Regional Health Assessment, 2012)

THE RURAL HIGHWAY

Many small towns in Central Oregon share a common characteristic in that their core service areas and central business districts are bisected by state and interstate thoroughfares. Truck traffic on rural roads presents safety issues, as well as maintenance and repair concerns. Rural areas also have disproportionately higher crash and fatality rates for pedestrians and cyclists and also poorer health outcomes including high obesity prevalence as compared to urban communities.



The traffic fatality rate on non-Interstate rural roads in 2003 was 2.72 deaths for every 100 million vehicle miles of travel, compared to a traffic fatality rate on all other roads in 2003 of 0.99 deaths per 100 million vehicle miles of travel (Growing Traffic in Rural America: Safety, Mobility and Economic Challenges in America's Heartland, 2005).

The Confederated Tribes of the Warm Springs Indian Reservation Overview

Of all Central Oregon communities, Warm Springs, located on the Confederated Tribes of the Warm Springs Indian Reservation, is the closest to a “food desert.” Community members have to travel a minimum of 20 minutes to Madras to access a grocery store stocked with quality produce or other healthful resources. Access to recreation opportunities are also limited here. From 6th-12th grades, Native American students are bused to Madras from the reservation, making access to after school programs and activities difficult. Reliable transportation, car ownership and cost of insurance remain significant obstacles to safe

and legal mobility among community members.

Fortunately, Warm Springs recently introduced a fixed route bus system that has the potential to increase connectivity for people to access resources on the reservation. Additionally, a new school bond was approved by voters and will establish a K-8 school on the reservation. Population health and livability in Warm Springs would be increased significantly with transportation planning strategies that improve access to healthy food, employment and recreation resources.



WARM SPRINGS DISABILITY CONFERENCE

“My son was in a serious automobile accident and is currently recovering at St. Charles Medical Center in Bend. It has been very hard to arrange to see him as I am disabled and without a car. I have struggled to make the three hour round-trip 10 times in the last month and have paid close to \$300 dollars in transportation costs.”

