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**Note.** Throughout this study, the term 'pedestrian' refers to walkers, runners, in-line skaters, and wheelchair users. Idahoans and visitors with mobility impairments play an increasingly active role in recreation, tourism and commerce. In addition to expanding compliance with the Americans with Disabilities Act (ADA), the mobility strategies discussed in this study represent sound economic and community development investments.

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## LIST OF ACRONYMS

**AASHTO:** American Association of State Highway and Transportation Officials **ADA:** Americans with Disabilities Act Bicycle LOS: Bicycle Level of Service **BMI:** Body Mass Index **BPAC:** Bicycle Pedestrian Advisory Committee **CDC:** Centers for Disease Control **DOT:** Department of Transportation **COMPASS:** Community Planning Association of Southwest Idaho FHWA: Federal Highway Administration **GDP:** Gross Domestic Product HAWK: an informal name for a Pedestrian Hybrid Beacon **HCM:** Highway Capacity Manual **HEAL:** Healthy Eating Active Living **ITD:** Idaho Transportation Department LOS: Level of Service **MPO:** Metropolitan Planning Organization **MUTCD:** Manual on Uniform Traffic Control Devices NACTO: National Association of City Transportation Officials Pedestrian LOS: Pedestrian Level of Service **RRFB:** Rectangular Rapid Flashing Beacon **TPO:** Transportation Planning Organization



# INTRODUCTION

This study recommends initiatives toward important goals and objectives for Idaho's future. This study will dramatically advance Idaho's economy, quality of life and public health, through focusing on infrastructure and programs for bicycling and walking throughout the state. The study identifies steps for state and local agencies as well as institutional and private sector partners to achieve statewide strategic objectives towards broadly supported economic and quality of life goals. This will benefit Idaho residents and Idaho businesses alike.

It's no secret that Idahoans value freedom, economic independence and local common sense solutions. Our state takes pride in its frugal tax policy, limiting the cost of doing business and attracting outside investment. The steps called for in this study are consistent with Idahoan values. The investments outlined in this study will have tangible benefits to the state—the economic returns alone will be over 15 times the investment—in addition to numerous intangible benefits to business expansion and to the quality of life enjoyed by Idahoans.

Residents already enjoy numerous advantages such as an open business climate, significant tourism, active lifestyles, and access to the natural beauty and splendor of the Gem State. Idaho is at a cross-roads, however, for many reasons. Competition in several of its key market sectors is fierce, and other states and communities are already engaged in initiatives that

#### Introduction

are eroding Idaho's position. Transportation choices are limited—affecting not only current residents but also future growth and potential for the state. And Idahoans' disposable income is encumbered by increasing health care costs, particularly those associated with obesity and heart disease, a burden also shared by many Idaho businesses.

Changing the way Idaho does business can make a substantial difference in important outcomes to the state's Gross Domestic Product (GDP) and to its residents. How Idaho provides or optimizes infrastructure, and how we promote and manage the quality of life that includes access to Idaho's natural splendor can effect real changes in how Idaho is perceived by existing residents and employers. This is particularly true for prospective investors and also talented workers, active retirees, and others who may consider relocating to Idaho. This study demonstrates how strategic investments in more "active" transportation networks, in regional pathway systems that draw out-of-state visitors, and in targeted education and promotions will move Idaho towards a better future.

This study outlines broadly supported goals for Idaho's future. These goals are not specific to bicycle and pedestrian activity, but can certainly be furthered by improved conditions for bicyclists and pedestrians. As part of this study development process, specific performance metrics were identified that could easily and reliably describe the state's existing condition relative to the goals and, perhaps more importantly, help track progress toward them. Specific objectives,





which are the necessary steps toward meeting the goals, have also been developed. The Best Practices section identifies focused, concrete initiatives that will result in positive progress, traceable by the recommended metrics, towards meeting the objectives and achieving the goals.

Support for the goals and objectives of this study was validated by several processes. First, the goals were derived from broadly supported and already adopted statewide plans and initiatives. Once draft goals were developed, they were affirmed by Idahoans at business and civic organization meetings across the state, an online survey of over 700 Idahoans, and meetings with the Statewide Bike and Pedestrian Advisory Committee (BPAC). These stakeholder interactions provided direction and guidance in forming the objectives and selecting the metrics that are the specific framework by which progress toward the goals is achieved.

"For me, pedestrian paths sort of humanize a community. As pathway travelers, we go slow enough to say hello, to smile at one another, to notice the flowers. Walking and biking on Idaho's pathways build stronger hearts, and it builds warmer hearts too. Pathways connect people; they promote fit and friendly."

~Lyle Nelson, Idaho Olympian



"I find that walking is...the essential link to transit and spans all stages of life. Even toddlers and elderly people experience the joy and utility of walking. Creating safe, walkable communities is a goal of many towns and cities in Idaho."

> ~Molly O'Reilly, Sandpoint, Idaho

"The University of Idaho and the City of Moscow have forged a successful and innovative partnership to increase safe, active travel in Moscow schools. Safe Routes to School infrastructure and non-infrastructure funding has made it possible to connect each school with sidewalk, promote walking and biking and increase safety throughout the city."

~Professor, Helen Brown, University of Idaho



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"By emphasizing bicycling and walking, we've found that local companies have a recruiting tool."

> ~ Kody Van Dyk, Public Works Director, City of Sandpoint

#### Idaho Statewide Bicycle and Pedestrian Study



"...when our family goes biking, and always when we get back, you can just see how excited the kids are about what they just did and how great it was, and they look like they could conquer the world...!"

~Sharilyn Howard, Moscow, Idaho

# STATEWIDE GOALS

This Statewide Bicycle and Pedestrian Study supports six goals that were drawn from broadly supported local, regional, and statewide plans related to economic development, public health and transportation. They were refined with input from Idaho Transportation Department's (ITD) statewide Bicycle Pedestrian Advisory Committee (BPAC) and stakeholder focus groups with civic and business leaders from across the state. The goals are:

- » Empower Idahoans with the freedom to choose transportation options that best meet their needs.
- » Contribute to Idaho's robust quality of life by developing community amenities that people can enjoy together and which strengthen the values of Idaho homes and property.
- » Support economic vitality that enables a high standard of living, facilitates the retention and growth of Idaho businesses, attracts new business to the state, and enables employers to attract and retain a highly skilled and creative workforce.
- » Achieve high levels of public health, thus contributing to Idaho's overall quality of life and increasing disposable income for Idaho families.
- » Develop and maintain a transportation system that is safe, effective, reliable, and accessible for residents and visitors as they use all modes to travel anywhere—from within their neighborhoods and communities to throughout the state.
- » Preserve the distinctive character of Idaho's communities, and provide access to the natural environment. These attributes are what residents cherish about the Gem State and also attract visitors and new residents.

## ACTIVE LIFESTYLE BENEFITS

Active lifestyles are clearly important to Idaho's future, and investing in infrastructure that supports bicycling and walking enables active lifestyles. True transportation choices and opportunities for active living benefit Idaho's economy by:

#### » ATTRACTING BUSINESS INVESTMENT AND

**TALENT -** Biking and walking infrastructure are explicitly cited by business and city leaders from across the country as attributes they use to attract business investment and to help their existing businesses attract and retain workers. For example, Mayor R.T. Rybak of Minneapolis, Minnesota, recently said, "...biking is definitely part of our strategy to attract and retain businesses to compete in a mobile world. We want young talent to come here and stay. And good biking is one of the least expensive ways to send that message."

Project 60 is Idaho's comprehensive initiative to grow the state's gross domestic product to \$60 billion annually.<sup>1</sup> Recruitment of new companies to Idaho is one of its three main objectives. The targeted opportunities include businesses that are considering expanding or relocating, business owners that are looking for a lifestyle change, business owners who have visited Idaho and would like to live here, and former Idahoans who want to return to the state and start a business. A robust quality of life is a primary

# Active vacation opportunities attract visitors to Idaho:

The Route of the Hiawatha drew 37,502 visitors in 2011 who paid trail use fees and spent money on food and lodging in panhandle communities.

The "4 Summit Challenge" consistently draws over 500 participants to this annual ride, challenging them to traverse Big Creek and Warm Lake Summits between Cascade and Landmark. Area hotels and campgrounds regularly sell out for the event and area restaurants and shops likewise have very busy weekends.



<sup>1</sup> http://project60.idaho.gov/recruit.html

characteristic a state or community can offer to attract and retain business—and there is increasing competition across the United States to provide this.

Bicycling and walking opportunities are at the core of what is expected in a vibrant community, something that national media and other observers are starting to note. A 2010 article in the Wall Street Journal described Boise as just this sort of place: "This upand-coming town (Boise)...has been attracting transplants looking for safety and simplicity and the ample beauty.....along the Greenbelt, a riverside path...the procession of skinny cyclists, skinny strollerpushing couples, and other skinny folks seems as if it was choreographed by the tourism board...."<sup>2</sup>

The opportunities for physical activity provided by biking and walking infrastructure also help businesses increase productivity and control costs, thus increasing profits. For example, QBP, a 600 employee bike parts distributor in Minneapolis, located in a "bicyclefriendly" infrastructure area, offered a series of incentives for employees to commute by bike and experienced a 5% reduction in health care costs, netting \$170,000 a year in savings.

» ATTRACTING VISITORS - Bicycling and hiking are integral to Idaho's tourist economy, and there is room to grow these opportunities. Ten percent of visitors to Idaho hike or bike during their stays here, which is twice the nationwide average among vacationers. Hiking and bicycling are most popular among the demographic cohort known as "Generation X" (the generation born between the mid-1960s and the early 1980s). While this group currently spends less money than their baby boomer predecessors, that is changing as they age and accumulate wealth. Destinations that provide bicycling and hiking opportunities will enjoy a long relationship with this group through their empty nest and retirement years. Many tourists to Idaho currently come from other Western states, but increased marketing that leverages Idaho's existing strengths, including bicycling and hiking, can spread the word about the Idaho lifestyle across the rest of the country and the world.

Bicycle racing events can draw the business of competitors and spectators alike. Idaho has a few but nearby states are seizing the initiative. For example, Colorado has recently begun hosting the USA Pro Cycling Challenge and is seeing dramatic impacts to the economy. The 2011 event generated \$83.5 million in economic benefit for the state (mostly from out-of-state attendees), which increased to \$99.6 million in 2012. But the benefits don't end with the event, as 85% of out-of-state attendees stated they are more likely to visit the state again because of positive experience of visiting for the Pro Cycling Challenge, and Colorado towns now compete to host race stages for future years and enjoy the attendant media exposure.

