Livability Benchmarks for Montana Transportation

Interim Report

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2701 Prospect Ave.
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April 2011

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ADA	Americans with Disabilities Act
AHEC	Montana Area Health Education Center
BTU	British Thermal Unit
CEIC	Census and Economic Information Center
CNT	Center For Neighborhood Technology
CSKT	Confederated Salish Kootenai Tribes
CSS	Context Sensitive Solutions
CTOD	Center For Transit Oriented Development
EAS	Essential Air Service
EPA	U.S. Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	Greenhouse Gas
HUD	U.S. Department Of Housing And Urban Development
MDT	Montana Department Of Transportation
MPO	Metropolitan Planning Organization
NAPA	Montana Nutrition And Physical Activity
NCMT	North Central Montana Transit
NGO	Non-Government Organization
NRIS	Natural Resource Information System
RITA	Research And Innovative Technology Administration
SRTS	Safe Routes To School
STOL	Short Take-Off and Landing
TE	Transit Enhancement
TERC	Transportation And Environmental Resource Council
TIGER	Transportation Investment Generating Economic Recovery
TOD	Transit-Oriented Development
USDOT	U.S. Department Of Transportation
VMT	Vehicle-Miles Traveled
VTPI	Victoria Transport Policy Institute
WSDOT	Washington State Department Of Transportation
WTI	Western Transportation Institute

1. INTRODUCTION

Discussion of the concept of livability has become prevalent nationally and it is gaining a prominent role in transportation planning and urban and rural development. It seems likely that livability will play a role in the next federal surface transportation bill passed by Congress. One action that has increased general discussion of livability is the creation at a national level of the interagency Partnership for Sustainable Communities between the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Transportation (USDOT) and the U.S. Environmental Protection Agency (EPA). This initiative has identified six principles of livability: (1) provide transportation choices; (2) promote equitable, affordable housing; (3) enhance economic competitiveness; (4) support existing communities; (5) coordinate policies and leverage investment; and (6) value communities and neighborhoods (US HUD, USDOT and US EPA, 2009).

Much of the national discussion on livability has revolved around light rail, transit-oriented design, high-density housing and other elements with a distinctly urban focus. Despite pressure by some groups to include rural issues in the livability discussion, it is the urban issues that get more attention. In a blog post titled "Livability Works for Rural Communities," Transportation Secretary Ray LaHood provided a few examples of success stories of rural livability (USDOT, 2010a). Two examples he gave involved trolley systems, which are not a typical solution for rural areas with low population densities. One of his examples was from Dubuque, Iowa, which has a population of over 50,000 (defined as urbanized/metropolitan areas in federal transportation planning regulations and by the U.S. Census).

Many previous efforts and initiatives have had goals similar to the objectives of the livability concept. For example, context-sensitive solutions, new urbanism, sustainable transportation, transit-oriented design, complete streets and walkable communities are all initiatives that embody at least some of the ideas behind livability. Historically, livability principles were being promoted as far back as 1929 by New York-based social planner Clarence Perry, who introduced "neighborhood units" as a part of the 1929 Regional Plan of New York. His plan featured a walkable community with centrally located public amenities within a half-mile radius (Hoch et al., 2000). Some state departments of transportation have made efforts to explicitly incorporate livability into their programs. The Washington State Department of Transportation (WSDOT) has developed a policy statement on livability. The policy sets the broad departmental goal that "[t]ransportation plans and actions will support and encourage partnering with local communities to achieve our mutual interests in promoting livable communities" (WSDOT 2010). The policy also states that transportation projects will foster multimodal options (public transit, bicycle, pedestrian, road, rail and ferry), be sensitive to community values and coordinate funding to encourage livability.

The concept of livability is not new to Montana or the Montana Department of Transportation (MDT). Helping build great places in great environments has long been embedded in the departmental mission, and even the state constitution. In light of the current national dialogue on livability, the challenge facing MDT is to more formally define livability for Montana and its communities and understand how livability relates to Montana's transportation needs. To help with this challenge, the Western Transportation Institute (WTI) is conducting a study for MDT to investigate livability in the Montana context. The purpose of this study is to understand what

livability means for rural areas and the role transportation can play in improving livability in rural communities. The objectives for this research project are:

Objective 1: Identify and understand Federal agency programs and practices related to or supporting livability.

Objective 2: Ascertain what peer states are doing to address livability.

Objective 3: Identify and understand Montana community-level definitions of livability. The definitions may vary according to the diversity of communities across Montana from urban to rural to extremely rural.

Objective 4: Identify practices and policies MDT and other state agencies have in place that address livability as identified in Objective 3.

Objective 5: Determine potential opportunities for MDT to address livability.

To achieve the study objectives, the following research tasks are being undertaken:

- Scan literature and practices on livability.
- Summarize Montana demographic data that may relate to livability issues.
- Contact peer states to ascertain what they are doing to address livability.
- Review statewide and select local plans that could relate to livability (e.g., land use plans, statewide obesity plan).
- Conduct interviews with Montana partner agencies to identify opportunities and Montana definitions of livability.
- Conduct survey of Montana communities and stakeholders for livability definition and what it means to them.
- Complete internal interviews with key MDT divisions/bureaus in regard to livability in the rural context.

This interim report includes the following tasks: Literature Review (Chapter 2), Demographic Data Summary (Chapter 3), Review of Montana TranPlan 21 Public Comments (Chapter 4), and Interviews with Selected State Departments of Transportation (Chapter 5).

2. LITERATURE REVIEW

Literature was reviewed in order to (1) provide examples of livability definitions currently in use, (2) identify current polices related to livability, (3) identify specific examples of projects and programs promoting potential livability objectives, and (4) identify any metrics used to measure the success of livability goals related to a specific project or region/state. This chapter discusses what was found during this review.

2.1. Definition

Livability is a broad term that has been applied to many areas of life, making a single, catch-all definition elusive. As it pertains to transportation, livability definitions share a set of central ideas that vary depending on the setting (e.g., rural vs. urban) and the focus (e.g., transportation, housing). A simple definition of livability might refer to the "environmental and social quality of an area as perceived by residents" (VTPI, 2010).

Federal Highway Administrator Victor Mendez endorses the following definition: "Livability is about tying the quality and location of transportation facilities to broader opportunities such as access to good jobs, affordable housing, quality schools and safe streets. This includes addressing safety and capacity issues on all roads through better planning and design, maximizing and expanding new technologies such as ITS and the use of quiet pavements, using Travel Demand Management approaches to system planning and operations, etc." (USDOT FHWA, 2010).

USDOT Secretary Ray LaHood provided the following definition: "Livable communities are mixed-use neighborhoods with highly connected streets promoting mobility for all users, whether they are children walking or biking to school or commuters riding transit or driving motor vehicles. Benefits include improved traffic flow, shorter trip lengths, safer streets for pedestrians and cyclists, lower greenhouse gas emissions, reduced dependence on fossil fuels, increased trip-chaining and independence for those who prefer not to or are unable to drive. In addition, investing in a 'complete street' concept stimulates private-sector economic activity by increasing the viability of street-level retail small businesses and professional services, creating housing opportunities and extending the usefulness of school and transit facilities" (LaHood, 2009).

AARP defines a livable community as "one that has affordable and appropriate housing, supportive community features and services, and adequate mobility options, which together facilitate personal independence and the engagement of residents in civic and social life" (Kochera et al., 2005).

A more regional definition of livability was created by the Washington State Department of Transportation. According to WSDOT, livable communities "provide and promote civic engagement and a sense of place through safe, sustainable choices for a variety of elements that include housing, transportation, education, cultural diversity and enrichment, and recreation" (WSDOT, 2010).