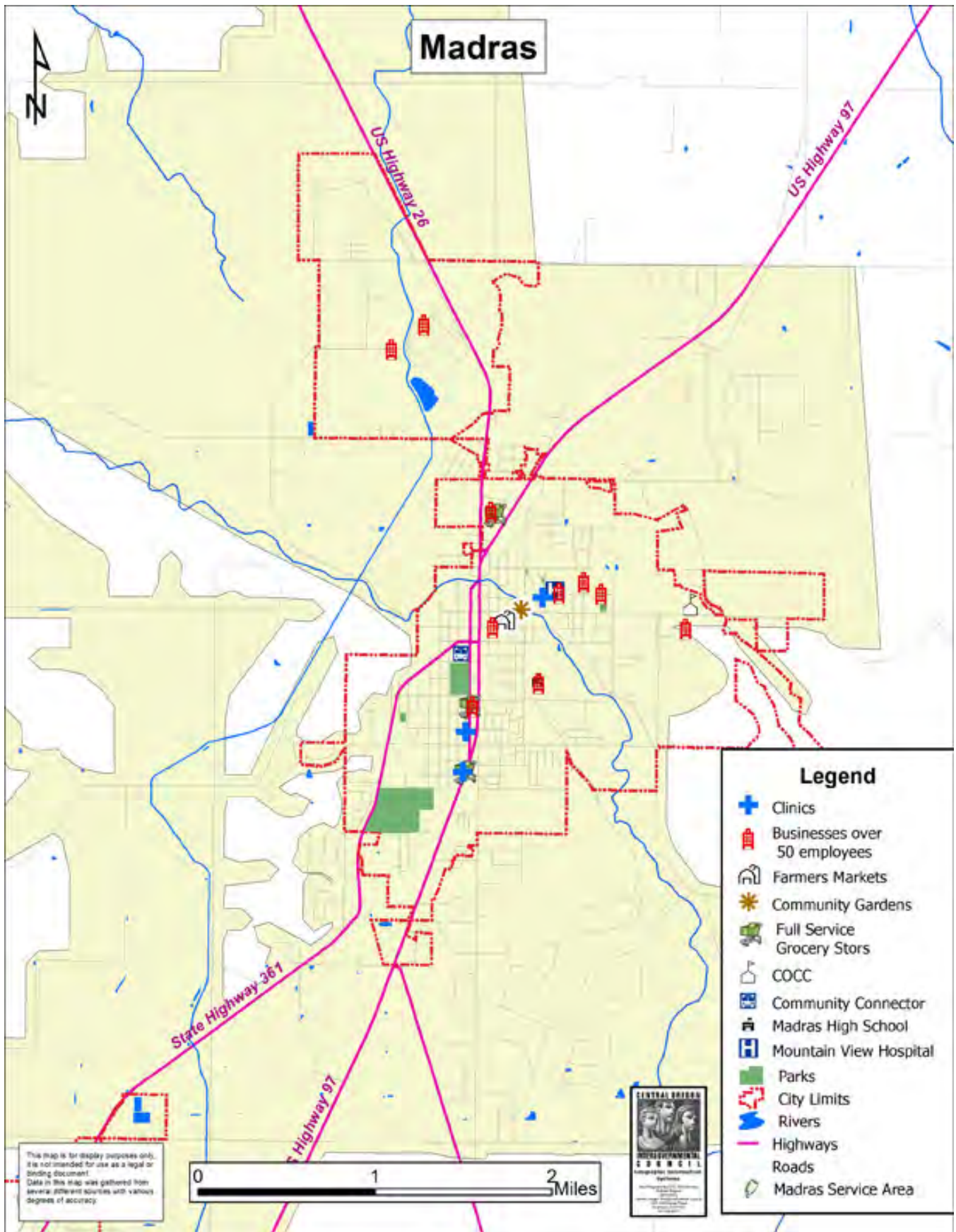


Figure 4 Madras Transit Service Area

CHILDHOOD OBESITY

& THE SAFE ROUTES TO SCHOOL MOVEMENT



According to the Centers for Disease Control and Prevention, childhood obesity has more than tripled in the past 40 years. The number of overweight or obese children aged 6 to 11 years old increased from four percent in 1969 to 35% in 2007.^{1,2}

During this same period of time, the number of students who walked or bicycled to school decreased from 48% to a mere 13%.³ While the causes of childhood obesity are complex and involve physical activity and nutrition, the correlation between the increase in obesity and the decrease in walking and bicycling to school cannot be ignored. Research shows that walking to school increases rates of activity throughout the day⁴, and further research strongly links a built environment that is conducive to walking and bicycling to increases in physical activity⁵.

One of the most promising initiatives we have seen in our region to counter childhood obesity trends is Safe Routes to School. The program has grown from concept to implementation in 13 schools since its inception in 2005. The program marries education and encouragement programs, like bicycle and pedestrian safety education or promotions that get more students actively commuting to school, with physical infrastructure changes to improve the built environment around school zones for increased safety. Complementing infrastructure changes with non-infrastructure components helps increase the use of active modes in vulnerable populations such as the elderly and young. In the parent surveys conducted in 13 schools throughout Central Oregon, traffic safety is the second issue cited besides distance to school for parents who are reluctant to let their children walk and/or bike to school.

SRTS is a federal program, administered by the Oregon Department of Transportation (ODOT). ODOT provides funding through grants for the education, enforcement and environmental change components. However, this funding is limited and it is in danger of being cut back or eliminated entirely – especially now in this climate of economic uncertainty.

It has always been the case that the federal funding should be considered seed money and in July 2011, the Safe Routes to School National Partnership released the Safe Routes to School Local Policy Guide. The guide is an inventory of effective policies from around the U.S. that are helping sustain SRTS at the local level, over the long-term. Local solutions and integration of SRTS strategies into transportation planning efforts will be key in helping schools, cities and counties initiate innovative policies that will sustain this movement.

¹ Centers for Disease Control and Prevention (2011). "Prevalence of Obesity Among Children and Adolescents: United States, Trends 1963-1965 Through 2007-2008," Centers for Disease Control and Prevention. National Health and Nutrition Examination Survey (NHANES), Retrieved January 25th, 2011 from http://www.cdc.gov/nchs/data/hestat/obesity_child_07_08/obesity_child_07_08.htm

² Singh, G.K., Kogan, M.D. & Van Dyck, P.C. (2010). "Changes in State-Specific Childhood Obesity and Overweight Prevalence in the United States From 2003 to 2007." Archives of Pediatrics and Adolescent Medicine. 164(7).

³ U.S. Department of Transportation Federal Highway Administration. (2010). "2009 National Household Travel Survey (NHTS)." January 2010. Retrieved January 25th, 2011 from <http://nhts.ornl.gov/publications.shtml>.

⁴ Davison, K. K., Werder, J. L. and Lawson, C. T. (2008). "Children's Active Commuting to School: Current Knowledge and Future Directions," Preventing Chronic Disease. 5.3.

⁵ Giles-Corti, B., Wood, G., Pikora, T., Learnihan, V., Bulsara, M., Van Niel, K., Timperio, A., McCormack, G., Villanueva, K.(2011). "The Influence of the Physical Environment and Sociodemographic Characteristics on Children's Mode of Travel to and From School." Health & Place, 17(2), pp. 545-550.

Community Engagement

Key to the HIA process is to validate policy recommendations and literature review findings with the needs of the community. To be consistent with this standard HIA practice, our HIA workgroup initiated community input strategies via stakeholder advisory meetings as well as general outreach in the form of online and community dot surveys targeted to transit users and populations of interest. Additionally, a major goal of this HIA is to ensure that the principles of health equity are upheld and that report findings properly reflect the nature and characteristics of the relationship between the various population segments and public transit utilization.

Because transit use is in its infancy in Central Oregon and for purposes of this HIA, we are dividing transit users into two groups, need riders and choice riders. The responses gathered via community dot surveys (event-based) just skim the surface. However, data suggest the majority of transit users are need riders. An additional survey was administered online for distribution to email networks. Survey logic moved employers to additional questions related to workplace and employee use of transit. The HIA workgroup and advisory council recommends more research to identify transportation disadvantaged populations, where they live and what changes can be made to help transit service meet their needs.