<sup>2</sup> Woo, Stu "The State of Affairs That is Boise State," The Wall Street Journal, October 19, 2012.

#### » REDUCING HEALTH CARE COSTS

Lack of physical activity has real impacts to Idaho's economy, including diminished performance by students and direct costs related to health care due to obesity and other conditions associated with inactivity. Investing in infrastructure for bicycling and walking will help reverse these trends which are draining Idaho's competitiveness.

Regarding student performance, which can impact lifelong career achievement, the U.S. Department of Health and Human Services' 2009 National Youth Risk Behavior Survey documented the association between physical activity and academic performance among

school children: as the rate of participation in regular physical

activity increased, so did the average grades of the children studied (see Figure 1).<sup>3</sup>

Physical inactivity has real health care costs across the state of Idaho consuming disposable income for individuals and families and inhibiting economic growth for businesses.





Figure 1

The adult obesity rate in Idaho was 27% in 2010, ranking 22<sup>nd</sup> among states, according to the Robert Wood Johnson foundation. The same report projects that if current trends continue, the rate will grow to 53% by 2030 (see orange line in Figure 2). The direct health care costs borne by Idahoans as a result of obesity were estimated to be \$320 million in 2010, and will grow to \$1.5 billion consuming 2.5% of the state's GDP—by 2018 (see blue line in Figure 2). These trends can be altered with investment in accessible infrastructure and

<sup>3</sup> US Department of Health and Human Services, Centers for Disease Control and Prevention, "Physical Inactivity and Unhealthy Dietary Behaviors and Academic Achievement;" report on data from 2009 National Youth Risk Behavior Survey (chart reformatted for clarity).

promotion of active transportation, especially in the state's metropolitan areas. Active lifestyles enabled by investment in bicycle and pedestrian infrastructure can help reduce obesity and heart disease in Idaho. In addition. the opportunities for physical activity provided by biking and walking infrastructure also help businesses increase productivity and control costs, thus increasing profits. Simple efforts

toward regular



maintaining a healthy diet can make a great impact on these trends. For example, a 45 year old male can safely lose up to two pounds a week with a change in diet and an increase in physical activity. Even at a rate of one pound a week, it could take as little as 2.5 months to achieve a 5% Body Mass Index (BMI) reduction. If a 5% BMI reduction is achieved statewide, then savings to Idahoans would total \$1 billion cumulative through 2020 (a savings of \$1,750 per Idaho household) and \$3 billion cumulative through 2030 (\$5,250 per household).

## PUBLIC SUPPORT FOR BICYCLING AND WALKING

To assist in developing this study, a public survey was conducted among Idaho residents for their opinions and priorities. Over 700 residents from 26 counties responded. Among other things, these Idahoans reported that the attributes they value most about living in Idaho are first, a robust quality of life, second, easy access to the natural environment, and third, living in healthy communities. They also indicated that they would most highly value good biking and walking access to recreational pathways, workplaces, and schools. And finally, they most strongly supported investments in building infrastructure to accommodate bicycling and walking, enforcing laws to promote safety, and conducting programs to encourage and promote more bicycling and walking activity (see Figure 3).

#### HOW IMPORTANT IS IT TO INVEST IN ....



Figure 3

# OBJECTIVES

Five objectives were developed to achieve the goals of the study through a process which included the public survey with over 700 respondents from all around the state, stakeholder meetings, BPAC input, and meetings with ITD staff. Each objective and the metrics identified to measure progress toward achieving the goals are presented below.

# **OBJECTIVE 1: INVEST IN ACTIVE TRANSPORTATION INFRASTRUCTURE.**

Providing more bicycle and pedestrian-friendly infrastructure will provide transportation choices, as well as access to the state's distinctive natural environment. Two performance metrics for this objective are:

- Metric 1.1: Tangibly accommodate bicycles on 60% of roadways statewide.
- Metric 1.2: Increase mode share of bicycling to 6%.

Explanation: On the State Highway System, bike lanes or shoulders (4 feet or wider) are found on nearly 40% of roadway miles statewide, a statistic that has been gradually rising in recent years and is expected to continue to hold steady, perhaps rising by a few percentage points until 2035.<sup>1</sup> The coverage of bike lanes and shoulders along the roadways in metropolitan areas is lower, but appears to be increasing more rapidly in recent years. For example, in the Ada County Highway District the percentage has been dramatically rising from less than 20% in 2010, and is expected to surpass 40% by 2020. After 2020, growth is expected to rise more slowly to around 50% by 2035 (see Figure 4).<sup>2</sup> Coverage in the Bannock Planning Organization (Pocatello) area is also shown in the figure.<sup>3</sup>



"...there is a strong relationship between physical health and happiness and access to safe, functional and attractive public infrastructure for walking and bicycling...When I see residents taking a stroll on Emmett's new City Park sidewalk or bicycling around the Gem Island Sports Complex pathway, it makes me feel like we are doing the right things for Idaho's citizens."

~ Brad Clark, Planning Director for Gem County and the City of Emmett

<sup>1</sup> State Highway System paved shoulder data points provided by Margaret Pridmore, ITD; linear trend.

<sup>2</sup> Ada County Highway District data provided and trend affirmed by Matt Edmonds, ACHD

<sup>3</sup> Bannock PO data point provided by Mori Byington, MPO Director

Across the United States, there is a strong and positive correlation between roadway coverage of bicycle facilities and bicycle mode share, an indicator of transportation freedom and choice. The Idaho BPAC and other stakeholders examined these nationwide trends, particularly among communities that compete with Idaho communities and are known to offer true transportation choices. These trends suggested that for Idaho to be a place known to offer



real transportation options, a commute mode share of at least 6% should be achieved in its larger metropolitan areas. The nationwide data indicates that to achieve 6% mode share for bicycling, it is important that at least 60% of roadways have a tangible form of bicycle accommodation (see Figure 5). Communities where both of these thresholds have been found include Fort Collins and Boulder, Colorado, and Davis, California. Thus, 60% coverage has been identified as a statewide objective to achieve by 2035 for roadways within municipalities or census-defined urbanized areas, and that achieving this objective will also ultimately yield a 6% commute mode share for bicycles (see Figure 5). <sup>4</sup>

<sup>4</sup> Percent Bike Share for Total Commuter Trip data from the United States Census Bureau's 2011 American Community Survey. Percent Inclusive Bike Facilities data from the League of American Bicyclists's Bicycle Friendly Communities Agency Application database. Trend line based on linear regression analysis. Correlation (R-squared) is 0.5673.





#### OBJECTIVE 2: IMPROVE IDAHO'S QUALITY OF LIFE.

Being known as a bicycle and pedestrian friendly place is one of the leading indicators for the quality of life in a state or community. A high quality of life influences young people to stay in Idaho to raise their families, and it can also convince today's entrepreneurs and large employers to locate their businesses in Idaho and help them attract and retain a talented workforce. The League of American Bicyclists monitors the bike friendly attributes of states and communities across the country. To measure progress toward improving Idaho's robust quality of life, the following objectives were identified:

#### Metric 2.1: Elevate Idaho to top ten status among bicycle friendly states

As of 2014, Idaho is ranked 26th as measured by the League of American Bicyclists.<sup>5</sup> The improvements and investments identified in this study will help elevate Idaho to a top ten position by 2035.

• Metric 2.2: Increase the number of recognized bicycle friendly communities in Idaho to twenty (20).

As of 2014, three Idaho areas are recognized as bicycle friendly by the League of American Bicyclists: Wood River Valley, Ada County, and Coeur d'Alene.<sup>6</sup> Boise State University is also recognized as a Bicycle Friendly University.<sup>7</sup> A measure of Idaho's robust quality of life would be to increase that number to 20 communities by 2035.



"I don't know what I would do without the Wood River Trail. I use it almost everyday. It takes me where I want to go either on my bike or on my skis and it keeps me and my friends safe from all the traffic up and down the highway. It's kind of like a lifeline."

~Wood River Valley Resident, age 13

<sup>5</sup> League of American Bicyclists, "2013 State Rankings," http://www. bikeleague.org/content/ranking, accessed February 21, 2014.
6 League of American Bicyclists, "Current Bicycle Friendly Communities, 2013", <u>https://www.bikeleague.org/sites/lab.huang.radicaldesigns.org/files/ Fall2013\_BFCMasterList.pdf</u>, accessed February 21, 2014.
7 League of American Bicyclists, "Current Bicycle Friendly Universities -Fall 2013", <u>http://bikeleague.org/sites/lab.huang.radicaldesigns.org/files/bfu</u> masterlist\_fall2013.pdf, accessed February 21, 2014.



#### **OBJECTIVE 3: INVEST IN TOURISM**

Tourism is already an important sector of the Idaho economy, and bicycling and related activities by tourists comprised nearly \$500 million in economic activity in 2012. Infrastructure investments and associated media buys can help preserve and grow this important sector of Idaho's marketplace. Enabling Idaho to be more competitive in the Western U.S. tourism market will contribute greatly to Idaho's economic vitality. Two metrics that can help attract more visitors to Idaho by the year 2035 are:

• Metric 3.1: Develop 650 miles of new shared use paths to comprise a branded statewide system of over 1,000 miles, to attract tourists and provide recreation opportunities to residents.

Two state organizations—the Department of Commerce and Idaho Department of Parks and Recreation—have identified at least five regions of Idaho where the existing pathway networks totaling approximately 350 miles could be expanded to into a branded system of networks that will increase the number of visitors to our state and provide both recreation opportunities and transportation to residents. These initial five regions include Eastern Idaho, North Idaho, Clearwater Drainage, the Weiser River/West Mountain Loop, and the Wood River Valley.

#### **Objectives**

Opportunities have been identified that will increase the total mileage of these tourist-drawing pathway networks to more than 1,000 miles. This statewide trail system could be branded (e.g., the "Gem State Grand" or the "Via Perpetua") and marketed, potentially drawing over 1.2 million new users each year, which would position Idaho as one of the world's premier bicycling destinations.<sup>8</sup> Adventure bicyclists and Idaho residents alike will come to see riding the totality of an extensive, branded statewide system as an achievement for their "bucket lists." This system will benefit Idaho by:

- 1. Attracting tourists from across the United States and around the world;
- 2. Improving the quality of life by providing a world class recreational amenity to residents across Idaho; and
- 3. Providing transportation options to residents of nearby communities.