HUD, USDOT and EPA defined six livability principles in their Partnership on Sustainable Communities Position Statement (US HUD, USDOT, US EPA, 2009):

- **Provide more transportation choices.** Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.
- **Promote equitable, affordable housing.** Expand location- and energy-efficient housing choices for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined cost of housing and transportation.
- **Enhance economic competitiveness.** Improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services, and other basic needs by workers as well as expanded business access to markets.
- **Support existing communities.** Target federal funding toward existing communities—through such strategies as transit-oriented, mixed-use development, and land recycling—to increase community revitalization, improve the efficiency of public works investments, and safeguard rural landscapes.
- **Coordinate policies and leverage investment.** Align federal policies and funding to remove barriers to collaboration, leverage funding and increase the accountability and effectiveness of all levels of government to plan for future growth, including making smart energy choices such as locally generated renewable energy.
- **Value communities and neighborhoods.** Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods—rural, urban, or suburban.

Many other documents provide aspects or goals of livability. The Victoria Transport Policy Institute (VTPI) has identified the following characteristics as important to livability: perception of public safety, attractive streetscapes, community character, friendliness, community cohesion, walkability, accessibility, clean air, recreation, affordability and quality of transportation options for elderly and special needs citizens (VTPI, 2010).

A universal, specific definition of livability is not practical due to the vast differences between communities. One potential theme of livability relates to the benefits of creating compact neighborhoods, but compactness is relative across the urban and rural scale. Communities can vary greatly in population, socioeconomic status and ideals. Different types of communities may need a different definition of what livability means for them. One way to classify communities by size is to use the Office of Management and Budget definitions of metropolitan (population exceeding 50,000), micropolitan (population between 10,000 and 50,000) and non-metropolitan/non-core (population less than 10,000). A coarser categorization would be rural and urban, using the 50,000 population break point to distinguish between the two. Even when focusing on rural communities, a National Cooperative Highway Research Program report (Twadell and Emerine, 2007) found different types of rural communities had unique challenges relating to livability according to their classification as exurban, destination, or production communities.

There are some common themes among the various definitions. Livability can be a broad term encompassing almost every aspect of a community; this definition goes well beyond the transportation system and could include the local economy, the surrounding environment, community values and land development. Livability needs, issues and solutions vary across

community types; one size does not fit all. Lastly, there are several themes in the national discussion of livability related to transportation:

- Transportation systems should include all modes (air, automobile, public transit, bicycle and pedestrian).
- Land use and transportation clearly influence each other. Transportation plans and projects should result in a transportation system that integrates with and supports local land use plans, affordable housing projects and similar efforts that encourage a livable community structure.
- Transportation systems should be highly connected. Cul-de-sacs and streets designed around specific land development limit connectivity. A well-designed grid system promotes connectivity.
- Transportation projects should incorporate local values in the planning/design process. Such values may include aesthetically pleasing transportation corridors and pedestrian safety.
- Safety and capacity for the automobile mode should not be ignored.
- Transportation systems should seek to reduce fossil fuel use and greenhouse gases.
- Transportation systems should provide access to jobs, education, health care and services.
- Transportation projects should be coordinated with other projects to leverage funding and accomplish livability goals.

2.2. Related Policies and Programs

In recent years federal and state agencies have developed programs and policies that either specifically mention livability, or include ideas and issues that may relate to livability as it has been defined nationally. The policies and programs may or may not be appropriate for improving livability in Montana. This section provides a summary of plans and programs at the national level, in other states and within Montana that may have a link to livability.

2.2.1. National and Other State Policies and Programs

The HUD, USDOT and EPA partnership has identified many programs to support livability. These programs are outlined in Figure 1.

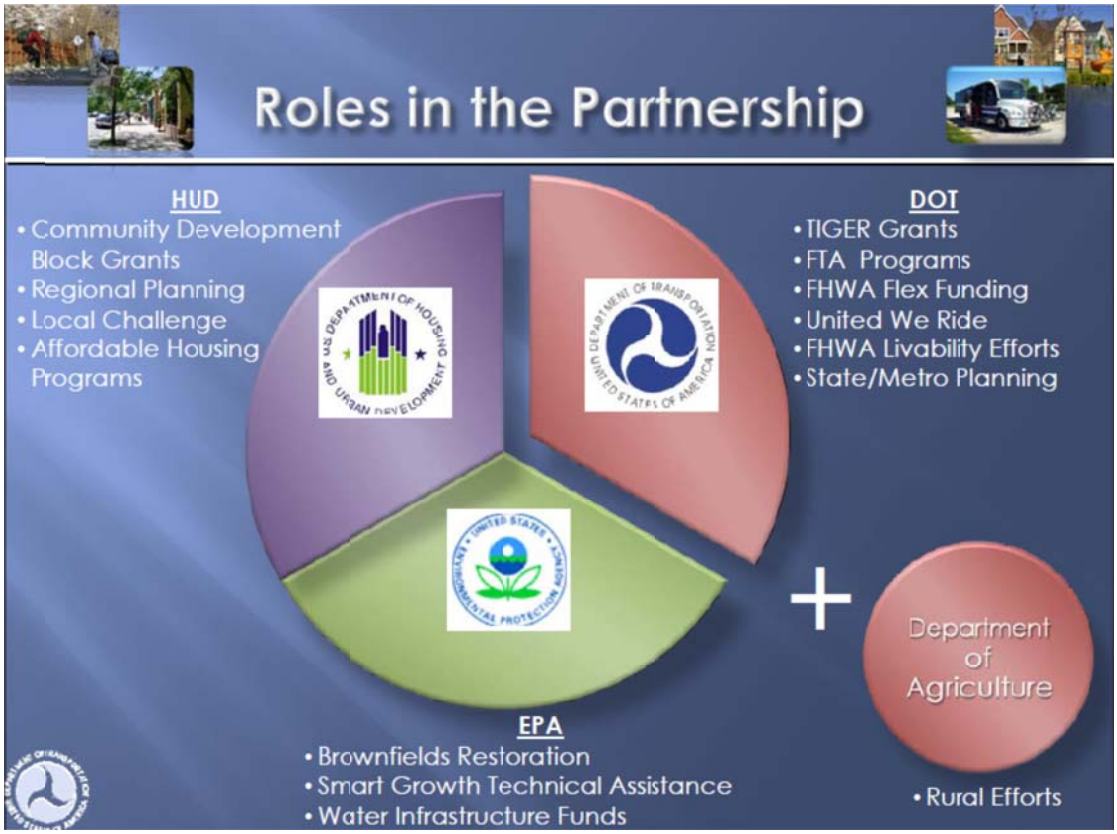

Figure 1: Livability Roles (Source: Mattice, 2010)

The two phases of the Transportation Investment Generating Economic Recovery (TIGER-I and TIGER-II) grants program provided funding for transportation projects. Aside from creating jobs and stimulating the economy, the project selection criteria for TIGER-I included five desired long-range outcomes. One of these outcomes was increasing livability by "improving the quality of living and working environments and the experience for people in communities across the United States" (Office of the Federal Register, 2009a). In detailing how the livability benefit of a project will be evaluated, the Federal Register states livability is inherently difficult to measure. The proposals were qualitatively evaluated on how the project increased mobility through more convenient transportation options, improved transportation choice through modal connectivity and reduced congestion, improved accessibility for transit-dependent populations (e.g., disadvantaged populations, non-drivers, senior citizens and persons with disabilities), and resulted from a coordinated transportation and land use planning process. There was also a sustainability criterion, which might be considered closely related to livability. To be considered sustainable a project had to improve energy efficiency (reduce greenhouse gas emissions and dependence on foreign oil) and protect the environment (e.g., protect wetlands, not impact endangered species, improve wildlife habitat connectivity). The second phase, TIGER-II, had similar project selection criteria but added that the project would be evaluated on how it furthers the six livability principles from the USDOT-HUD-EPA partnership agreement (Office of the Federal Register, 2010).