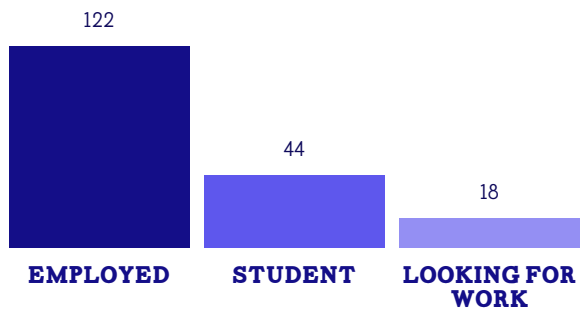
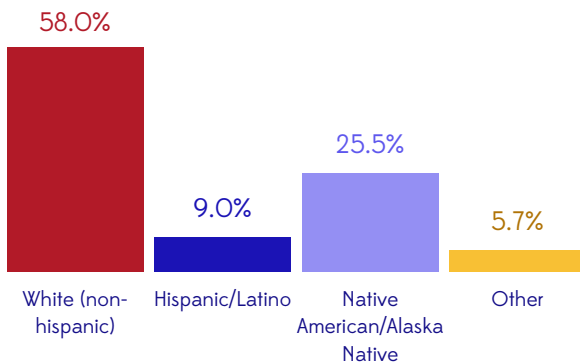
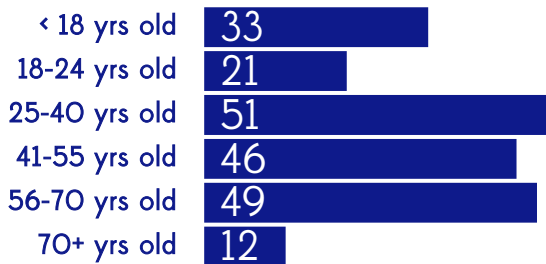


Facilitated dot surveys were implemented at eight (8) community events where populations of interest were present between May 2011 and September 2011 at the following events:

- Warm Springs Disability Conference
- Deschutes Co. Health Department
- Crook Co. Fair
- Jefferson Co. Fair
- Pi-Ume-Sha Health Fair, Warm Springs
- Mobile Project Connect, Sunriver
- Mobile Project Connect, Redmond
- Our Community in the Park, Madras, Metolius, Culver

**COMMUNITY
EVENT DOT
SURVEYS**
N=212

Demographics



68% FEMALE 24% MALE

Responses

Would ride the bus to...



MEDICAL APPOINTMENTS

45% YES
34% NO



GROCERY STORE

29% YES
47% NO



EXERCISE

26% YES
49% NO



WORK / SCHOOL

41% YES
31% NO

\$\$\$ 65% spend \$100 or more on gas every month

64% Would ride the bus if it were convenient

MANY RESPONDERS

...would ride the bus if it were convenient; defined by bus stops in convenient locations, expanded hours and days of service and bus stop amenities (e.g. shelter from weather).

...do not have a bus stop nearby (within ¼ mile of home or destination).

...do not consider the bus convenient for grocery shopping due schedules and having too much to carry

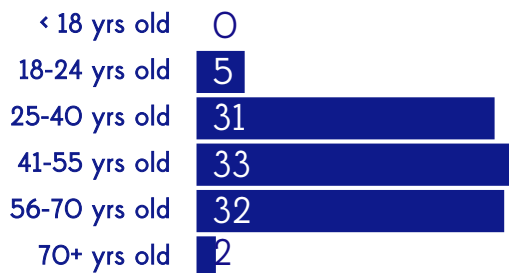
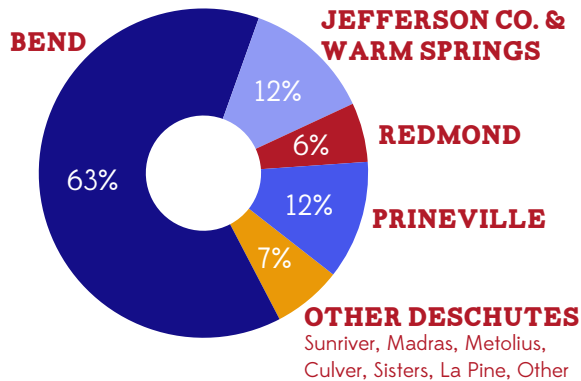
...have not missed work or school due to transportation issues

...have reliable transportation

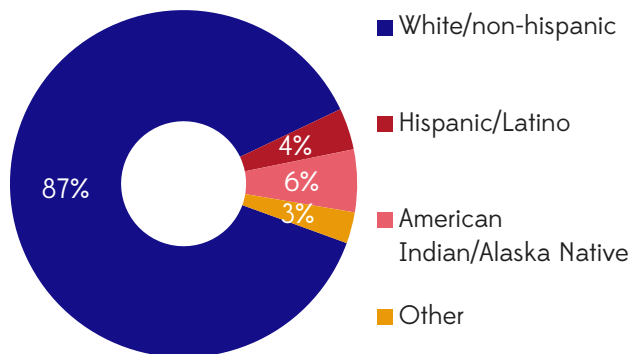
...rarely or never missed work due to transportation

ONLINE & EMPLOYER SURVEYS (N=103)

Demographics



66% FEMALE **34% MALE**



Responses

Would ride the bus if it were convenient to...