The five initial regions and their characteristics are:

 In Eastern Idaho, currently, 40 miles of pathways are along an alignment, connecting West
 Yellowstone to Victor. Preliminary planning has identified the potential for an additional While one of the most common ways of accommodating bicycles—especially on higher speed roadways—bike lanes and shoulders also provide numerous benefits to motor vehicle operations. Shoulders provides both recovery and breakdown space for cars and trucks. Shoulders also position motor vehicles away from the edge of pavement, thus preserving the stability of the road bed.



<sup>8</sup> Aggregated new visitor estimates from expansion of the five largest tourismsignificant Idaho networks (e.g., Eastern Idaho, North Idaho, Clearwater Drainage, Weiser River, and Wood River Valley) based upon linear regression of user volumes (length of trail, the independent variable) of tourist-significant pathways in Idaho and throughout western United States.



50 miles, which could complete the connection in the West Teton Valley. Ultimately, these pathways will expand upon Wyoming's Jackson, Grand Teton National Park, and Yellowstone National Park existing pathway infrastructure, creating a nationally prominent trail network looping approximately 170 miles.

- In North Idaho, the Trail of the Coeur d'Alenes, the North Idaho Centennial Trail and the Route of the Hiawatha total 125 miles with an additional 100 miles identified for network expansion and creation of a loop, connecting tourist destinations and Idaho communities.
- In the Clearwater Drainage, Lewiston area paths, the Trestle, and Lewis & Clark Trails total 20 miles. This network could easily be expanded by an additional 80 miles.
- The Weiser River Trail and West Mountain loop system currently comprise 150 miles of trails through communities like Cascade, Horseshoe Bend, Weiser, and Council. This system could be expanded by an additional 130 miles to link McCall, Payette and Emmett as well, furthering the tourism draw of the region.
- The Wood River Trail and associated loops currently total 35 miles, and could be expanded by an additional 100 miles.

#### **Objectives**

Another 200 or more miles of tourism-significant multiuse pathway networks could also be developed in other areas of the state.

The 1.2 million new pathway users a year that these network expansions will draw will translate into \$135 million in new tourist revenue annually, which will contribute up to \$2.7 billion to the state's economy by 2035.<sup>9</sup>

The new miles of pathways created for this system's networks will also provide transportation options and healthy recreation opportunities for local residents of the Idaho communities through which they run and connect.

# • Metric 3.2: Provide shoulders on at least 30% of Idaho's paved Scenic Byways

Increasing bicycle facility coverage along the roadways of Idaho's paved Scenic Byways (see Figure 6) will help draw more bicycle tourists and provide better recreational opportunities for residents, improving their quality of life and keeping more of their vacation spending in Idaho. Scenic routes provide visual and physical proximity to some of Idaho's most spectacular natural features and are already a major attraction to visitors. Increasing their accessibility to bicycle tourists is a cost effective way to draw an additional tourist cohort. Statewide, the Scenic Byway System currently features shoulders wider



Figure 6

<sup>9</sup> Based on visitor spending trends described in K.K. Shifflet & Associates, Ltd: Idaho 2005 Visitor Profile Public Version; Longwoods Travel USA: Travel USA, 2008

than three feet on 25% of its paved roadways. This coverage is not evenly distributed among the regions, however. The Western/Central region boasts shoulders on 30% of its byways, while the East region's byways have 25% shoulder coverage, and the Northern region byways are only at 16%.<sup>10</sup> An objective has been established through this plan's stakeholder process to increase all regions to 30% shoulder coverage by 2035, providing opportunities for tourists to enjoy scenic byways by bicycle all across the state and to grow the state's GDP.

#### **OBJECTIVE 4: REDUCE HEALTH CARE COSTS**

Idaho's community and business leaders, as well as other stakeholders, are taking notice of the high cost of our population's physical inactivity to the state's economy as shown in Figure 2. Obesity increases costs for employers and reduces disposable income of Idaho families. Decreasing the obesity rate will help Idaho achieve the high levels of public health it needs for a competitive future.

<sup>10</sup> Idaho's Scenic Byways locations from Idaho's Department of Commerce website; percentage estimates for those segments with shoulders based upon sampling measurements using Google Earth<sup>™</sup> 2013 aerial photography.



#### **Objectives**

There is a direct correlation between the quality and extent of bicycle facilities and the obesity rate found in communities across the country (see Figure 7).<sup>11</sup>

> Metric 4.1: Slow the statewide obesity rate trend by 10% by 2030

Investing in bicycling and walking facilities will help reduce Idaho's adult obesity rate, which in turn reduces health care costs related to obesity. These reductions will increase the quality of life and free up disposable income for Idahoans. A 10% reduction in



<sup>11</sup> Percent Inclusive Bike Facilities data from the League of American Bicyclists' Bicycle Friendly Communities Agency Application database. Adult Obesity Rate (Age-Adjusted Data) data from Idaho Department of Health and Welfare's "The Obesity Epidemic in Idaho" (counties) as well as the CDC Behavioral Risk Factor Surveillance System's 2010 obesity rate estimates (metro areas). Trend line based on linear regression analysis; correlation (R-squared) is 0.62.

the growth of the statewide obesity rate will save Idahoans as much as \$2.8 billion by 2030, and as that trend continues, savings will total \$5.3 billion by 2035 (see Figure 8).<sup>12</sup>

#### OBJECTIVE 5: IMPROVE BICYCLING AND WALKING SAFETY

Reducing crashes that lead to injury or death for bicyclists and pedestrians is important in meeting the goal of providing a safe, effective, and accessible transportation system.





<sup>12</sup> Annual Adult Obesity Rate Percent (dashed orange line) based upon current obesity projection data from "F as in Fat," Robert Wood Johnson Foundation, September 2012 report. Annual Adult Obesity Rate Percent (solid orange line) based upon 5% reduction in BMI data from "F as in Fat", Robert Wood Johnson Foundation, September 2012 report. Annual Cost of Obesity (dashed blue line) based upon data points from Idaho Department of Health and Welfare's "The Obesity Epidemic in Idaho." Annual Cost of Obesity (solid blue line) from projections based on data from Idaho Department of Health and Welfare's The Obesity Epidemic in Idaho" and "F as in Fat," Robert Wood Johnson Foundation, September 2012 report.

• Metric 5.1: Cut bicycle and pedestrian crash rates by 50% by 2035 Data show that a downward trend in crash rates (i.e., incidents relative to population) has begun in Idaho in recent years, and all agencies should be committed to continuing this positive trend (see Figures 9 and 10).<sup>13</sup> (These targets of cutting rates by 50% are represented by gold stars in figure



Bicycle & Pedestrian Crashes & Injuries per

10. Note that achieving the bicycle crash rate target will especially require efforts beyond those responsible for the existing positive trends.)

The study outlines the various roles that agencies throughout the state can play to achieve these objectives.

<sup>13</sup> Data from "Idaho Traffic Crashes 2011," ITD Office of Highway Safety; projections based on linear regression analysis.



Figure 10

### **RETURN ON INVESTMENT**

Meeting these objectives will yield dramatic and valuable economic benefits to Idahoans. As discussed earlier, the increased tourism in response to these investments will bring over \$135 million in new tourist revenue each year, which will add up to \$2.7 billion to the economy by 2035. The health care savings from reduced obesity in Idaho will reach approximately \$5.3 billion. The benefits of business attraction are more difficult to quantify, but with more active transportation infrastructure and more "friendly roadways", new jobs will come to Idaho communities, increasing spending power and fueling the overall economy. The freedom to choose from increased transportation options and the improved quality of life in Idaho communities are similarly hard to quantify but are no doubt priceless to Idahoans. Therefore, the tangible return on the cumulative investment in Idaho's future, tourism business, health and quality of life is at least \$8 billion over the life of this study.

The recommended initiatives and investments to achieve these goals are modest by comparison, adding up to \$465 million, as shown in Table 1. This makes the estimated return on investment for this plan over 16:1

INVESTME	NT S
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Add $\sim$ 600 miles of shoulders and/or bike lanes	\$100 million
Construct 650 miles of new tourism pathways	\$200 million
for a branded system of networks across the state	
Operations and maintenance of tourism pathways	\$10 million
Add shoulders and bike lanes on scenic byways for 30% coverage	\$35 million
20 years of media buys to promote bicycle tourism	\$20 million
20 years of media buys and education to	\$100 million
promote physical activity and healthy eating	
Total	\$465 million

BENEFITS THROUGH 2035		
Increase in tourism		\$2.7 billion
Decrease obesity rate by 10%		\$5.3 billion
Increase quality of life for all Idahoans		Priceless
Business attraction: new jobs,		Priceless
economic prosperity		
ا	<b>Total</b>	\$8 billion

## **Return on Investment 16:1**

Table 1

# BEST PRACTICES FOR IDAHO

## INFRASTRUCTURE FOR ACTIVE LIFESTYLES

To achieve the goals and objectives described previously, initiatives should be undertaken by a variety of public and private partners from across Idaho. These best practices describes broad initiatives that are aiding in the achievement of the statewide goals and identifies stakeholders who are encouraged to implement them. The initiatives described among these best practices are necessarily broad, as they encompass a variety of objectives across a very large geographic areas. Specific projects and programs and the specific responsibilities of their development and implementation will need to be developed within the context of planning efforts for individual agencies, local planning areas, or professional disciplines. These initiatives will transform Idaho toward the future envisioned by the statewide goals.

The best practices are organized around the "Five E's" – Engineering, Encouragement, Education, Enforcement, and Evaluation—that are all elements of an environment that accommodates bicycling and walking as practical options for transportation and attractive and easily available forms of recreation and exercise. The best practices include land use policy initiatives which will also increase the utility of bicycling and walking for transportation, and thus help achieve statewide goals.