Montana has been awarded two TIGER-I grants. The first, for $12 million, went to the Lake County Transportation Connectivity Project to upgrade city and county streets to help provide safe routes between and within communities for pedestrians and cyclists traveling to school and work along 30 miles of US Highway 93. The second was $3.5 million for the City of Whitefish to improve US Highway 93/2nd Street, including a new traffic signal system, additional turn lanes, Americans with Disabilities Act (ADA) improvements and upgraded water and sewer lines (USDOT, 2010b). Montana applied for but did not receive any Tiger-II grants.

Investigating where the TIGER-II funds were awarded may indicate the magnitude and nature of livability priorities nationally. Defining urban as populations greater than 50,000, TIGER-II grants were awarded as follows:

- For capital grants
  - 17 States received grants worth $137,375, 265 for rural areas, and
  - 16 states received grants worth $419,202,326 for urban areas; and
- For planning grants
  - 11 states received grants worth $1,279,850 for rural areas, and
  - 20 states received grants worth $8,073,079 for urban areas.

Twenty-five percent of the funds going to rural areas is relatively consistent with the population split nationally with about 20 percent of the U.S. population lives in rural areas. However, when further evaluated based on the type of project funded (Figure 2 and 3), clear differences are observed in the rural versus urban programs.

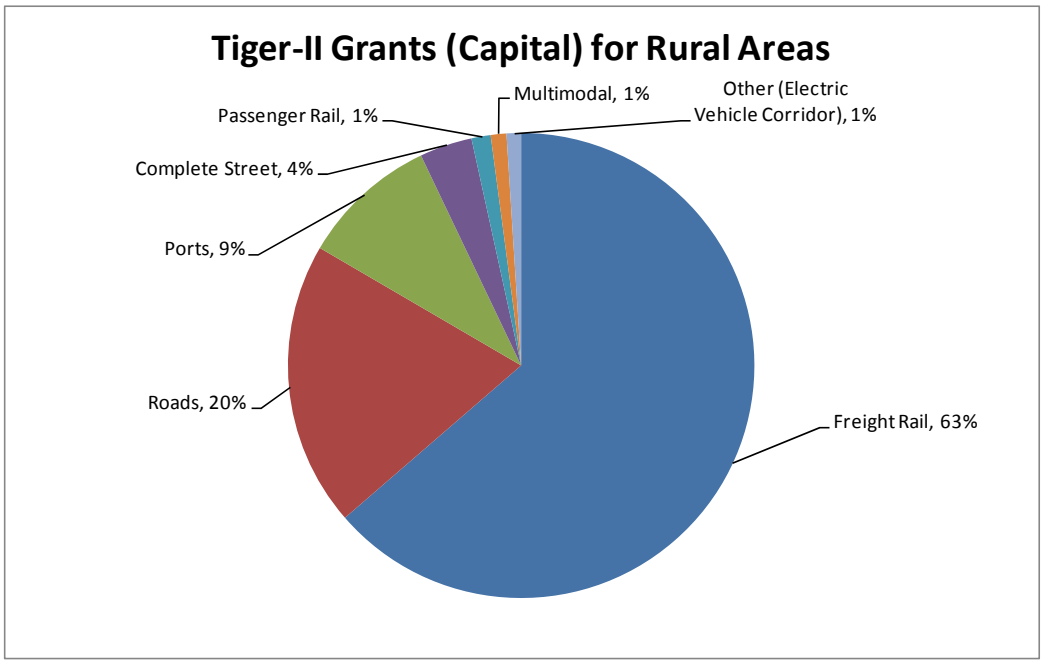

Figure 2: TIGER-II Funding Awarded by Project Type in Rural Areas

(Data Source: USDOT, 2010c)

A majority, over two-thirds, of the TIGER-II funding for rural areas went to freight projects (rail and port). Road reconstruction and improvement projects accounted for 20 percent of the

funding. The remaining project types accounted for less than 10 percent of the funding. This is in contrast to the funding split for urban areas.

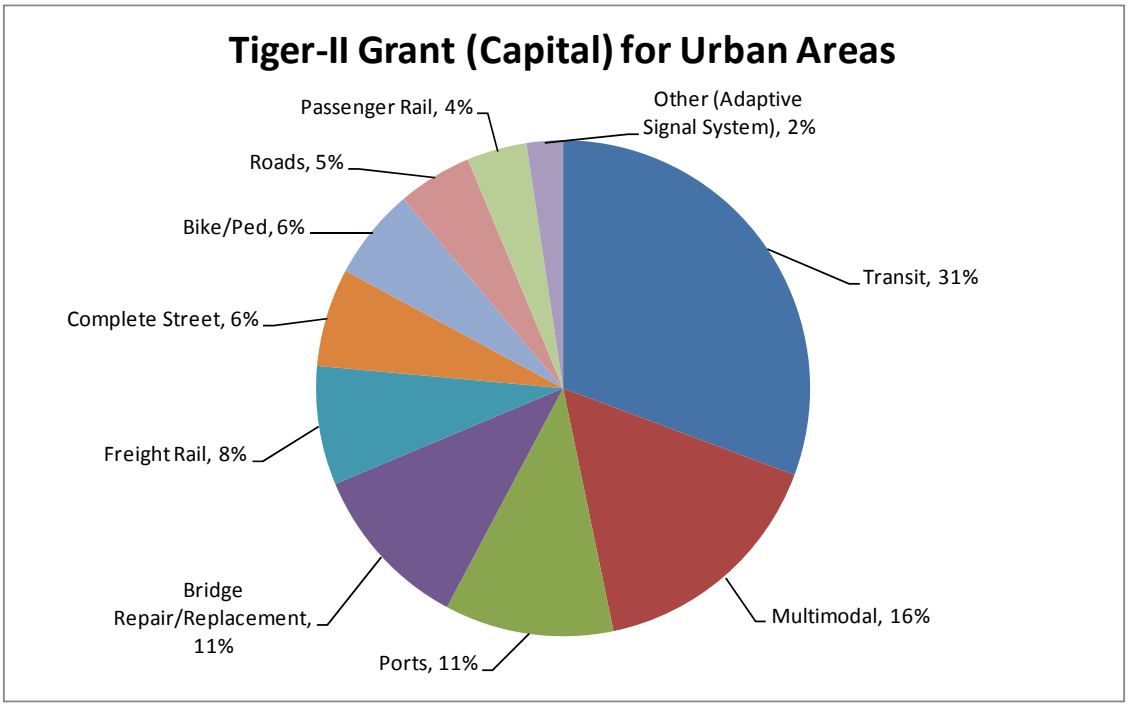

Figure 3: TIGER-II Funding Awarded by Project Type in Urban Areas

(Data Source: USDOT, 2010c)

The USDOT's Federal Transit Administration (FTA) has identified several livability policies and provisions that form a part of its current programs, research and technical assistance (USDOT FTA, 2010). First, FTA encourages transit-oriented development (TOD), defined as "compact, mixed-use development near transit facilities with high-quality walking environments" (USDOT FTA, 2010). TOD is intended to provide housing options where individuals can walk, bike and take transit for most of their travel needs. Transit enhancement (TE) funding is available for improving transit facilities through landscaping, public art, bicycle access and storage, historic preservation and similar improvements. FTA policy on bicycle and pedestrian improvements is largely based on its policy statement by the Office of the Federal Register (2009b), which provides flexibility for FTA funding use for improving bicycle and pedestrian facilities, primarily in relation to how they connect to transit facilities. The Formula Grants for Other than Urbanized Areas (FTA 5311) program is intended to provide access to employment, health care, education and other human services in rural areas. The last livability provision discussed by FTA is its "art in transit" initiative, which allows for improved aesthetics for transit facilities.