MEDICAL APPOINTMENTS

50.4% YES
45.6% NO



GROCERY STORE

25.2% YES
69.9% NO



EXERCISE

48.5% YES
50.5% NO



WORK / SCHOOL

51.4% YES
37.9% NO

EMPLOYER - FOCUSED QUESTIONS

Of the 31 people who responded to the survey and were managers or owners in a business, non-profit or public sector organizations:

68% were from businesses no more than 25 employees

45% thought their business would benefit from a more enhanced public transit system and **32%** were not sure

32% would consider offering a discounted bus pass to employees and **42%** would not

35% would be willing to financially support an expanded bus system in Central Oregon

52% say their employees never miss work due to lack of transportation

LITERATURE REVIEW

Transportation, Physical Activity, Nutrition and Health

Overweight and obesity numbers have been trending upward at an alarming rate in the United States, and the problem may be disproportionately severe in rural areas. Texas A&M University has conducted research that finds people who live in rural communities have a higher risk for obesity which can lead to serious health conditions such as diabetes, cancer and cardiovascular disease. This is supported by national survey data and smaller regional studies. A shift has occurred in childhood overweight and obesity over the past 20 years as well involving a reversal of prevalence from urban to rural populations (Liu, et al, 2007).

The fundamental causes of obesity can most often be traced to inadequate physical activity and unhealthy dietary habits. For example, the latest figures from the CDC show that sixty percent of adults in the United States do not meet recommended levels of physical activity, and 25 percent are completely sedentary. Unfortunately, opportunities to be physically active are disappearing from our daily routines as land-use planning and transportation policies over the last several decades have been heavily oriented to the personal automobile. This includes land-use policies around where we place our schools, health clinics and major employment centers. Moreover, certain land-use policies have resulted in concentrated areas of unhealthy food retail, such as fast food and convenience stores, particularly near low-income neighborhoods and along rural community highway corridors. These communities often have smaller supermarkets as well as more limited selections of healthy foods.

Access to healthy foods, particularly full-service grocery stores, differs by community and socioeconomic status. In many communities, transportation to and from a supermarket to find food items such as fresh fruit, produce, whole grains and lean meats is prohibitive when both transportation costs and the higher cost of those

healthy foods are taken into account. As a result, residents eat fewer fruits and vegetables, more unhealthy foods and have higher rates of diet-related illnesses (Jetter and Cassady, 2006).

Proximity to fresh fruits, vegetables and other health foods has repeatedly shown to be a factor in better and more healthful diets. One study showed that among adults in Baltimore, New York City, and North Carolina, those with no supermarkets within one mile of their homes were 25-46 percent less likely to have a healthy diet than those with the most supermarkets near their homes (Moore, et al., 2008).

Although physical distance to healthy food outlets can be a barrier to healthy food availability, a study from New York City showed that there are more factors that may inhibit access. This study found that personal mobility (i.e. vehicle ownership) and environmental facilitators and barriers to travel (i.e. public transit service and poor safety) were major obstacles as well. The study also notes that households without vehicles are disproportionately low-income, and that “environment measures that do not adjust for the variation in vehicle ownership likely understate disparities by income” when it comes to accessing healthy food (Bader, Michael et al, 2010).

Transportation investments impact health directly, and also indirectly through their impact on how communities are designed and how people access resources. More compact, walkable, transit-oriented neighborhoods support more physical activity (e.g. walking, bicycling and use of public transit). This is key because any shift in utilization of alternative modes of travel to personal vehicle use has potential to improve population health. For example, a 2004 study in Atlanta, Georgia, found that each additional hour spent in the car was associated with a six percent increase in the odds of being obese and every kilometer walked per day was associated with a 4.8

percent reduction in those same odds (Frank, Andresen et al, 2004). Besser and Dannenberg (2005) found that Americans who use transit average 19 minutes of daily walking going to and from transit. Thus, increasing access to transit could significantly increase the opportunities to be physically active, as most transit trips incorporate

walking to and/or from destinations. The study also found that 29 percent of people walking to and from transit achieve the recommended level of 30 minutes of daily physical activity.

Transportation, Employment and Health

“It is cliché to say that transportation is a means to an end, but it is absolutely true. In this analysis, the “end” is a job.”

–Brookings Institute Transit Study Authors

In the United States, for the leading health indicators, the burden of disease and premature death is highest among low-income and racial and ethnic minority populations (Surface Transportation Policy Project, 2008). These health concerns are caused by various social conditions, also called social determinants of health, such as poor access to safe recreational areas, high-quality education and gainful employment. When it comes to accessing jobs, transportation systems can play a key role in improving social conditions and inequities faced by vulnerable populations, including those who are considered “need riders.”