When the North Wind Group built its new company headquarters, we opted to locate close to the City greenbelt system. The location allows our employees to take full advantage of the greenbelt – whether it's lunch in one of the parks, a run along the paths, or bicycling to work via the greenbelt path system. In fact, maps of the greenbelt, including distance information, are included in our company wellness plan so employees can factor it into healthy lifestyles. In addition, we incorporated a "backyard" into our building that ties into the greenbelt system to encourage employees to take some time outdoors. The backyard is used for everything from outdoor breaks to employee picnics to corporate open houses and other events. The greenbelt is part of our corporate life since relocating.

~Ann Riedesel, Northwind

Each of the recommended initiative categories includes descriptions of specific initiatives, brief discussion of the goals the initiatives will advance, and identifies the stakeholders who are encouraged to implement them. Accompanying tables illustrate that many of the items will advance multiple goals and will require efforts of multiple public and private partners, at both statewide and local levels. The primary goals which will be furthered by these initiatives are indicated in the tables with large solid diamond shapes ( $\blacklozenge$ ); secondary goals that will also benefit from the initiatives are indicated with hollow diamond shapes ( $\diamondsuit$ ).

The identified stakeholders include transportation agencies such as ITD, Idaho's metropolitan planning organizations, highway districts, and county and city roadway departments. Additional stakeholders include other state and local agencies—such as municipalities and agencies for economic development, public health, education, and land use—and private partners such as non-profit health, advocacy, and community development organizations and business groups, developers and employers.

## RECOMMENDED ENGINEERING INITIATIVES

There are four major types of recommended engineering initiatives:

- » Invest in shared use paths,
- » Invest in on-street bicycle facilities,
- » Invest in pedestrian infrastructure, and
- » Invest in end-of-trip facilities for recreational, commuting and shopping trips.

Specific initiatives for each of these are discussed in detail below, with stakeholders identified.

This study does not give specific design guidance for bicycle and pedestrian infrastructure. All infrastructure projects should be designed to comply with applicable state and local design guidance as well as the national guidance found in such documents as American Association of State Highway and Transportation Official's (AASHTO) Guide for the Development of Bicycle Facilities, applicable portions of the National Association of City Transportation Officials' (NACTO) Urban Bikeway Design Guide, and the Manual on Uniform Traffic Control Devices (MUTCD).



Meet George W. from Pocatello. After trying unsuccessfully for years to lose weight to counter his diabetes, he dusted off his \$179 bike from Walmart and starting regularly riding the Portneuf River Greenway Trail and connecting road bike lanes. Today he is a trim 60 lbs lighter, much healthier and happier than he's ever been.

~ Real People; Real Sense for Idaho

## **INVEST IN SHARED USE PATHS**

(See Recommended Initiatives Matrix 1)

#### DEVELOP 650 MILES OF NEW REGIONAL SHARED USE PATH NETWORKS TO ATTRACT TOURISTS, AND ENHANCE THE QUALITY OF LIFE OF RESIDENTS, BY PROVIDING ACCESS TO IDAHO'S NATURAL ENVIRONMENT.

Tourism is a significant segment of Idaho's economy. Bicycle tourism and related activities are vital to Idaho's economy, and Idaho's natural splendor provides the perfect backdrop for its further development. Existing and future residents of Idaho also value experiencing Idaho's natural wonder as an integral part of the quality of life they prize here. During the stakeholder engagement process for this study, a vision emerged to expand the state's existing 350 miles of regional shared use paths networks by 650 miles so that a total of 1,000 miles of pathways will attract visitors to the state and provide more recreation, vacation and physical activity opportunities for Idahoans, as well as serve the towns and communities they connect. Such pathways could be used year round for both bicycling and skiing. ITD and other state agencies, local transportation and recreation departments, state and local economic development agencies, and state and local tourism, business, and civic interests should cooperate to expand this resource. The expanded networks should subsequently be branded together so that they can be collectively marketed to

visitors and residents alike (e.g., the "Gem State Grand" or the "Via Perpetua") in a way that emphasizes the grand scale of recreational bicycling opportunity found in Idaho. Accommodations for equestrian use should also be considered as these paths are developed. The Idaho towns and communities that would be physically linked by these networks will benefit both economically and by the expansion of transportation choices and recreational and exercise opportunities.

#### CONSTRUCT, COMPLETE, AND LINK SHARED USE PATHWAYS THAT SERVE IDAHO'S TOWNS AND CITIES.

Shared use paths are a cost-effective and popular way to provide opportunities for physical activity to Idaho residents. Whether people enjoy bicycling, walking, skating, cross-country skiing, or running, conveniently located shared use paths allow for exercise routines with little or no start-up costs to individual users. Shared use paths within Idaho communities will increase physical activity among the population, leading to better public health and reduced health care costs. Pathways are sought-after community amenities that signal a high quality of life and sustain property values. Pathways also facilitate commuter trips, providing a transportation option away from congested roadways, which appeals to broader demographic cohort than on-street bicycling alone.

ITD and other state agencies, local transportation and recreation departments, and local private partners

#### **RECOMMENDED INITIATIVE MATRIX 1**

		Broadly Supported Goals						Stakeholders						
		Freedom to Choose	Quality of Life	Economic Vitality	Public Health	Safety and Efficiency	Community Preservation, Access Natural Env.	Ē	MPOs	Local Trans. Agencies (Hwy Dist, County , City)	Other State Agency (Health, Econ. Dev, etc.)	Other Local Agency (Health, Econ. Dev, etc.)	Private Partners	
Recommended Engineering Initiatives														
red Per attra	Complete a branded statewide system of 1000 miles of creational pathways (e.g, the "Gem State Grand' or the "Via petua") by developing 650 miles of new shared use paths to act visitors and provide recreation opportunities to residents.	\$	•	•	\$		•	~	~	~	~	~	~	
Co	nstruct, complete, and link shared use pathways that serve Idaho's towns and cities.	•	•	<b>\</b>	•	<b>\</b>		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
E	ngage planning initiatives to identify and develop specific pathway projects.	•	•	•	•	•	•	$\checkmark$	$\checkmark$	$\checkmark$	×	×	×	





should expand existing pathways and construct new ones. This initiative will serve the transportation and recreational needs of Idaho residents in urban areas, will complete planned pathways, and will make connections that increase the performance and value of existing pathway networks.

#### ENGAGE PLANNING INITIATIVES TO IDENTIFY AND DEVELOP SPECIFIC PATHWAY PROJECTS.

Identified state, local, public and private partners should begin the work of identifying, prioritizing and developing multi-use pathway development projects that will draw tourists to Idaho and provide transportation options and recreational opportunities to Idaho residents.

## INVEST IN ON-STREET BICYCLE FACILITIES

(See Recommended Initiatives Matrix 2)

There is broad support throughout the state for better accommodation of bicycling on Idaho's roadways. Among other benefits, this will provide more transportation options for Idahoans and facilitate an active lifestyle that will improve the quality of life for existing residents and attract new residents. That improved quality of life will help the state's economy by enabling employers to attract and retain a talented workforce.

The recommended performance measure for bicycling accommodation on roadways is the *Highway* Capacity

Manual's (HCM) popular Bicycle Level of Service (Bicycle LOS) model. The general concept of the metric and its practical application to Idaho roadways are described in Appendix 1. The model measures bicycle accommodation on an A-F scale, with "A" representing the best accommodation for bicycling. This metric is already used by a number of Idaho's Metropolitan Planning Organizations (MPOs) and is a part of the nationwide "Multi-modal LOS Model" suite that is now being used routinely for planning and design of transportation corridors.

This study recommends providing minimum Bicycle Level of Service "B" or "C" on collector and arterial roadways in areas where specific criteria related to demand for bicycling are met. It is recommended that Bicycle LOS "C" be provided when one of the listed criteria is true of a roadway, and Bicycle LOS "B" be provided when two or more of the criteria are true. Rationale for the various criteria are briefly discussed below. ITD, highway districts, and other local transportation agencies should evaluate their existing roadways and plan and design their future roadways to help meet this objective. Broad accommodation of bicycling to the proposed Level of Service thresholds will have the effect of tangibly accommodating bicycling as called for by Metric 1.1, while providing design flexibility for the agencies. This will, in turn, help meet the objective of increasing the bicycle commute mode share to 6% as well as the obesity reduction objective.

#### **RECOMMENDED INITIATIVE MATRIX 2**

	Broadly Supported Goals					Stakeholders						
	Freedom to Choose	Quality of Life	Economic Vitality	Public Health	Safety and Efficiency	Community Preservation, Access Natural Env.	Œ	MPOs	Local Trans. Agencies (Hwy Dist, County , City)	Other State Agency (Health, Econ. Dev, etc.)	Other Local Agency (Health, Econ. Dev, etc.)	Private Partners
Recommended Engineering Initiatives Invest in On-Street Bicycle Facilities												
Accommodate bicycling at Level of Service "C" if one of the following criteria is met; Enhance to Level of Service "B" if two or more are met:												
Within a census-defined urbanized area or municipality.	•	•		<b>♦</b>	•		$\checkmark$	$\checkmark$	$\checkmark$		×	
Within three miles of a school.	•			•	•	•	$\checkmark$	$\checkmark$	$\checkmark$		×	
Within three miles of a shared use path.		•	•	•		•	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$	
Along an Idaho Scenic byway.		•	•	♦	♦	•	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
<ul> <li>Within three miles of a park or an access point to a public outdoor recreation venue.</li> </ul>		•	•	•		•	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$	
<ul> <li>Within three miles of an employment node (100+ employees) outside of a municipality.</li> </ul>	•		•		•	•	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$
Engage planning initiatives to identify and develop specific on- street bicyle facility projects.	•	•	•	•	•	•	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$

•	Primary Goal Served
$\diamond$	Secondary Goal Served

$\checkmark$	Primary Stakeholders
<ul> <li>Image: A set of the set of the</li></ul>	Secondary Stakeholders

#### ACCOMMODATE BICYCLING AT LEVEL OF SERVICE "C" IF ONE OF THE FOLLOWING CRITERIA IS MET; ENHANCE TO LEVEL OF SERVICE "B" IF TWO OR MORE ARE MET:

#### » WITHIN A CENSUS-DEFINED URBANIZED OR TRANSITIONING AREA OR MUNICIPALITY.

Bicycling is most effective as a transportation option for short trips and is most practical in areas where destinations are concentrated within a few miles of home. Improvements to bicycling accommodation in more densely settled areas will more likely yield more users, thus helping to meet the goal of providing freedom of transportation choice and the objective of increasing bicycle mode share.