Recently FTA offered three funding opportunities specifically identifying livability. In December 2009, it announced two grant opportunities using category 5309 discretionary funding to support livability initiatives—Bus and Bus Facilities grants and Urban Circulator Systems grants. Both included livability benefits as evaluation criteria for grant proposals. The livability evaluation criteria were nearly identical to the livability criteria in the TIGER-I grants. In May of 2010 a funding announcement went out for Alternatives Analysis from 5339 funds. The livability

evaluation criteria for this grant simply stated that priority be given to projects advancing the six livability outcomes in the USDOT-HUD-EPA partnership. The Missoula Urban Transportation District received a grant to improve its transfer facility. It is worth noting that although public transit funding may not specifically mention livability, it could be argued it is all livability-related (at least according to the national definitions) since the funding goes to improve public transit, which provides more transportation choices.

HUD manages several programs to fund affordable housing. Some reports indicate that, while housing costs in affordable housing developments are low, transportation costs can be much higher than average (Transportation for America, 2010a). HUD is working to incorporate transportation cost metrics into affordable housing projects. Additionally, HUD has offered Sustainable Communities Regional Planning Grants aimed at improving regional planning efforts that "integrate housing and transportation decisions, and increase state, regional, and local capacity to incorporate livability, sustainability, and social equity values into land use plans and zoning" (US HUD, 2010).

Montana did not receive any sustainable communities grants, but two communities in HUD's Region 8 (Montana, Colorado, North Dakota, South Dakota, Utah and Wyoming) did. South Dakota's Thunder Valley CDC/Oglala Sioux Tribe Consortium received nearly $1 million to develop a plan for sustainable communities within the Pine Ridge Indian Reservation. Utah also received a sustainable communities grant for Salt Lake County for $5 million to develop a regional housing plan.

An EPA program relating to livability is the Brownfields Program, which works to "prevent, assess, safely clean up, and sustainably reuse" contaminated sites or sites perceived to be contaminated (US EPA, 2010). The intent of this program is to encourage redevelopment of contaminated properties that have fallen into disuse. By studying the site and determining the extent of environmental damage and the cost of cleaning up the contamination, the risk can be removed and redevelopment of the property can move forward.

Other national policy and program efforts are mainly related to non-governmental organizations (NGOs) that provide guidance and support for livability. Two examples are the International City/County Management Association (Mishkovsky et al., 2010) and the Transportation for America organization (Transportation for America, 2010b).

Few states have implemented formal livability policies. Chapter 5 provides a summary of how six of the states surveyed are addressing livability in state programs. WSDOT is one of the few state DOTs with an official Livable Communities Policy. Its policy states WSDOT will make efforts to foster livable communities both in rural and urban settings by promoting multimodal transportation options with "a good mix of public transit, bicycle and pedestrian facilities, with adequate roadways, rail, and ferries" (WSDOT, 2010). Coordinating access to funding and developing collaborative transportation actions with community-specific values are ideals also included in the policy.

2.2.2. Montana Policies and Programs

There are several state and local plans and programs in Montana that may relate to livability, at least as it is currently being defined on the national scale. These plans are discussed briefly here. Because one of the underlying themes of the national livability definition includes coordinating

across agencies and leveraging funding, awareness of livability-related projects at all levels is important.

MDT's statewide transportation plan is called TranPlan 21. TranPlan 21 has six key policies, most of which have aspects that could be related to livability ideals. The policies include Access Management and Land Use Planning, Bicycle and Pedestrian Access, Economic Development, Public Transportation, Roadway System Performance and Traveler Safety (Cambridge Systematics, 2008).

Montana also has a Climate Change Action Plan, which makes 13 policy recommendations in the land use and transportation area (Montana Governor's Climate Change Advisory Committee, 2007). Many of these recommendations relate to improving vehicle fuel efficiency and emission reduction. One of these recommendations, the growth and development bundle, includes elements that are included in the national discussion of livability. This bundle of recommendations includes:

- Infill, densification and brownfield redevelopment;
- Mixed-use and transit-oriented development;
- Smart growth planning, modeling and tools;
- Targeted open space protection;
- Expanding transit infrastructure and service; and
- Expanding transportation choices.

The 2006–2010 Montana Nutrition and Physical Activity (NAPA) State Plan to Prevent Obesity and Other Chronic Diseases is another statewide plan that may relate to livability. The plan was funded by the Centers for Disease Control and Prevention through the Montana Department of Public Health and Human Services. Half of adult Montana residents are overweight or obese. In order to increase physical activity among Montanans, the plan recommends "[e]ncouraging developments with a more traditional neighborhood design, such as streets connected in a more grid-like style with sidewalks/bike lanes and trees and stores make walking and biking an easier, safer, more convenient and more enjoyable choice" (Montana NAPA, 2006).

Montana's larger cities have thoroughly developed transportation and/or land use plans. Bozeman (City of Bozeman, 2009; Robert Peccia and Associates, 2007), Missoula (Wilbur Smith Associates, 2008) and Billings (Cambridge Systematics, 2010) are examples of cities with transportation plans that may address livability through transportation goals related to land use, housing and economic development, bike and pedestrian transportation and railroad planning.

The City of Great Falls is currently developing a Downtown Revitalization Plan. The plan aims to improve downtown livability, character, accessibility and vitality by "bringing people, events, and business back into the downtown area and positioning it as the city center for commerce, entertainment, and culture" (KRTV News, 2010).

2.3. Livability Project Examples

This section provides specific project or local policy examples typically associated with livability as defined in the national discussion. This is by no means an exhaustive list, but is intended to provide examples of various types of initiatives at the local or project level that could be related to livability.

2.3.1. Incorporating Livability Principles in Local Policies

Context sensitive solutions (CSS) is a process for incorporating local community values into transportation projects. One example is the reconstruction of State Route 69 in Boulder, Montana, population 1,300. Route 69 includes Main Street in Boulder. The project incorporated landscaping, decorative gates, colored concrete, period lighting and ADA and pedestrian improvements.

2.3.2. Local Land Use Planning

Using scenario planning and holding more than 200 workshops with over 20,000 Utah residents, the Envision Utah project allowed members of the public to determine what was important to them in terms of livability. Changing development strategies to reduce sprawl and preserve rural landscapes was one way this process ensured the citizens of Utah planned the future of their communities in a way that aligned with their livability values (Toth, 2010).

As defined nationally, land use planning is important to creating livable communities. Land use planning is not a transportation activity, but this example is included because transportation and land use planning are often interrelated.

2.3.3. Intercity Bus to Connect Rural Communities

Frontier and rural communities in north central Montana needed reliable public transportation within small towns and from small towns to regional hubs to allow residents to pursue employment, educational opportunities, medical needs, recreational activities and other activities. Access to transportation services is a key to sustaining the livelihood and enhancing the quality of life in smaller communities in this region. In August 2009, with the help of MDT through the FTA 5311 fund, the North Central Montana Transit (NCMT) system initiated a transit service for communities in the region that connects Havre, the largest city, with a population of 9,656, to Harlem, Chinook and the Fort Belknap Indian Reservation in Blaine County, and to Box Elder and Laredo in Rocky Boy's Native American Reservation. In addition, NCMT provides service from all of these communities to Great Falls, Montana, 114 miles from Havre. Great Falls is the only major urban center in the area, with larger medical, educational and commercial facilities (Kack, 2010).

2.3.4. Local Transit Service

An example of a local transit service that can improve livability for a community is the Valley County Transit service, which offers service in and around Glasgow Montana. The service was opened to the general public in 1980 and is funded by Valley County, FTA, donations, fares, and private funding. The service is available daily and boasts 24-hour service on holidays and by reservation year round. The buses are ADA accessible and medical trips to larger communities like Billings and Williston, North Dakota, are made once every few weeks. In 2010, Valley County Transit gave nearly 64,000 rides and averaged 175 rides per day (Valley County Transit, 2010).