A recent study from the Brookings Institution, based on data from 371 transit providers in the nation's 100 largest metropolitan areas, suggests that only 30 percent of working-age commuters are reaching jobs in their areas in under 90 minutes. This number is even more disparate for low to mid-level jobs. We do not have access to comparable data in Central Oregon, however, we share a common characteristic in that transit planners are trying to keep up with so-called “spatial mismatch,” when

housing and jobs are being located in places that don't lend themselves to transit connectivity. The Brookings study points out a very important issue. With the economy and job creation top-of-mind for all levels of government, it is increasingly important to understand how well public transit options align with where people work and live (Tomer, et al, 2011). The study also points out that while owning a car improves chances of employment, it also has a large combined impact on housing and transportation costs on households' economic bottom lines.

There is movement in the right direction in the context of spatial mismatch. PolicyLink, a research group focusing on social and economic equity, noted that in Kansas City, where low-income residents can only access 23 percent of the region's jobs via transit, the region is using a Sustainable Communities Planning grant to better connect people to work, generate reinvestment and new jobs along specific corridors, and attract residents to urban centers that have been losing population.

Transportation, Access to Health Care and Health

Having access to transportation options not only improves access to healthful resources, but also impacts the ability of people to access both acute and routine health care services. A study of over 1,059 households in 12 western North Carolina counties tests the relationship between transportation options and healthcare utilization while adjusting for the effects of personal characteristics, health

characteristics, and distance. The report found that people with access to transportation had visited their doctor 2.29 times more frequently for serious illness and 1.92 times more frequently for regular checkups than those who did not (Bindman et al, 1995).

Access to health care services may have the largest influence on health disparities within transportation

disadvantaged populations. For example, approximately one in five Americans ages 65 and older do not drive because of poor health or eyesight, limited physical or mental abilities, concerns about safety, or because they

have no car. Compared with older drivers, older non-drivers take 15 percent fewer trips to the doctor (Bailey, 2004).

Transportation, Safety and Health

The transportation system has both positive and negative impacts on health. Traffic-related crashes, for example, are a leading cause of death and injury for Americans in the prime of life (US Department of Transportation, 2005). *The Transportation Prescription, Bold New Ideas for Healthy, Equitable Transportation Reform in America* pulls together other important data related to transportation, health, safety and equity:

- In 2000, motor vehicle crashes cost \$230.6 billion in medical costs, property damages, lost worker productivity, travel delays, and other expenses (Blincoe et al., 2002). That figure equals about half of all spending on public education from kindergarten through 12th grade.
- Native Americans die in traffic crashes at more than 1.5 times the rate of other racial groups (CDC, Web-based Injury Statistics)
- Walking is more dangerous in communities of color. CDC data in the mid-1990s revealed that the pedestrian death rate for Latino males in the Atlanta metropolitan area was six times greater than for whites (CDC, “Pedestrian Fatalities—Cobb, DeKalb, et. al, 1999).
- Low-income people and people of color have fewer resources to buy products that improve safety, such as late-model cars and new child safety seats.
- In underinvested neighborhoods, poorly designed streets, neglected road maintenance, inadequate lighting, limited sidewalks, and minimal traffic enforcement place residents at higher risk of injury.
- Safety is also a huge concern for older adults—the fastest-growing segment of the population—and for rural residents. Driving skills decline with age, and frailty makes older adults especially vulnerable in a collision (Morena,

et al., 2007). They are more likely to be killed or injured in a crash of a given severity than any other age group (US Department of Transportation, National Household Survey 2006). Older adults also walk slower and are more susceptible to pedestrian injuries.

- Although less than a quarter of all driving in the United States takes place in rural settings (Federal Highway Administration, National Household Travel Survey, 2001), more than half of all motor vehicle crashes occur there ((Fatality Analysis Reporting System). The more we drive, the more likely we are to get hurt or die in a crash; there is a strong positive relationship between per capita vehicle miles traveled and traffic casualty rates (Litman and Fitzroy, 2006).
- Passengers on buses, light rail, and commuter rail have about one-tenth the traffic death rate as people in cars (Jacobsen, 2003).

When an environment is safe or perceived as safe, people are more likely to travel to get the resources they need. Perceived safety is a concern for transportation planning in Central Oregon – particularly within the more densely populated urban and rural city centers, along rural highway corridors and near schools. Transportation policy can mitigate these risks through infrastructure, enforcement and service strategies that accommodate all mode choices – walking, bicycling, wheelchair or public transit utilization – and fold in other strategies that improve safety and perceived safety along transit routes. Studies show that investments in public transportation and walking and bicycling infrastructure can reduce injuries and deaths. Contrary to popular belief that more walkers and cyclists lead to more casualties, studies have shown that greater numbers of walkers and bicyclists may actually decrease risk of population level traffic injury incident rates (Jacobsen, 2003).