» WITHIN THREE MILES OF A SCHOOL. For

bicycling to be a practical mode for school trips, the roadways around the school should be very accommodating to the needs of students and their parents. Accommodating and encouraging school trips provides a transportation option and may help children form the habits of physical activity that are key to a healthy life.

#### » WITHIN THREE MILES OF A SHARED USE PATH.

Providing high quality bicycle accommodation to shared use paths will help more people directly access these popular facilities from their homes, encouraging more physical activity among Idaho residents. Accessibility between shared use pathways of the branded statewide systems and nearby communities will also promote spending by the tourists who come to Idaho to ride the newly developed pathways, allowing them to purchase refreshments or shop at local stores, and enjoy meals at local establishments.

» ALONG AN IDAHO SCENIC BYWAY. In addition to the envisioned 1,000 miles of high quality, branded, shared use path systems across the state (e.g., the "Gem State Grand" or the "Via Perpetua"), improved bicycle accommodation along Idaho's Scenic Byways will draw visitors to the state and allow residents to more directly experience Idaho's natural beauty. Providing more visibility of bicycle tourism and better access to Idaho's scenic resources is a benefit to all.

#### » WITHIN THREE MILES OF A PARK OR AN ACCESS POINT TO A PUBLIC OUTDOOR RECREATION

**VENUE.** Improved bicycle access to outdoor recreation venues will facilitate physical activity and provide the quality of life that will make families want to stay in Idaho and help Idaho employers attract and retain a talented workforce.

## » WITHIN THREE MILES OF AN EMPLOYMENT NODE (100+ EMPLOYEES) OUTSIDE OF A

**MUNICIPALITY.** Providing bicycle access to jobs enables freedom of choice in transportation and improves the quality of life for Idahoans who can combine their exercise and their commute into one ride. Significant business investment in manufacturing and agricultural processing plants and infrastructure should be partnered with strategic active transportation provisions.

» ENGAGE PLANNING INITIATIVES TO IDENTIFY AND DEVELOP SPECIFIC ON-STREET BICYCLE FACILITY PROJECTS. Identified state, local, public and private partners should begin the work of identifying, prioritizing and developing roadway projects that will provide tangible bicycle facilities and/or accommodate bicycling at the desired Level of Service, so that bicycling becomes a true transportation option for Idaho residents, and so that Idaho's quality of life continues to attract investment and a talented workforce to the state.

## INVEST IN PEDESTRIAN INFRASTRUCTURE

#### (See Recommended Initiatives Matrix 3)

There is broad support throughout the state for accommodating walking along Idaho's roadways. The benefits of pedestrian infrastructure are very similar to those for bicycling: providing more transportation options for Idahoans; facilitating an active lifestyle that will improve the quality of life and health for existing residents and attracting new residents; and helping the state's economy by enabling employers to attract and retain a talented workforce.

The recommended performance measure for pedestrian accommodation along roadways is the *HCM*'s popular

Pedestrian Level of Service (Pedestrian LOS) model. The general concept of the metric and its practical application to Idaho roadways are described in Appendix 1. Similar to what was described above for the Bicycle Level of Service model, the Pedestrian Level of Service model measures accommodation on an A-F scale, with "A" representing the best accommodation for pedestrian travel. This metric is a part of the nationwide "Multi-modal LOS Model" suite that is used routinely for planning and design of transportation corridors. This metric provides agencies with design flexibility rather than adherence to a rigid facility type.

This study recommends providing minimum Pedestrian Level of Service "B" or "C" on collector and arterial roadways in areas where specific criteria related to demand for walking are met. It is recommended that Pedestrian LOS "C" be provided when one of the listed criteria is true of a roadway, and Pedestrian LOS "B" be provided when two or more of the criteria are true. Rationale for the criteria are briefly discussed below. ITD, highway districts, and other local transportation agencies should plan and design their future roadways to help meet this objective.

#### **RECOMMENDED INITIATIVE MATRIX 3**

		Broadly Supported Goals							Stakeholders					
		Freedom to Choose	Quality of Life	Economic Vitality	Public Health	Safety and Efficiency	Community Preservation, Access Natural Env.	Ē	MPOs	Local Trans. Agencies (Hwy Dist, County , City)	Other State Agency (Health, Econ. Dev, etc.)	Other Local Agency (Health, Econ. Dev, etc.)	Private Partners	
Recomm	ended Engineering Initiatives													
Inves	t in Pedestrian Infrastructure													
	Accommodate pedestrian travel at Level of Service "C" if one of the following criteria is met; Enhance to Level of Service "B" if two or more are met:													
	Within a census-defined urbanized area or municipality.	•	•		♦	•		$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$		
	Within one mile of a school.	•			•	•	•	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$		
	Within one mile of a shared use path.		•	•	•		•	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$		
	<ul> <li>Within one mile of a park or an access point to a public outdoor recreation venue.</li> </ul>		•	•	•		•	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$		
	<ul> <li>Within one mile of an employment node (100+ employees) outside of a municipality.</li> </ul>	•		•		•	•	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$	
	Provide convenient crossings where shared use paths cross roadways.	•	•	•	•	•		$\checkmark$	$\checkmark$	$\checkmark$				
	Provide midblock crossings convenient to travel paths and in response to demand.	•	•	•	♦	•		$\checkmark$	$\checkmark$	$\checkmark$			$\checkmark$	
	Reduce crossing difficulty for pedestrians.	•	•	•	۵	•	۵	$\checkmark$	$\checkmark$	$\checkmark$			$\checkmark$	
[	Engage planning initiatives to identify and develop specific pedestrian facility projects.	•	•	•	•	•	•	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	





#### ACCOMMODATE PEDESTRIANS AT LEVEL OF SERVICE "C" IF ONE OF THE FOLLOWING CRITERIA IS MET; ENHANCE TO LEVEL OF SERVICE "B" IF TWO OR MORE ARE MET:

#### » WITHIN A CENSUS-DEFINED URBANIZED OR TRANSITIONING AREA OR MUNICIPALITY.

Pedestrian travel is most effective as a transportation option for short trips and is most practical in areas where destinations are concentrated within a short distance from home. Pedestrian accommodation in more densely settled areas will more likely yield more users, thus providing freedom of transportation choice to Idahoans.

» WITHIN ONE MILE OF A SCHOOL. For pedestrian travel to be a practical mode for school trips, the roadways around schools should be very accommodating of students and their parents. Accommodating and encouraging school trips provides a transportation option and may help children form the habits of physical activity that are key to a healthy lifestyles.

#### » WITHIN ONE MILE OF A SHARED USE PATH.

Providing high quality pedestrian access to shared use paths will help more people access these popular facilities, encouraging more physical activity among Idaho residents.

#### » WITHIN ONE MILE OF A PARK OR AN ACCESS POINT TO A PUBLIC OUTDOOR RECREATION

**VENUE.** Pedestrian access to outdoor recreation venues will facilitate physical activity and provide the quality of life that will make families want to stay in Idaho and help Idaho employers attract and retain a talented workforce.

### » WITHIN ONE MILE OF AN EMPLOYMENT NODE (100+ EMPLOYEES) OUTSIDE OF A

**MUNICIPALITY.** Providing pedestrian access to jobs also enables freedom of choice in transportation and improves the quality of life for Idahoans who can combine their exercise and their commute into one activity. Significant business investment in manufacturing and agricultural processing plants and infrastructure should be partnered with strategic active transportation provisions.

### PROVIDE CONVENIENT CROSSINGS WHERE SHARED USE PATHS CROSS ROADWAYS,

#### AND

### PROVIDE MIDBLOCK CROSSINGS CONVENIENT TO TRAVEL PATHS AND IN RESPONSE TO DEMAND.

Convenient crossings are important in accommodating pedestrians. Long detours to controlled crossing points can render pedestrian travel impractical, eliminating it as a real option for all but those who have no other option. Enhanced crossings (i.e. something more than only marking the crosswalk on the pavement) are important on multi-lane roadways with traffic volumes greater than 12,000 vehicles a day. In addition to supplemental signage and enhanced geometrics, effective traffic control packages such as the Pedestrian Hybrid Beacon (aka the "HAWK," included in the 2009 *MUTCD*) and the Rectangular Rapid Flashing Beacon (RRFB, 2008 Interim Approval from FHWA) can greatly increase yield rates at midblock and other uncontrolled crossing locations. Enhanced crossings should be considered at locations where shared use paths cross roadways and where travel patterns between neighborhoods and high traffic destinations—such as retail centers, transit stops, and schools—are not otherwise served by a convenient crossing. Several ITD districts have had excellent results with RRFBs in both suburban and rural settings.

# REDUCE CROSSING DIFFICULTY FOR PEDESTRIANS.

Difficult crossings may render walking an impractical option for many pedestrians. The difficulty of crossing any particular road can be affected by many factors, including the width of the roadway (measured in distance or in number of lanes), traffic conditions (both speed and volume), and the distance between crosswalks. Analytical tools such as the *HCM*'s Roadway Crossing Difficulty Factor can be used to assess the difficulty encountered by pedestrians as the attempt to cross specific roadways. ITD, Highway Districts, and local transportation agencies should analyze projects associated with new development, roadway reconstruction, or widening for difficult crossing locations that also experience high pedestrian demand and seek to improve them. Design features such as curb extensions, channelization islands, and median refuges can help reduce crossing distances for pedestrians when installed at appropriate locations.

### ENGAGE PLANNING INITIATIVES TO IDENTIFY AND DEVELOP SPECIFIC PEDESTRIAN FACILITY PROJECTS.

Identified state, local, public and private partners should begin the work of identifying, prioritizing and developing projects that will provide sidewalks, crossings, and other pedestrian accommodations and/ or accommodate pedestrian travel at the desired Level of Service, so that pedestrian travel becomes a true transportation option for Idaho residents, and so that Idaho's quality of life continues to attract investment and a talented workforce to the state.