2.3.5. Incorporating Local Community Values

The US Highway 93 Evaro to Polson project is a Montana project that relates to livability by incorporating community values in transportation project designs. This highway is largely

located within the Flathead Indian Reservation. This tribe promotes the principle of considering the next seven generations of people who will use the land when making plans that impact the land (in this case, reconstruction of a highway). This led to the inclusion of several wildlife crossing structures, wildlife fencing, interpretive signing, aesthetic improvements and a smaller roadway footprint on the project (USDOT-FHWA, MDT and CSKT, 2000).

2.3.6. Safe Routes to School

Safe Routes to School (SRTS) is a federally funded transportation program aimed at making it safer and more convenient for K–8 students of all abilities to walk and bike to school. Montana's SRTS program is a competitively awarded program administered by MDT. Eligible applicants for SRTS infrastructure funding include local and tribal governments and school districts. Eligible applicants for non-infrastructure funding include state, tribal, local and regional government agencies, school districts, private schools and nonprofit organizations.

Non-infrastructure activities educate students and encourage them to walk and bike to school. Programs such as mileage clubs, walking school buses and bike trains, as well as incentive programs encourage kids to choose active transportation as their way to school. Infrastructure projects focus on increasing safety by constructing crosswalks, sidewalks, pathways and bike racks. Frontier communities such as Shelby, Scobey, Sidney, Lewistown, Arlee, Ronan and Plevna have obtained funding for these efforts.

2.4. Measuring Livability Progress

Only a few metrics were found in the literature to measure livability from a transportation related perspective. WSDOT has posed the following question as a way to measure the effectiveness of its state's livability policies: "What is the degree to which local governments are achieving the vision in their comprehensive plans, specifically the effect of allocation of land use and their achievement of density goals?" (WSDOT, 2010). WSDOT will survey twice a year to determine how satisfied the public is with the implementation of community-based designs.

The Housing plus Transportation Affordability Index was developed by the Center for Neighborhood Technology (CNT) and the Center for Transit-Oriented Development (CTOD). The index measures affordability not just of housing but of housing plus transportation costs. A typical housing affordability map would show locations in an area where housing costs are below 30 percent of the area's median income. The index developed adds an estimated transportation cost based on the location (e.g. distance from the city center) and access to transit, but uses 45 percent of the median income as the threshold. The index has information from most urban areas around the country, including three Montana urban areas: Billings, Great Falls and Missoula. The index incorporates information on housing and transportation costs, automobiles per household, vehicle-miles traveled, transit ridership and commute times among other things (CNT, 2010).

Vemuri and Costanza (2006) developed a model predicting life satisfaction using two United Nations indices. One index, called "ecosystems services product," is a measure of natural land cover. The other is the human development index, which is a combined measure of life expectancy, literacy and standard of living. These indices explained 72 percent of the variability in reported life satisfaction for 56 countries. Though the model does not include transportation infrastructure, it shows how quality of life could be estimated and tracked using some measurable data.

3. DEMOGRAPHIC INFORMATION

Understanding the unique character of Montana will help identify livability needs for the state. This chapter includes general demographic and infrastructure data to help quantify the potential measures of livability of Montana, particularly as they relate to transportation. When possible and pertinent, the same statistics are shown for the neighboring states (North Dakota, South Dakota, Wyoming and Idaho) and the nation for comparison.

The first section, general population and essential services, includes general population trends, geography and access to health care facilities. The transportation infrastructure section includes information about Montana's roads, airports, freight, safety, vehicle registration data, commuting information and transportation energy information. The last section, alternative modes of transportation, includes public transportation and air and rail service information for the state of Montana.

3.1. General Population and Essential Services

Population statistics such as projections, age distribution and total population comprise the first section of demographic information analyzed. Also in this section are data on hospital and physician availability.

3.1.1. Population

According to 2009 estimates, Montana population totaled 974,989. Between 2000 and 2009, Montana population increased by 7.9 percent. This is comparable to the national population growth rate of 8.8 percent (Figure 4). According to the U.S. Census, Montana population is projected to be around 1,044,898 by 2030 (U.S. Census, 2010).

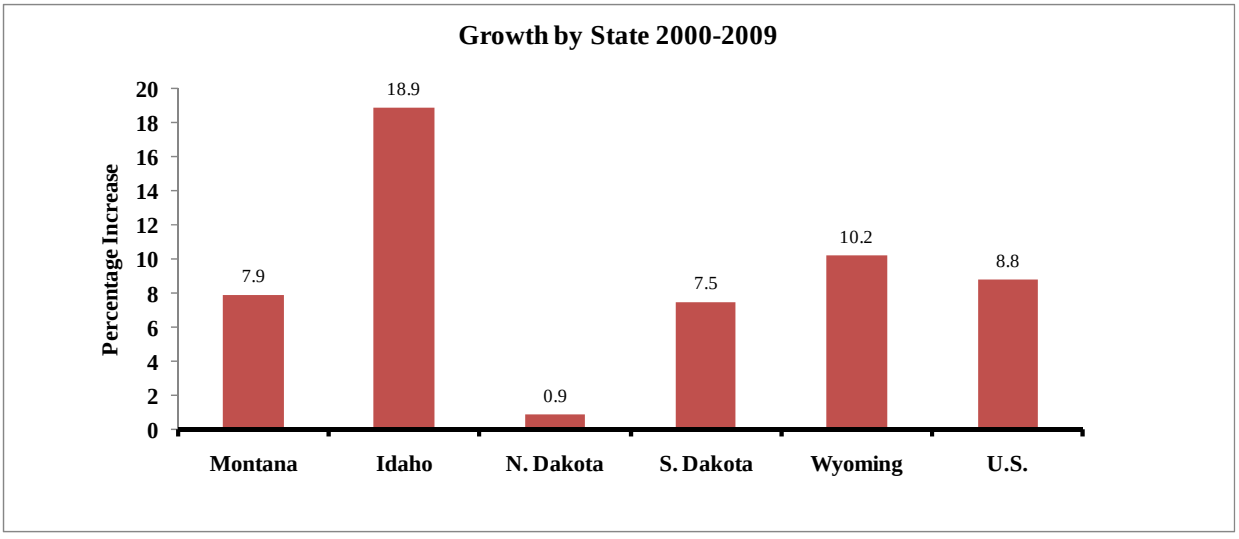

Figure 4: Percent Growth from 2000 to 2009 (Data Source: U.S. Census, 2010)

Although statewide population growth was positive, census estimates show 34 of Montana's 56 counties had negative growth from 2000 to 2009 (Figure 5).

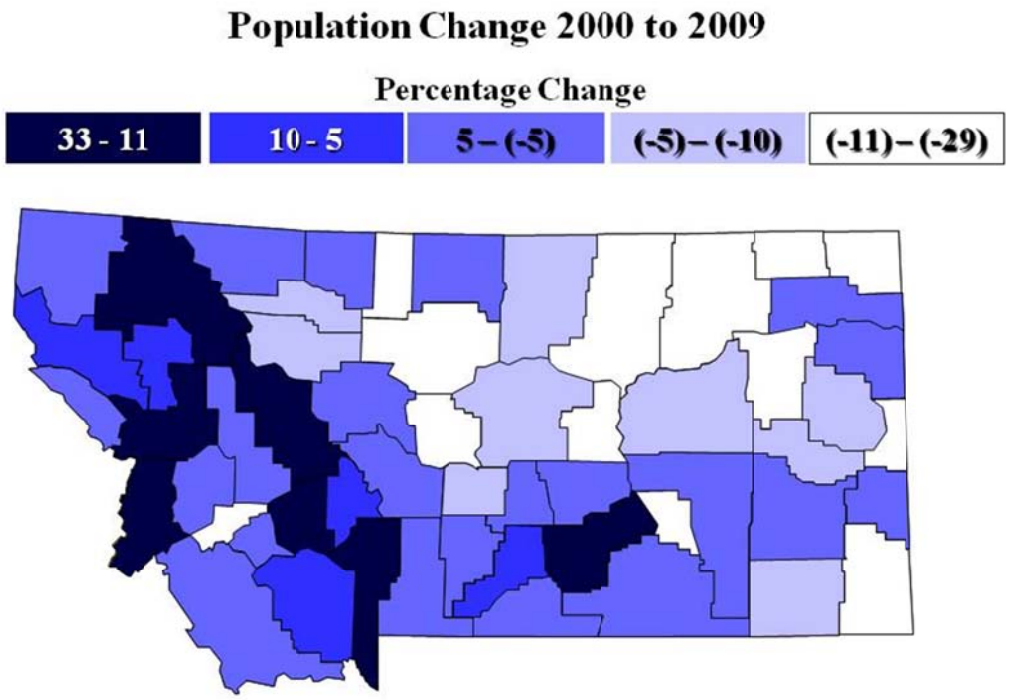

Figure 5: Montana County Population Growth Rate (Data Source: CEIC, 2010)

This general growth trend is expected to continue for Montana with the population of the western mountain region increasing while the eastern region's population decreases (Figure 6).