RECOMMENDATIONS

On May 1st, 2012, the HIA advisory council met in a final workshop to develop key recommendations for inclusion in the regional and local transit plans. The AC used the following framework to guide the discussion:

*Our rural communities are experiencing the greatest health disparities. What can transit do to improve connectivity and livability for people who live in these areas?

*What enhancements can be made to current transit service levels to support improved mobility for the region's vulnerable populations (children, youth, seniors, disabled, low-income)?

*How can regional and local transit planning encourage a shift in mode choice from car-oriented to public and active transportation mode choice (e.g. walking, bicycling, etc), thereby reducing overall car dependency?

*How can regional and local transit planning improve public safety as well as general health and wellbeing related to the HIA's focus areas: physical activity, healthy nutrition, employment and health care services?

The following recommendations draw on this framework as well as information acquired in the various stakeholder advisory council meetings, community engagement strategies, study area profile and literature review findings. The recommendations and actions outlined are being made for the inclusion in the final regional transit strategy plan language as well as local public transit plan updates that are occurring over the next 6-12 months. Recommendations are designed to enhance the positive impacts and reduce the negative impacts of the transit system on public health and wellbeing.

Overarching recommendation

Regional and local transportation plans support a strategic direction that recognizes the nexus between transportation and health, and enhances public and active transportation so it is safe and accessible for all people.

SPECIFIC ACTIONS: REGIONAL AND LOCAL TRANSIT PLANS

- Include health-focused statements such as “promoting and protecting the health and wellbeing of our population” and actions such as banning smoking near bus stops (use of signage, etc.)
- Increase convenience of public transportation (e.g. frequency, amenities, user-friendly route maps, schedules and integrated fare systems)
- Ensure that transportation disadvantaged populations are aware of transit services and are getting the level of service they need
- Work with affordable housing authorities to roll cost of transportation into housing
- Support the creation of a dedicated transit fund through political consensus and community support
- Increase consumer awareness of the value of public transportation (promote the “true cost of transit” – including the health and environmental benefits of choosing modes of travel alternative to driving)
- Work with community partners and well-known transit champions to undertake education and marketing that will improve the public's understanding of the benefits of transit

Recommendations by Focus Area

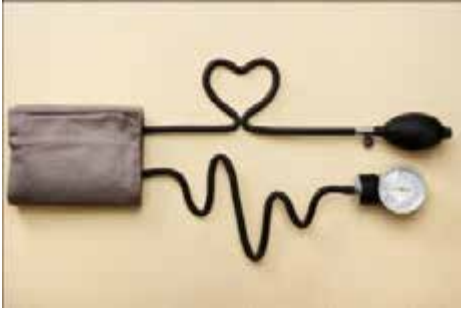


PHYSICAL ACTIVITY & HEALTHY NUTRITION

Invest in strategies that increase use of active and public transportation.

SPECIFIC ACTIONS

- Support strategies that incentivize people to choose alternative modes of travel (public bus, walking, cycling, etc)
- Invest in marketing and promotion of public transit – make transit “cool” (e.g. wi-fi on bus)
- Conduct market analysis and target communications (e.g. need riders versus choice riders)
- Establish dedicated bicycle sections and bicycle carriers on transit vehicles and improve transit stops to accommodate bicyclists (e.g. bike racks and/or storage structures)
- Warm Springs transportation plan supports collaboration with schools and CET to connect youth with after school, park and recreation programming and resources
- Warm Spring local plan supports exploring opportunities to collaborate with school district youth activity bus
- Collaboration between CET and Warm Springs to augment access to full-service grocery locations in Madras
- Support local solutions to fund and sustain Central Oregon Park and School Safety Initiative (COPSSI) (e.g. education, encouragement, safety and infrastructure improvements for school-age children and youth)
- Explore partnerships between public transit and schools to improve transportation alternatives for older, school aged children
- Support photo enforcement and other means to produce local funding stream to support safety education and infrastructure improvements near parks and school zones
- Cultivate public and private partnerships that increase public transit services to regional recreation opportunities (e.g. Deschutes National Forest and Children’s Forest, potentially use Mt. Bachelor buses in the summer)
- Encourage active transportation boulevards (for multi-modes)



ACCESS TO HEALTH CARE SERVICES

Increase access to health care services for rural and transportation disadvantaged populations.

SPECIFIC ACTIONS

- Coordinate with the region's Coordinated Care Organization (CCO) and complex care clinics to schedule transit service that helps make clinic appointments more convenient and accessible for vulnerable populations



EMPLOYMENT

Increase access to employment opportunities for rural and transportation disadvantaged populations.

SPECIFIC ACTIONS

- Warm Springs local plan supports expanding services to connect with Government Camp/Mt. Hood Meadows employment opportunities



SAFETY

Consider the safety and needs of all road users (including vulnerable populations) in planning and design standards.