## INVEST IN END-OF-TRIP FACILITIES FOR RECREATIONAL, COMMUTING AND SHOPPING TRIPS

(See Recommended Initiatives Matrix 4)

End-of-trip facilities, such as bike parking and changing facilities, are necessary to make the active transportation modes real choices for commuting, shopping, and recreational trips. Both long- and short-term bike parking should be provided to serve workers and customers in business districts. Showers and

#### **RECOMMENDED INITIATIVE MATRIX 4**

		Broadly Supported Goals						Stakeholders						
		Freedom to Choose	Quality of Life	Economic Vitality	Public Health	Safety and Efficiency	Community Preservation, Access Natural Env.	E	MPOs	Local Trans. Agencies (Hwy Dist, County , City)	Other State Agency (Health, Econ. Dev, etc.)	Other Local Agency (Health, Econ. Dev, etc.)	Private Partners	
Recomn	Recommended Engineering Initiatives													
Inves	t in End-of-Trip Facilities for Non-Motorized Recreational, Comm	uting and s	shopping 1	rips										
	Provide bicycle parking to serve bicycle shopping and recreational trips.	•	♦	•	♦				$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$	
	Promote and incentivize end-of-trip facilities to serve bicycle and pedestrian commuting trips.	•	•	•	<b>\</b>				$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$	
	Provide secure bicycle parking at schools.	•	<b>\</b>		•	•				$\checkmark$		$\checkmark$		
	Provide secure bicycle parking at parks, public buildings, and other community facilities.	•	•		•	•	•	$\checkmark$		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
	Engage planning initiatives to identify and fulfill specific end-of- trip facility needs.	•	•	•	•	•	•	×	$\checkmark$	$\checkmark$	×	×	$\checkmark$	

•	Primary Goal Served
$\diamond$	Secondary Goal Served



lockers will facilitate commuting trips (for both bicyclists and pedestrians) and should be included in office developments. Schools and public buildings should also provide bike parking for students, staff, and customers.

# PROVIDE BICYCLE PARKING TO SERVE SHOPPING AND RECREATIONAL TRIPS.

Short-term bicycle parking serves social and shopping trips with racks for two to four bicycles in sidewalk buffer areas or in commercial parking lots convenient to retail and dining destinations. Short-term parking can be included in local streetscape standards and be funded through public-private partnerships or required as part of a development code. For example the City of Coeur d'Alene recently enacted a code (17.44.000) that links bike parking to requirements for motor vehicle parking associated with commercial properties, and the City of Sandpoint has bicycle parking requirements embedded in its design standards. Another example of adding bike parking is Moscow's Bike Rack Program, which provides assistance to businesses and organizations for the purchase and installation of bike racks.

» PROMOTE AND INCENTIVIZE END-OF-TRIP FACILITIES TO SERVE BICYCLE AND PEDESTRIAN COMMUTING TRIPS. Long-term bicycle parking and other end-of-trip facilities are important contributions that local agencies and private partners can make to strengthen Idaho's transportation choices and quality of life. Long-term bicycle parking serves commuters and can accommodate multiple bicycles for four hours or more. Parking can be slightly more removed from the final destination, but the locations should be more secure (due to lack of visibility) and protected from the elements. Through land use policies and zoning codes, local agencies can incentivize or mandate the inclusion of showers and lockers (which benefit both bicyclists and pedestrian commuters), as well as long-term bicycle parking in commercial buildings or plan the development of shared facilities at major commercial nodes. Building owners, too, have increased bicycle parking, as was recently done at the River Quarry at Parkcenter in Boise where the owner recently installed a secure access code bicycle garage for the office complex. Long-term parking, lockers, and showers will help make bicycling a viable mode choice for commuters, thus increasing freedom of choice, increasing the quality of life, and helping employers attract and retain talent.

#### » PROVIDE SECURE BICYCLE PARKING AT

**SCHOOLS.** Secure day-long parking should be provided at all schools so that students and staff can enjoy transportation choices and begin the habits of an active lifestyle.

» PROVIDE SECURE BICYCLE PARKING AT PARKS, PUBLIC BUILDINGS, AND OTHER COMMUNITY FACILITIES. Short-term parking should be included at all public buildings, parks, and community facilities such as recreation centers and libraries. Mountain Rides, the transit provider in the Hailey-Ketchum area, has been adding bicycle parking near bus shelters, a practice other communities should consider.

» ENGAGE PLANNING INITIATIVES TO IDENTIFY AND FULFILL SPECIFIC END-OF-TRIP FACILITY NEEDS. Identified state, local, public and private

partners should begin the work of identifying and fulfilling needs for end-of-trip facilities at specific locations, and identify policy documents, guidelines, and codes that can be updated to encourage and incentivize the provision of end-of-trip facilities.

## RECOMMENDED LAND USE INITIATIVES

## ENACT POLICIES TO ENCOURAGE "SMART GROWTH" DEVELOPMENT PATTERNS

(See Recommended Initiatives Matrix 5)

Three types of initiatives in land use planning and development practices can greatly increase the level of physical activity among Idahoans by making bicycling and walking practical modes of transportation and convenient forms of recreation. These are:

- » Transportation policy initiatives,
- » Land use and zoning initiatives, and
- » School development and operation initiatives.

These are briefly discussed in this section.

» ADOPT TRANSPORTATION INVESTMENT POLICIES THAT REFLECT A COMMITMENT TO NON-MOTORIZED MODES AND RECOGNIZE THEIR CONTRIBUTION TO IDAHO'S HEALTH AND ECONOMIC VITALITY. ITD and Highway Districts should adopt policies that advance their arterial and collector corridors beyond functioning to move people and goods across the state and between cities, and into functioning as pathways to health and avenues of economic activity. They should commit to providing complete streets which routinely accommodate all modes, including bicycles, pedestrians, motor vehicles, and transit. The *HCM* based Multi-Modal LOS model suite should be used for all corridor planning and design activities. Transportation agencies should recognize the costs to public health and quality of life that stem from limiting non-motorized mobility, and they should also ensure that transportation infrastructure should enhance access to places of exchange and commerce along with the efficient delivery of bulk goods.

### » SUPPORT AND DEVELOP LAND USE POLICIES THAT FACILITATE ACTIVE LIFESTYLES AND THE UTILITY OF NON-MOTORIZED MODES. Local

governments, developers, and Idaho's transportation agencies should work together to coordinate developments and their approvals such that the needs of all modes of transportation are accommodated at a level consistent with the health, quality of life, and economic vitality that are essential to the economic sustainability of Idaho's communities. Examples include developer-funded and constructed sidewalk connections and roadway crossing improvements to link new developments to adjacent neighborhoods, nearby commercial areas, schools, employment centers, and other important pedestrian destinations.

» LOCATE, DEVELOP, AND OPERATE SCHOOLS SO THAT THEY ENCOURAGE WALKING AND BIKING BY STUDENTS. Local school systems should locate, develop, and operate schools so that they facilitate

#### **RECOMMENDED INITIATIVE MATRIX 5**

		Broadly Supported Goals						Stakeholders					
		Freedom to Choose	Quality of Life	Economic Vitality	Public Health	Safety and Efficiency	Community Preservation, Access Natural Env.	ITD	MPOs	Local Trans. Agencies (Hwy Dist, County , City)	Other State Agency (Health, Econ. Dev, etc.)	Other Local Agency (Health, Econ. Dev, etc.)	<b>Private Partners</b>
Recommended Land Use Initiatives													
	Adopt transportation investment policies that reflect a commitment to non-motorized modes and recognize their contribution to Idaho's health and economic vitality.	•	•	•	•	•	•	✓	✓	✓			
	Support and develop land use policies that facilitate the active lifestyles and the utility of non-motorized modes.	•	•	♦	•	•	♦		$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$
	Locate, develop, and operate schools so that they encourage walking and biking by students.	•	•	۵	•	•	۵			$\checkmark$		$\checkmark$	$\checkmark$
[	Engage planning initiatives to identify and fulfill specific policy needs.	•	•	•	•	•	•	×	×	$\checkmark$	$\checkmark$	$\checkmark$	×

•	Primary Goal Served
$\diamond$	Secondary Goal Served

$\checkmark$	Primary Stakeholders
$\checkmark$	Secondary Stakeholders

and encourage biking and walking to school by students. School site selection should consider not only immediate land costs, but also the cost of making multi-modal connections to the site (which will increase dramatically as sites are located further from residential areas), the long-term operating costs of school bus fleets, and the social impacts and costs of the sedentary lifestyles associated with dependency on motorized modes. School sites should be developed to facilitate access from all interfaces with surrounding residences. Elementary and middle schools should promote walking to school by providing crossing guards and implementing encouragement programs such as walking school buses, designated walking days, and other events.

#### » ENGAGE PLANNING INITIATIVES TO IDENTIFY AND FULFILL SPECIFIC POLICY NEEDS. Identified

state, local, public and private partners should begin the work of identifying and fulfilling needs for policies that promote land and community development concomitant with comprehensive lifespan supporting infrastructure (i.e., "smart growth") and that will increase the utility of bicycling and walking for transportation. Partners should identify policy documents, guidelines, and codes that can be updated to encourage, facilitate, and incentivize development patterns that are compatible with non-motorized transportation.

## PROMOTE ACTIVE LIFESTYLES AND IDAHO'S INVESTMENT IN THEM

#### (See Recommended Initiatives Matrix 6)

Six types of education and encouragement initiatives are recommended below. Together these will increase awareness of Idaho's commitment to healthy lifestyles and educate the public about how to safely join the movement to Idaho's future.

#### » EXPAND MEDIA AND EDUCATIONAL CAMPAIGNS ON THE BENEFITS OF A HEALTHY DIET AND REGULAR PHYSICAL ACTIVITY. Among

the objectives is to reduce the growth of the adult obesity rate in Idaho by 10% by 2035. In addition to providing the infrastructure for healthy lifestyles described above, promotional activities and education should occur regarding the risks and costs associated with obesity and the initiatives needed to reduce its prevalence among Idaho residents. State and local public health agencies and private partners such as insurers, health-related foundations, health care providers, and large employers, should continue to work together to expand media campaigns and other activities to increase awareness of the benefits a healthy diet and regular physical activity. Partnership programs such as the Healthy Eating Active Living (HEAL) Idaho network organized by the Department of Health and Welfare should be continued and expanded. Stakeholder engagement during the development of this study recommended an annual commitment of \$5 million (among all parties) to this campaign.

### » DEVELOP EMPLOYEE INCENTIVE PROGRAMS FOR IDAHO EMPLOYERS TO ENCOURAGE HEALTHY DIETS AND REGULAR PHYSICAL ACTIVITY. Public health agencies and private partners should also work together to develop model employee incentive programs through which Idaho employers can encourage healthy diets and regular physical activity among their employees, such as T3 type programs or

active commuting.