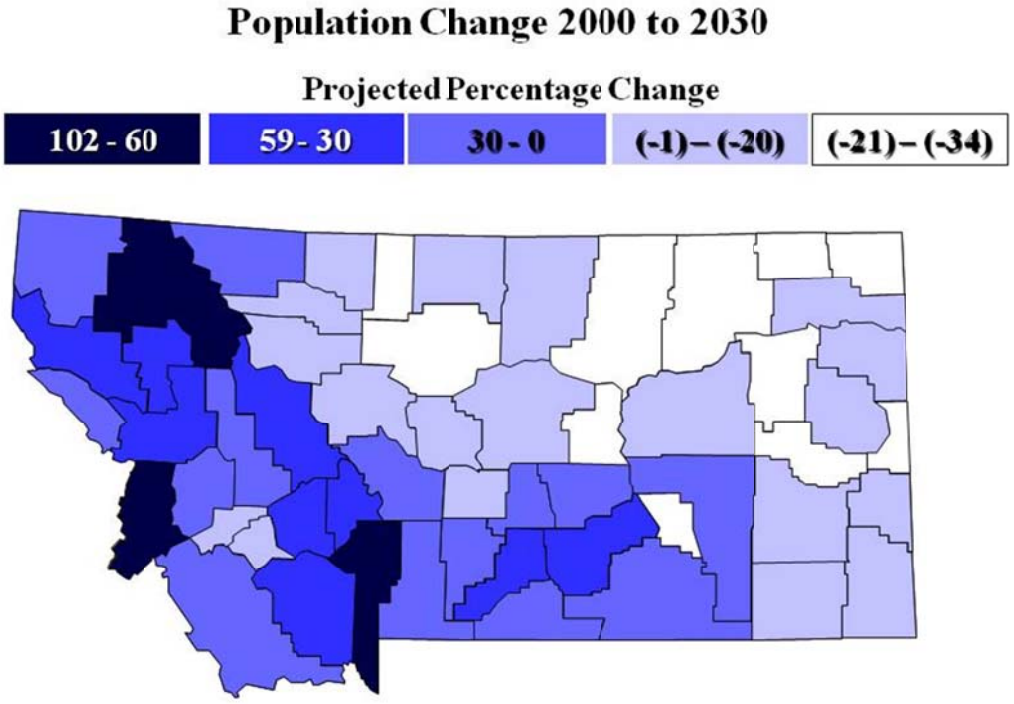

Figure 6: Montana County Population Growth Projections (Data Source: CEIC, 2010)

In 2010, Montana's population was 50 percent male and 50 percent female with a median age of 39 years. Children under 18 years of age accounted for 22.5 percent of the population and 14.6 percent of the population is over age 65 (Figure 7).

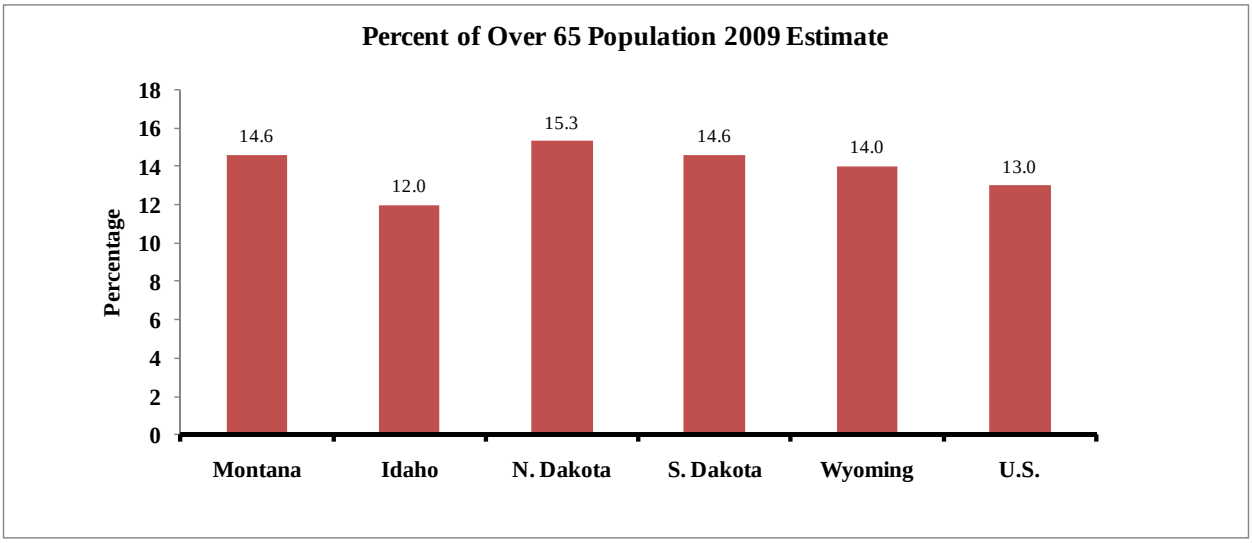

Figure 7: Population Over 65 Years of Age (Data Source: U.S. Census, 2010)

Montana is also aging. By 2030, the share of the population 65 and older is projected to be 25.8 percent (Figure 8), the third highest percentage in the nation after Wyoming and New Mexico.

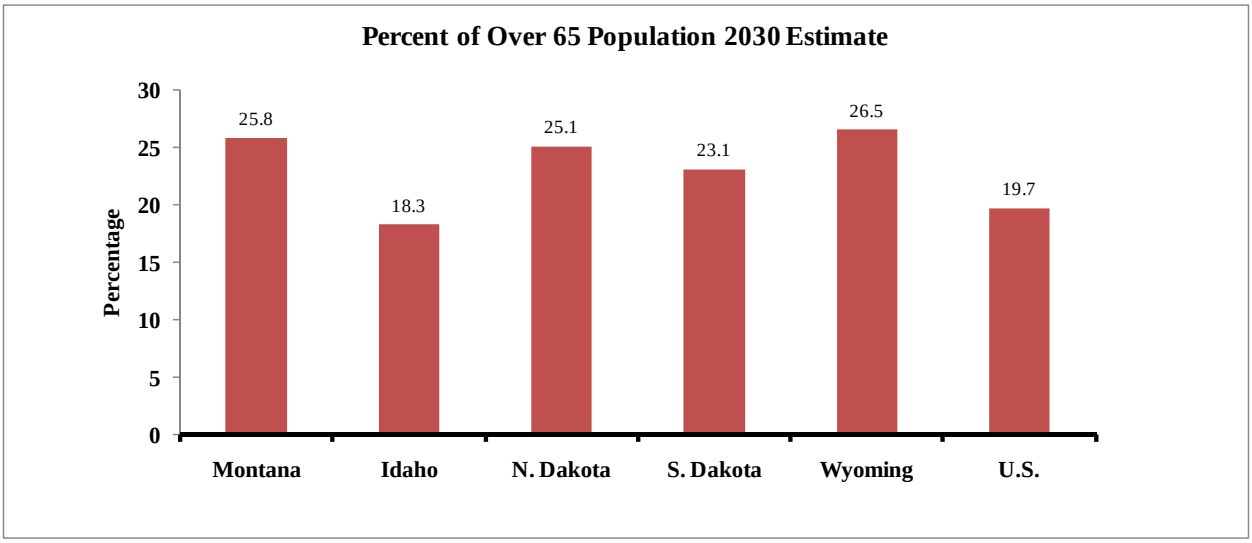

Figure 8: Projected Population Over 65 Years of Age (Data Source: U.S. Census, 2010)

3.1.2. Population Density

Statewide population density in Montana is estimated to be 6.7 people per square mile in 2009, similar to neighboring states but much lower than the national average of 86.8 people per square mile (Figure 9).