SPECIFIC ACTIONS

- Collaborate with cities and counties to promote "complete streets," or environments along public transportation routes that are safe and accessible for all users (pedestrians, bicyclists, persons who are disabled)
- Incorporate the use of multimodal level-of-service measures in transportation departments
- Encourage use of pedestrian/bicycle route analysis as part of site and building concept development
- Encourage adoption of pedestrian-friendly infrastructure design standards
- Encourage use of street design and facilities that increase pedestrians and bicyclists' safety and comfort levels
- Encourage use of signage, maps, and other way-finding methods for pedestrians and bicyclists

Recommendations for evaluation, dissemination, monitoring & future planning

TRANSIT COALITION

Create long-standing transit coalition to monitor HIA findings and results and support continued dissemination

SHARE FINDINGS

Make formal presentations of HIA findings to various public and decision making bodies (COIC Board, city councils, public forums)

OUTCOMES

Encourage cost benefit analysis to apply public health outcomes and costs into public transportation decision making

DATA & INFORMATION

Improve data systems and data gathering methods to support public and active transit use and monitoring (e.g. find out where the people who could be using transit live including those who are transportation disadvantaged, identify them on a map, find out more about them)



**EVALUATION,
DISSEMINATION
& MONITORING**

FOR FUTURE PLANNING

Scenario planning– Consider scenarios that would significantly reduce car dependency and create real transport mode choice within the main communities of Central Oregon.

APPENDICES

Appendix A: References

- Bader, Michael, Marnie Purciel, Paulette Yousefzadeh, and Kathryn Neckerman. (2010). Disparities in Neighborhood Food Environments: Implications of Measurement Strategies. *Economic Geography* 86(4) (2010): 409-430.
- Bailey, L. (2004). Aging Americans: Stranded Without Options, Surface Transportation Policy Project, 2004, Retrieved from http://www.apta.com/research/info/online/documents/aging_stranded.pdf
- Besser, L. M. and A. L. Dannenberg (2005). Walking to Public Transit: Steps to help Meet Physical Activity Recommendations. *American Journal of Preventive Medicine* 29(4): 273-280.
- Bindman, AB, Grumbach, K, Osmond, D. et al. (1995). Preventable hospitalizations and access to care. *Journal of the American Medical Association* 274 (4), 305-311
- Blincoe, Lawrence J. et al., (2002). The Economic Impact of Motor Vehicle Crashes, 2000, Report no. DOT HS-809-446 .Washington, DC: National Highway Traffic Safety Administration, 2002. Retrieved from <http://www.nhtsa.dot.gov/staticfiles/DOT/NHTSA/Communication%20&%20Consumer%20Information/Articles/Associated%20Files/EconomicImpact2000.pdf>.
- Brookings Institute (2011). Missed Opportunity: Transit and Jobs in Metropolitan America. (www.brookings.edu/research/reports/2011/05/12-jobs-and-transit/)
- Brownson, R.C., Baker, E.A., Housemann, R.A., Brennan, L.K., & Bacak, S.J. (2001). Environmental and policy determinants of physical activity in the United States. *American Journal of Public Health*, 91(12), 1995-2003.
- Central Oregon Regional Health Assessment, 2012 <http://cohealthcouncil.org/resources/regional-health-assessment>
- CDC, "Pedestrian Fatalities—Cobb, DeKalb, Fulton, and Gwinnett Counties, Georgia, 1994–1998," *Morbidity and Mortality Weekly Report* 48 (1999): 601–05, <http://www.cdc.gov/mmwr/PDF/wk/mm4828.pdf>.
- CDC, "Preventing Obesity and Chronic Diseases Through Good Nutrition and Physical Activity." (2008) <http://cdc.gov/nccdphp/publications/factsheets/Prevention/pdf/obesity.pdf>
- CDC, "Web-based Injury Statistics Query and Reporting System (WISQARS)," <http://www.cdc.gov/ncipc/WISQARS/>.
- Cohen, Larry Prevention Institute and Judith Bell, Policy Link: The Transportation Prescription, A Summary of Findings and Framework for Action, 2009.
- Crook County (2011). Crook County Bicycle and Pedestrian Safety HIA. Retrieved from <http://co.crook.or.us/LinkClick.aspx?fileticket=CxwjK8fGvOo%3D&tabid=97>
- David A. Morena et al., *Older Drivers at a Crossroads* (Washington, DC: Federal Highway Administration, 2007), <http://www.tfrc.gov/pubrds/07jan/02.htm>.
- Economic Research Service (ERS) & U.S. Department of Agriculture (USDA), (2012). Food Environment Atlas. Data for years 2006-2008 retrieved from <http://www.ers.usda.gov/data-products/food-environment-atlas.aspx>.
- Fatality Analysis Reporting System Encyclopedia, <http://www.fars.nhtsa.dot.gov/Main/index.aspx>.
- Federal Highway Administration, "National Household Travel Survey," 2001.
- Frank, L. D., M. A. Andresen, et al. (2004). "Obesity relationships with community design, physical activity, and time spent in cars." *American journal of preventive medicine* 27(2): 87-96.
- Jacobsen, P.L. (2003). "Safety in Numbers: More Walkers and Bicyclists, Safer Walking and Bicycling," *Injury Prevention* 9 (2003):205–09, <http://www.tsc.berkeley.edu/newsletter/Spring04/JacobsenPaper.pdf>.
- Jetter, K. M. and D. L. Cassady (2006). "The Availability and Cost of Healthier Food Alternatives." *American Journal of Preventive Medicine* 30(1): 38-44.