» DEVELOP AND CONDUCT MEDIA CAMPAIGNS TO PROMOTE A BRANDED 1,000 MILE SYSTEM SHARED USE PATHWAYS. The expanded networks of shared use paths —branded in a memorable way such as the "Gem State Grand" or "Via Perpetua"system— and America's most bike-friendly scenic byway system should each be the sustained focus of broad media campaigns to promote Idaho's outdoor recreation opportunities to both out-of-state visitors and residents. These efforts can be shared among the Department of Commerce, local visitors' bureaus (e.g., visitpocatello.com, Boise Convention and Visitors' Bureau), and private partners.

#### **RECOMMENDED INITIATIVE MATRIX 6**

		Broadly Supported Goals						Stakeholders					
		Freedom to Choose	Quality of Life	Economic Vitality	Public Health	Safety and Efficiency	Community Preservation, Access Natural Env.	ITD	MPOs	Local Trans. Agencies (Hwy Dist, County , City)	Other State Agency (Health, Econ. Dev, etc.)	Other Local Agency (Health, Econ. Dev, etc.)	Private Partners
Recomm	ended Education and Encouragement Initiatives												
Prom	ote Active Lifestyles and Idaho's Investment in Them												
	Expand media and educational campaigns on the benefits of a healthy diet and regular physical activity.		<b>\</b>	•	•						$\checkmark$	$\checkmark$	$\checkmark$
	Develop Employee Incentive Programs for Idaho employers to encourage healthy diets and regular physical activity.		•	•	•						✓	✓	✓
	Develop and conduct media campaigns to promote the 1,000 mile branded statewide system of pathway networks.		•	•	•						✓	×	$\checkmark$
	Develop and conduct campaigns to promote Idaho's Infrastructure for Active Lifestyles to prospective relocating employers.		•	•	•		•				✓	~	$\checkmark$
	Develop promotional materials to help Idaho employers attract prospective employees.		•	•	•		•				$\checkmark$	$\checkmark$	$\checkmark$
	Develop and expand bicycle and pedestrian safety education campaigns.	•				•		<	$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$
	Develop maps, wayfinding systems, and promotional campaigns about state, regional, and local networks for non-motorized travel and recreation.		•	•	•	•	•	✓	✓	✓	~	✓	$\checkmark$
	Engage planning initiatives to develop and implement specific promotional efforts.	•	•	•	•	•	•	$\checkmark$	$\checkmark$	$\checkmark$	✓	$\checkmark$	$\checkmark$

•	Primary Goal Served
$\diamond$	Secondary Goal Served

Primary Stakeholders
 Secondary Stakeholders

Stakeholder engagement recommended an annual commitment of \$5 million (among all parties) to this campaign.

### » DEVELOP AND CONDUCT CAMPAIGNS TO PROMOTE IDAHO'S INFRASTRUCTURE FOR ACTIVE LIFESTYLES TO PROSPECTIVE RELOCATING EMPLOYERS,

#### AND

#### DEVELOP MATERIALS TO HELP IDAHO EMPLOYERS ATTRACT EMPLOYEES.

Idaho's expanding infrastructure for active lifestyles should be promoted to prospective relocating employers. Public and private partners should also develop promotional materials to help Idaho employers attract prospective employees.

### » DEVELOP AND EXPAND BICYCLE AND PEDESTRIAN SAFETY EDUCATION CAMPAIGNS.

As new infrastructure is constructed and as more people explore bicycling and walking as transportation options and opportunities for physical activity, ITD, Idaho MPOs, local public health and law enforcement agencies, and private partners should develop and expand bicycle and pedestrian safety education campaigns to educate young bicyclists, pedestrians, motorists, and the general public about bicycle and pedestrian safety. Safety awareness campaigns should be developed in response to particular crash patterns and messages crafted to best reach the appropriate demographic cohorts. ITD and educators should also work to include bicycle and pedestrian safety information in the State's driver education curriculum and/or drivers' license exam as appropriate. ITD and local agencies can use their portable variable message boards to display bicycle and pedestrian related safety messages. ITD, local transportation agencies, and state and local education agencies should continue to support Safe Routes to School programs and coordinators across the state. Bicycle and pedestrian safety material (and encouragement materials) can be incorporated into statewide education curricula, as was recently done in the state of Colorado.

## » DEVELOP MAPS, WAYFINDING SYSTEMS, AND PROMOTIONAL CAMPAIGNS ABOUT STATE, REGIONAL, AND LOCAL NETWORKS FOR NON-MOTORIZED TRAVEL AND RECREATION. State and local transportation and tourism agencies,

as well as private partners focused on commerce or health, should develop wayfinding systems, promotional maps and other media elements to increase awareness of improved networks of walking and bicycling facilities so that residents and visitors alike become more aware of how opportunities for non-motorized travel are increasing options for their transportation and recreation needs. For example, the City of Sandpoint has added a parking lot with a planned interpretive center at the shared use path trailhead on the south end of town. Additionally, Sandpoint has added wayfinding for a route called

#### **Best Practices for Idaho**

Explore Sandpoint for residents and tourists. In the City of Boise, wayfinding signs have been installed and assist users on connected routes of separated pathways and on-street marked bike routes.

#### » ENGAGE PLANNING INITIATIVES TO DEVELOP AND IMPLEMENT SPECIFIC PROMOTIONAL

**EFFORTS.** Identified state, local, public and private partners should begin the work of developing and implementing the programs listed above and others which will encourage and promote active lifestyles, non-motorized transportation, and healthy eating, as well as campaigns to promote Idaho as a place to visit or relocate for those who value those components of Idaho's emerging healthy lifestyle.

## RECOMMENDED ENFORCEMENT INITIATIVES

WARN AGAINST AND CITE MOTORIST, BICYCLIST, AND PEDESTRIAN BEHAVIORS THAT INCREASE CRASH RISKS

(See Recommended Initiatives Matrix 7)

» MONITOR AND ENFORCE COMPLIANCE WITH SAFETY-RELATED CODES, INCLUDING MOTORISTS YIELDING TO PEDESTRIANS WHEN TURNING, BICYCLISTS RIDING AGAINST TRAFFIC, AND PEDESTRIANS TEXTING WHILE

**IN CROSSWALKS.** Local law enforcement agencies should increase enforcement against common violations that are linked to bicycle and pedestrian safety. Vigilant enforcement of motorist infractions that put bicyclists and pedestrians at risk-such as failure to yield when turning through a crosswalk or sidewalk—should continue to be a priority. Risky behavior by non-motorized users should also be targeted. For example, the towns of Rexburg and Driggs recently enacted ordinances against distracted walking by making it an offense to text while in a crosswalk. Wrong-way riding by bicyclists in the roadway (going against traffic on the side of the road, in a bike lane, or in a shoulder) and failure to use lights at night contribute to many crashes nationwide and in Idaho, and should be

warned against or cited if observed, especially as new bike facilities are developed and bicycle mode share increases. Additionally, legislation should be considered that will ensure that stiff penalties are available for at-fault parties in crashes that injure or kill bicyclists or pedestrians.

### » ENGAGE PLANNING INITIATIVES TO DEVELOP AND IMPLEMENT SPECIFIC ENFORCEMENT

**EFFORTS.** Identified state, local, public and private partners should begin the work of developing and implementing the programs listed above and others which will protect the safety of all travelers on Idaho's roadways.

#### **RECOMMENDED INITIATIVE MATRIX 7**

		Br	oadly Supp	ported Goa	als				Stakeh	olders		
	Freedom to Choose	Quality of Life	Economic Vitality	Public Health	Safety and Efficiency	Community Preservation, Access Natural Env.	ITD	MPOs	Local Trans. Agencies (Hwy Dist, County , City)	Other State Agency (Health, Econ. Dev, etc.)	Other Local Agency (Health, Econ. Dev, etc.)	Private Partners
Recommended Enforcement Initiatives												
Warn Against and Cite Motorist, Bicyclist, and Pedestrian Behaviors th	at Increas	e Crash Ris	ks									
Monitor and enforce compliance with safety-related codes including motorists yielding to pedestrians when turning, bicyclists riding against traffic, and pedestrians texting while in crosswalks.	•	•	•	•	•	•				✓	~	~
Engage planning initiatives to develop and implement specific enforcement programs.	•	•	•	•	•	•	$\checkmark$	×	$\checkmark$	$\checkmark$	$\checkmark$	×

•	Primary Goal Served
$\diamond$	Secondary Goal Served

$\checkmark$	Primary Stakeholders
$\checkmark$	Secondary Stakeholders

# RECOMMENDED EVALUATION INITIATIVES

## MONITOR PROGRESS OF STUDY OBJECTIVES AND INITIATIVES

(See Recommended Initiatives Matrix 8)

- » CONTINUALLY MONITOR PROGRESS TOWARD ALL PLAN OBJECTIVES AND INITIATIVES; REPORT PROGRESS AT FIVE YEAR INTERVALS. All agencies tasked with initiatives in this study should continuously monitor progress toward the stated objectives and issue reports on progress at five year intervals. Regular updates should be made to IPLAN and other statewide data reporting portals.
- » IMPLEMENT A NON-MOTORIZED COUNT SYSTEM TO ALLOW REPORTING OF EXPOSURE-BASED CRASH STATISTICS. Safety data are best understood in the context of overall exposure (i.e., bicycle and pedestrian counts) so that crash incidents can be understood as crash rates. More importantly, intervention and mitigation strategies can be more effectively implemented if rates are known. To provide this context, ITD, MPOs, and local agencies should coordinate the implementation of a comprehensive non-motorized count program.

### » USE MULTI-MODAL LEVEL OF SERVICE METHODOLOGIES TO PLAN, DESIGN, CONSTRUCT, AND OPERATE ROADWAYS. It

is recommended that all transportation agencies in Idaho use the Multi-Modal Level of Service methodologies presented in the HCM as they plan, design, construct, and operate roadways. These tools will help ensure that roadways of all functional classifications can serve as serve as truly multi-modal corridors.

### » ENGAGE PLANNING OF INITIATIVES TO DEVELOP AND IMPLEMENT SPECIFIC EVALUATION

**PROGRAMS.** Identified state, local, public and private partners should begin the work of monitoring and reporting the progress of all initiatives identified in this study and other efforts to improve bicycling and walking for the betterment of life in Idaho.