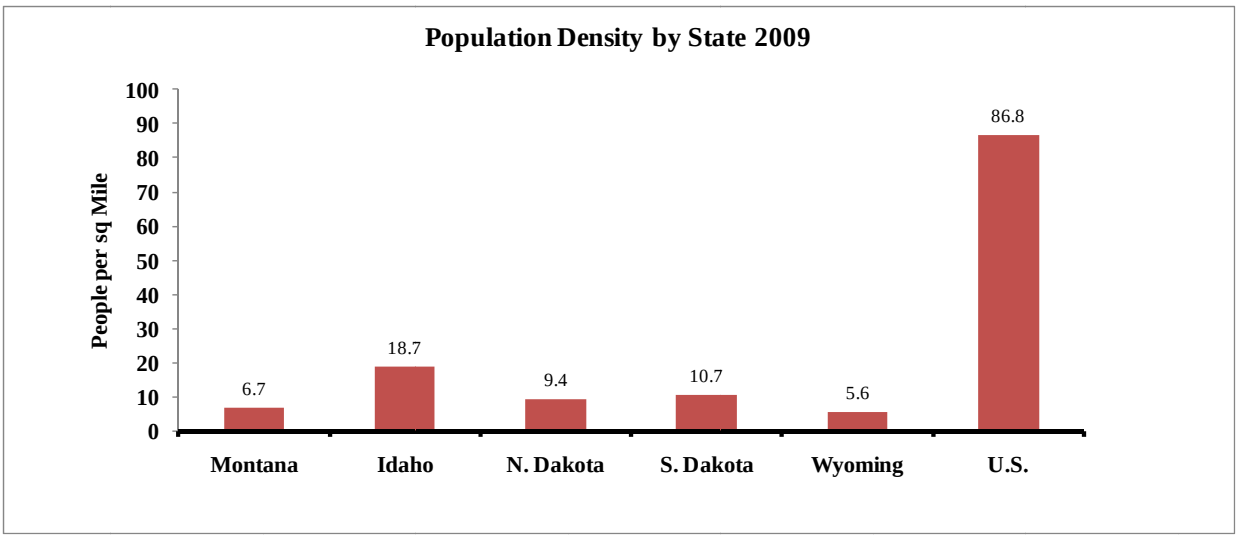

Figure 9: Population Density (Data Source: U.S. Census, 2010)

Population density is not uniform across Montana; 23 of 56 counties (41 percent) had 2.0 or fewer people per square mile and 22 of 56 counties (39 percent) had between 2.1 and 6.0 people per square mile. Six of 56 counties (11 percent) had between 6.1 and 20.0 people per square mile, and only five of 56 counties (9 percent) had more than 20.1 people per square mile (Figure 10).

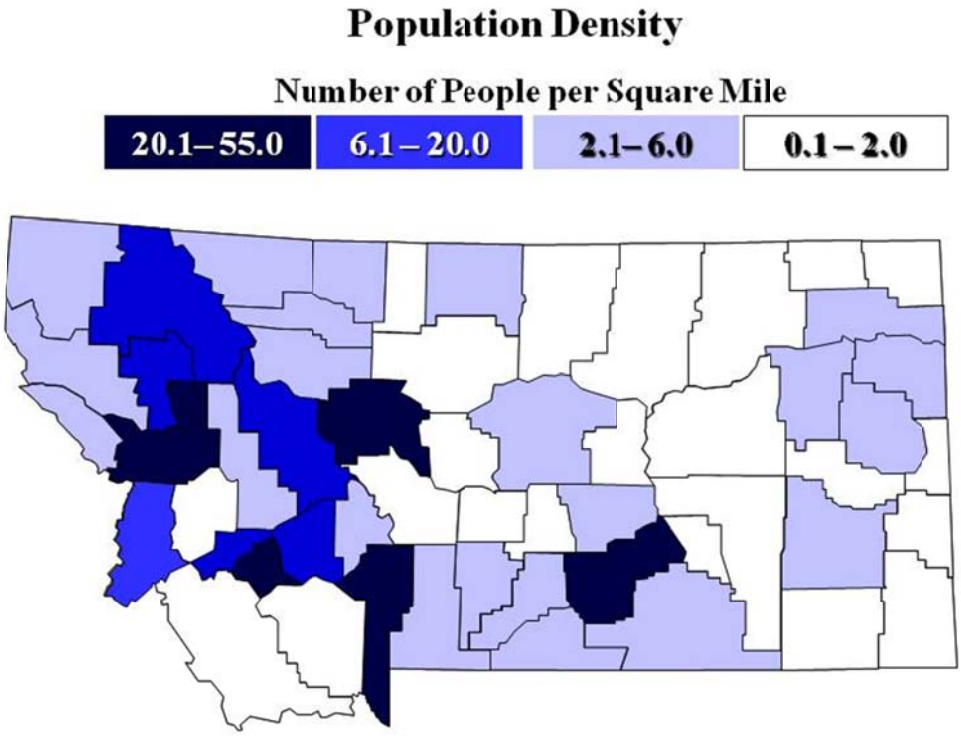

Figure 10: Population Density (Data Source: U.S. Census, 2010)

Using a higher resolution than the county level provides further insight into the wide range of community types in Montana. Figure 11 shows population densities at the census block level.