Litman, T. & Fitzroy, S. (2006). "Safe Travels: Evaluating Mobility Management Traffic Safety Benefits," Victoria Transport Policy Institute. <http://www.vtpi.org/safetrav.pdf>.

Moore, L. et al. "Associations of the Local Food Environment with Diet Quality—A Comparison of Assessments Based on Surveys and Geographic Information Systems: The Multi-Ethnic Study of Atherosclerosis." *American Journal of Epidemiology* 25 (2008): 917-924.

Surface Transportation Policy Project. Transportation and Poverty Alleviation. Available at: www.transact.org/library/factsheets/poverty.asp

Tomer, A. Kneebone, E., Puentes, R. & Berube, A. (2008). Missed Opportunity: Transit and Jobs in Metropolitan America.

U.S. Department of Transportation, "Motor Vehicle Traffic Crashes as a Leading Cause of Death in the United States, 2005," Research Note DOT HS 810 936. Washington, DC: National Highway Traffic Safety Administration, (2008).

U.S. Department of Transportation, "National Household Travel Survey," *Older Drivers: Safety Implications* (Washington, DC: Federal Highway Administration, 2006).

Winslow, C.E. (1920). The Untilled Fields of Public Health. *Science*, 1920 Jan 9; 51(1306) pp. 23-33. doi:10.1126/science.51.1306.23. PMID 17838891.

Appendix B: Community Surveys

Let's Talk: Transportation

PART ONE: General questions

On average, how often do you ride the bus?

- Daily
- Weekly
- Monthly
- Twice A Year
- Almost Never
- Never

Would you ride the bus if it were convenient?

- Yes
- No

Does your household have at least one vehicle?

- Yes
- No

How much money does your family spend on gas per month?

- Less than \$50
- \$50-\$100

- \$100-\$200
- \$200-\$300
- \$300 +

Is there a bus stop convenient to your home and your destination(s)?

- Yes
- No

How do you generally get around?

- Personal vehicle
- Bus
- Taxi
- Walking
- Bicycling
- Getting rides from friend/family
- Other _____

Would any of these reasons influence your decision to ride the bus? (Mark all that apply)

- Bus stops in convenient locations
- More frequent service

- Amenities at bus stops (e.g. cover from weather)
- Safe route to bus stop
- Help learning to ride the bus

How would you be willing to pay for an expanded bus system? (Mark all that apply)

- Property tax
- Sales tax
- Payroll tax
- Not willing
- Other _____

PART TWO: Access to healthcare services

On average, how often do you go to the doctor or to other medical appointments?

- Daily
- Weekly
- Monthly
- Twice A Year
- Almost Never
- Never

How do you travel to medical services (doctor, pharmacy, therapy)?

- Personal vehicle
- Bus
- Taxi
- Dial-A-Ride
- Walking or bicycling
- Friends or family give me a ride
- Other _____

How far do you have to travel to get to medical appointments?

- Less than 5 miles
- 5-20 miles
- 20+ miles

What type of health insurance do you have?

- None
- OHP
- Private Insurance
- Medicare
- Medicaid
- Other _____

If there were a convenient bus to your medical appointments would you ride it?

- Yes
- No

If not, why?

- Takes too long
- Not convenient
- Too expensive
- Bad weather
- No bus stop there

PART THREE: Access to physical activity & nutrition resources

What do you do for exercise? (Mark all that apply)

- Walk
- Bicycle
- Run
- Exercise in a gym
- Trails and parks

Would you ride the bus to parks/places to get exercise?

- Yes
- No

If not, why? (Mark all that apply)

- Takes too long
- Not convenient
- Too expensive
- Bad weather
- No bus stop there

Where do you usually get the food you eat? (Mark all that apply)

- Full service grocery stores.
- Fast food
- Sit down restaurant
- Convenience store
- Farmer's Market

Would you ride the bus to shop for healthy food at the grocery store?

- Yes
- No

If not, why?

- Takes too long
- Not convenient
- Too expensive
- Bad weather
- No bus stop there

PART FOUR: Employment and Access to Jobs

I work...

- Full-time
- Part-time
- I am unemployed

I have reliable transportation to get me to and from work everyday.

- True
- False
- N/A

I get to work mostly by...

- Personal vehicle
- Bus
- Taxi
- Dial-A-Ride
- Walking or bicycling
- My friends or family give me a ride
- N/A

I have missed work due to lack of transportation

- At least once per week
- At least once per month
- Very rarely
- Never

How far is your one-way commute to work?

- 2 miles or less
- 2-5 miles
- 6-10 miles
- More than 10 miles

Would you ride the bus to work?

- Yes
- No

If not, why? (Mark all that apply)

- Takes too long
- Not convenient
- Too expensive
- Bad weather
- Bus does not stop there