#### **RECOMMENDED INITIATIVE MATRIX 8**

			Br	oadly Sup	ported Goa	als				Stakeh	olders		
		Freedom to Choose	Quality of Life	Economic Vitality	Public Health	Safety and Efficiency	Community Preservation, Access Natural Env.	ITD	MPOs	Local Trans. Agencies (Hwy Dist, County , City)	Other State Agency (Health, Econ. Dev, etc.)	Other Local Agency (Health, Econ. Dev, etc.)	Private Partners
Recomn	tor Progress of Plan Objectives and Action Items												
	Continually monitor progress toward all plan objectives and action items; report progress at five year intervals.	•	•	•	•	•	•	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Implement a non-motorized count system to allow reporting of exposure-based crash statistics.		•		•	•		$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$
	Use Multi-Modal Level of Service methodologies to plan, design, construct, and operate roadways.	•	♦	•	♦	•	•	~	$\checkmark$	$\checkmark$			$\checkmark$
	Engage planning initiatives to develop and implement specific evaluation programs.	•	•	•	•	•	•	$\checkmark$	$\checkmark$	$\checkmark$	×	×	×

•	Primary Goal Served
$\diamond$	Secondary Goal Served



## APPENDIX 1: BICYCLING ACCOMMODATION MEASURES AND FACILITY SELECTION GUIDANCE

The recommended metrics for bicycling and pedestrian accommodation on roadways are the HCM's Bicycle Level of Service (Bicycle LOS) and the Pedestrian Level of Service (Pedestrian LOS) models. These models enable objective evaluation of roadways and report results for specific roadways on an A-F scale, based on the safety and comfort a bicyclist would perceive while riding on the road or a pedestrian would experience walking along the road. The grades are modeled on hundreds of bicyclists' and pedestrians' reactions to actual roadways during the development of the models. Results for the Bicycle LOS model are calculated based on specific roadway characteristics, including traffic volume, traffic speed, the concentration of heavy vehicles in the traffic, pavement condition, number of lanes, the width of the outside lane, and the width of a paved shoulder or bike lane (if present). The Pedestrian LOS model uses the same data supplemented by sidewalk coverage, width, and buffering by horizontal separation and/or vertical elements such as trees and parked cars.

Because they use both roadway geometry and traffic conditions to evaluate bicycle and pedestrian accommodation, the Bicycle LOS and Pedestrian LOS models can provide more flexibility to implementing

agencies than a simple inventory of specific facilities such as bike lanes, shared use paths, or sidewalks. For example, according to the bicyclists' responses that are the statistical basis for the Bicycle LOS model, a roadway in which bicyclists share the lane with motorists (i.e. without benefit of a separate travel space such as bike lane) can adequately accommodate bicyclists if the traffic volumes are low—as might be experienced in Idaho's small towns or on rural highways-or if the traffic speeds are low, such as on residential streets or in the compact central business districts of Idaho's bigger towns and cities. Likewise, in a situation where traffic is heavy, fast, and busy with trucks, it may show that even a standard bike lane does not make the experience of riding on that roadway feel sufficiently safe or comfortable for many bicyclists.

In addition to its inclusion in national guidance documents such as the HCM and AASHTO's Guide for the Development of Bicycle Facilities, the Bicycle Level of Service model has been adopted as the standard performance measure for the bicycle mode by many state DOTs, and has been used to assess over 200,000 miles of roadways for scores of state, regional, and local agencies across the United States. In Idaho, it is used

#### **Appendix 1**

by the Bannock Transportation Planning Organization (TPO) as the bicycle conditions performance measure for the 2012 Portneuf Valley Bicycle Plan, and also by the Community Planning Association of Southwest Idaho (COMPASS) in its 2013 white paper "Complete Streets Level of Service in the Treasure Valley". The Pedestrian LOS model is also included in the HCM and extensively used by agencies across the country.

In order to achieve the objective of providing tangible bicycle and pedestrian accommodation on more of Idaho's roadways, transportation agencies should work to accommodate bicycling within all collector and arterial roadway corridors as indicated in Best Practices section: to Level of Service "C" if one of the listed criteria is met; and enhance accommodation to Level of Service "B" if two or more of the criteria are met.

Level of Service "C" is a common performance minimum for both modes adopted by many agencies across the United States that allows for basic mobility by the general population. In Idaho, Bicycle LOS "C" is also the threshold Bannock TPO has adopted as their general standard. Due to low speeds and low volumes, local streets quite often meet Bicycle LOS "C" without the demarcation of a separate travel space for bicycles. Arterial and collector class roads may require bike lanes and shoulders—and sometimes wider than the 4 foot minimum recommended by AASHTO—given the higher speeds and traffic volumes found on these roads. In rural areas, lower volumes may result in an acceptable Bicycle Level of Service even on primary roads without a demarcated bike lane or a shoulder. Each road should be evaluated individually—either as part of a review of existing conditions within a planning effort, or during design stages of construction and reconstruction project—with its specific geometry and traffic information to confirm acceptable LOS.

Level of Service "B" is a performance standard at which more people, including more casual bicyclists and supervised children, may be accommodated, and at which pedestrians may experience walking as a desirable activity rather than a merely possible one. It is a level at which non-motorized mode share may begin to more noticeably increase.

## FACILITY NEEDS FOR ACHIEVING BICYCLE LEVEL OF SERVICE THRESHOLDS

As a general guide, Table A1 shows maximum volumes at which Bicycle Level of Service B and C can be achieved in different combinations of traffic conditions (speed, volume, heavy vehicle mix) and shoulder, or bike lane configurations (none, 4 feet, 6 feet, 8 feet). This table is created using the Bicycle LOS model in keeping with the guidance in AASHTO's Guide for the Development of Bicycle Facilities, specifically in Chapter 2, "Bicycle Planning," and Chapter 4, "Design of On-road Facilities."

If a standard bike lane or shoulder does not provide the needed Bicycle LOS, agencies may wish to consider a "buffered bike lane," a facility in which a four foot

#### Maximum Motor Vehicle Service Volumes for Given Bicycle Level of Service Grades Adopted Bicycle Level of Service = B

Speed Limit (or Design Speed)						35		Speed Li	mit (or D	eed)	45		
Percent Heavy Vehicles							Percent Heavy Vehicles						
2 4 6 8 10 12						12	2	4	6	8	10	12	
er ft	0	3100	2800	2500	2200	1800	1500	2900	2700	2300	2000	1700	1400
pl d	4	13300	7500	4500	3600	3100	2700	11200	6200	3900	3400	3000	2500
idt o	6		26400	10100	4800	3700	3200		16400	6600	4200	3500	3000
σ <sup>3</sup> 8 27000				8100	3700				12200	3900	3400		

Speed Limit (or Design Speed)						55		Speed Li	mit (or D	eed)	65			
Percent Heavy Vehicles							Percent Heavy Vehicles							
2 4 6 8 10 12						2	4	6	8	10	12			
frer	0	2700	2500	2200	1900	1500	1300	2700	2400	2100	1800	1500	1300	
p r	4	9900	5600	3800	3300	2800	2400	8900	5200	3700	3200	2700	2300	
idt	6		12200	6100	3900	3400	2800	29900	10300	5600	3800	3300	2800	
ts >	8			29900	7600	3800	3300			22400	5200	3800	3200	

#### Adopted Bicycle Level of Service = C

Speed Limit (or Design Speed)						35		Speed Li	mit (or D	eed)	45		
Percent Heavy Vehicles						les		Percent Heavy Vehicles					
2 4 6 8 10						12	2	4	6	8	10	12	
er ft	0	9000	5600	3800	3200	2600	2100	7300	4600	3500	2900	2400	2000
h ld	4			12700	5100	3700	3100		21200	7100	4400	3500	2900
id t	6				24900	7300	3700				11600	3900	3400
s >	8											22400	4700

		Speed Limit (or Design Speed)				55		Speed Limit (or Design Speed)				65	
		Percent Heavy Vehicles						Percent Heavy Vehicles					
		2	4	6	8	10	12	2	4	6	8	10	12
Shoulder width, ft	0	6500	4200	3400	2800	2300	1800	5700	3900	3200	2700	2100	1700
	4		15800	6500	4100	3400	2800		12700	6100	3900	3200	2700
	6			27600	7100	3800	3200				5200	3700	3100
	8					12000	3800					7600	3600

Table A1

#### **Appendix 1**

(minimum) wide bike lane is separated by two solid white stripes with chevron striping between them (usually two feet wide or greater), which further emphasizes the separation of the bicyclist from motorized traffic. Buffered bike lanes must be carefully designed in advance of conflict points such as driveways or intersections, especially as the buffers get wider, to maintain visibility and awareness between the bicyclist and motorist.

Adequate paved shoulder width to help meet an expected Bicycle LOS can be designed into new or reconstructed roadways. Agencies may also widen shoulders on existing roadways or may consider re-allocating existing pavement to allow for wider shoulders either by reducing the number of lanes (a "road diet") where existing motor vehicle capacity exceeds what is necessary for projected volumes, or by narrowing travel lanes to allow for wider shoulders. Each agency should review these options in light of their individual design practices and Motor Vehicle Level of Service performance standards.

If the Bicycle LOS performance expectation cannot be met with an on-street facility, such as a shared lane, a bike lane, a wide shoulder, or a buffered bike lane, then agencies should look at other means of accommodating bicycle travel within the corridor. A shared use path adjacent to the roadway, sometimes referred to as a "sidepath," will be attractive to many bicyclists who might not wish to ride in the street. AASHTO's Guide for the Development of Bicycle Facilities and the National Association of City Transportation Officials' (NACTO) Urban Bikeway Design Guide contain significant cautions about their use which should be thoroughly considered. Such facilities must be carefully designed to promote awareness between path users and turning motorists in advance of conflict points, must be well separated from the roadway, and must be designed to meet the requirements of the Americans with Disabilities Act (ADA), as they will also function as pedestrian facilities. Alternatively, in limited cases, parallel routes on nearby streets may be identified and promoted to serve bicycle travel along a constrained corridor. It should be noted that alternate routing will inhibit access to destinations along the primary roadway of the corridor and will thus reduce the effectiveness and convenience of bicycle travel.





SEPTEMBER 2014 SPONSORED BY THE IDAHO TRANSPORTATION DEPARTMENT