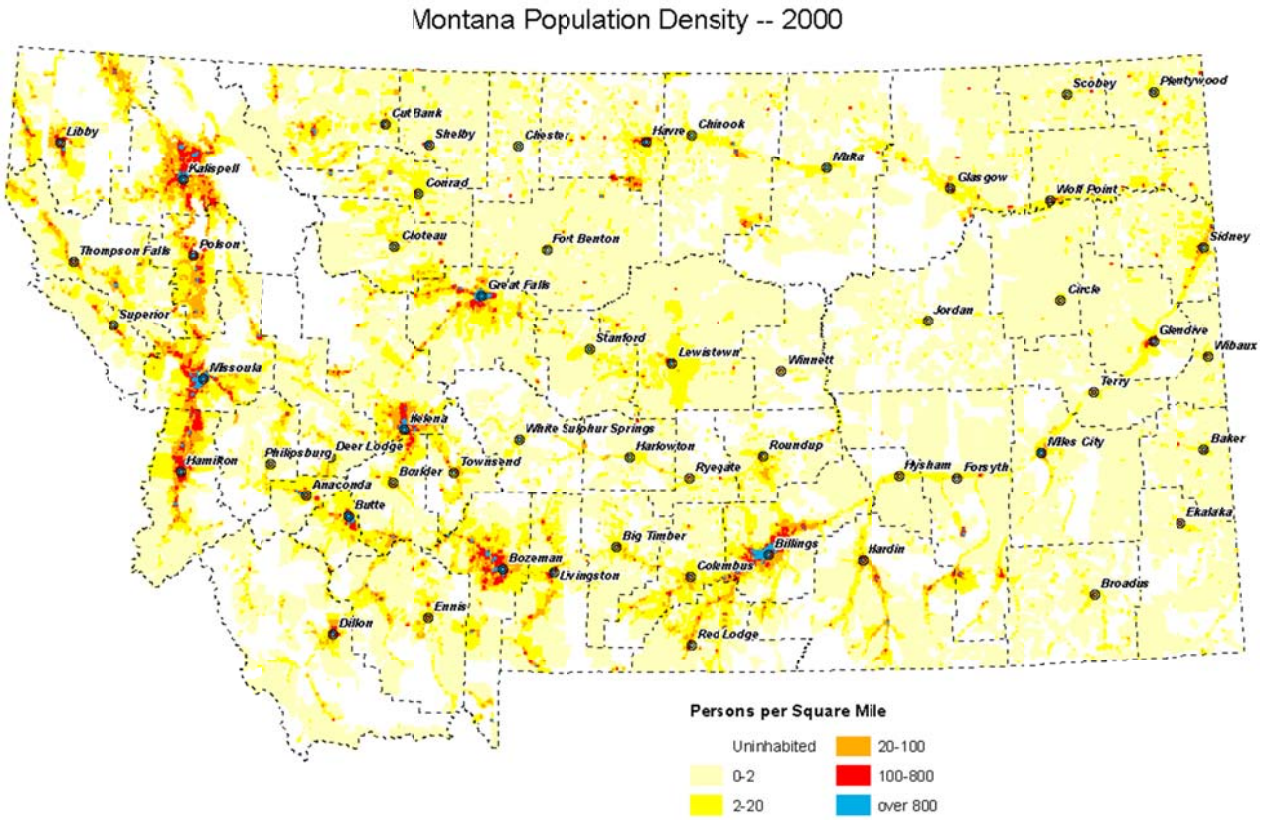

Figure 11: Population Density at the Census Block Level (Source: MT NRIS, 2000)

Figure **12** categorizes the spatial population density data from the map in Figure 11. For the census block level, 62 percent of Montanans live in densities of 800 people per square mile or higher, which accounts for 0.1 percent of the land area. In contrast 82 percent of the land area in Montana has a population density of less than one person per mile.

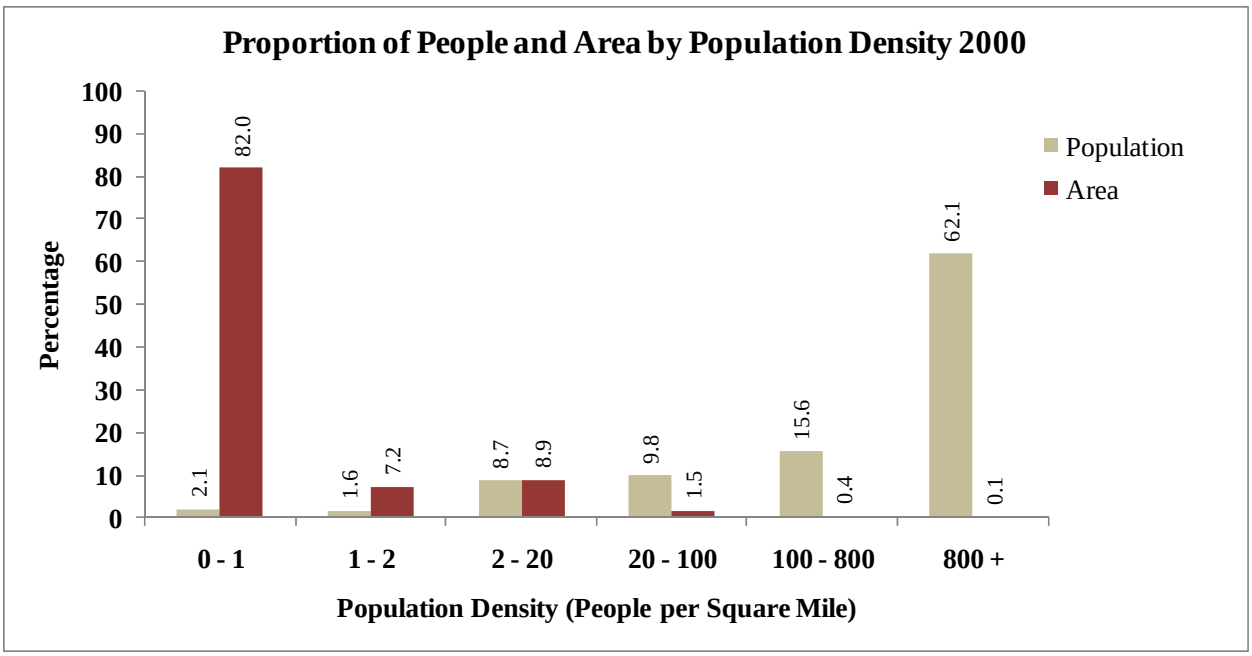

Figure 12: Proportion of Population and Area by Population Density Category (Data Source: U.S. Census, 2001).

City sizes vary considerably in Montana. The ten largest incorporated locations (Table 1) range in size from Billings, the most populous with 105,845 people, to Whitefish with 8,400 people. The places in Table 1 are typically cities. The exceptions are Anaconda and Butte, each of which has a form of government that combines functions of the city and county. In these cases the incorporated area includes all or most of the county population living within the incorporated boundary of the combined city–county government. The county population figures are also shown in Table 1 to provide a sense of the population in the surrounding area.

Table 1: Top 10 Incorporated Place by Population (2009 Estimates)

City (County)	Population	Population of County
Billings (Yellowstone)	105,845	144,797
Missoula (Missoula)	68,876	108,623
Great Falls (Cascade)	59,366	82,178
Bozeman (Gallatin)	39,282	90,343
Butte-Silver Bow* (Silver Bow)	32,268	32,949
Helena (Lewis & Clark)	29,939	61,942
Kalispell (Flathead)	21,640	89,624
Havre (Hill)	9,656	16,632
Anaconda-Deer Lodge* (Dear Lodge)	8,792	8,792
Whitefish (Flathead)	8,400	89,624

Data Source: U.S. Census, 2010
*Consolidated City/County

The largest counties show a similar population disparity. Yellowstone County population is estimated to be 144,797, making it the largest in the state (Table 2). Lincoln County is ranked 10th, with 18,717 people. The least populated of Montana's 56 counties is Petroleum County with 440 people.

Table 2: Top 10 Counties by Population (2009 Estimates)

Counties	Population
Yellowstone	144,797
Missoula	108,623
Gallatin	90,343
Flathead	89,624
Cascade	82,178
Lewis & Clark	61,942
Ravalli	40,431
Silver Bow	32,949
Lake	28,605
Lincoln	18,717

Data Source: U.S. Census, 2010

To further categorize Montana residents by size of community, populations were distributed among communities designated by categories defined by Montana Code Annotated as urbanized (>50,000), small urban (5,000–50,000) and rural (<5,000). Populations of communities in the first two categories are listed in Appendix A.

Montana has three urbanized areas: Billings, Missoula, and Great Falls. These urbanized areas have populations greater than 50,000 (see Table 1).

Fourteen communities have a population of at least 5,000 people but fewer than 50,000. These communities are known as small urban areas. Note that by USDOT definitions these would be considered rural communities since they are under 50,000. Bozeman is the most populated small urban area, with 39,282 people, and Polson is the smallest, with 5,231 people.

There are 112 incorporated areas in Montana (towns, cities, or villages) categorized as rural areas (smaller than 5,000). Hamilton is the largest rural incorporated community, with 4,974 people, and Ismay is the smallest, with 25 residents. These rural incorporated areas combine with the unincorporated areas of the state to comprise 56 percent of the population.

The proportions of the population in Montana living in the three classifications described (urbanized areas, small urban areas, and rural areas) are shown in Figure 13.

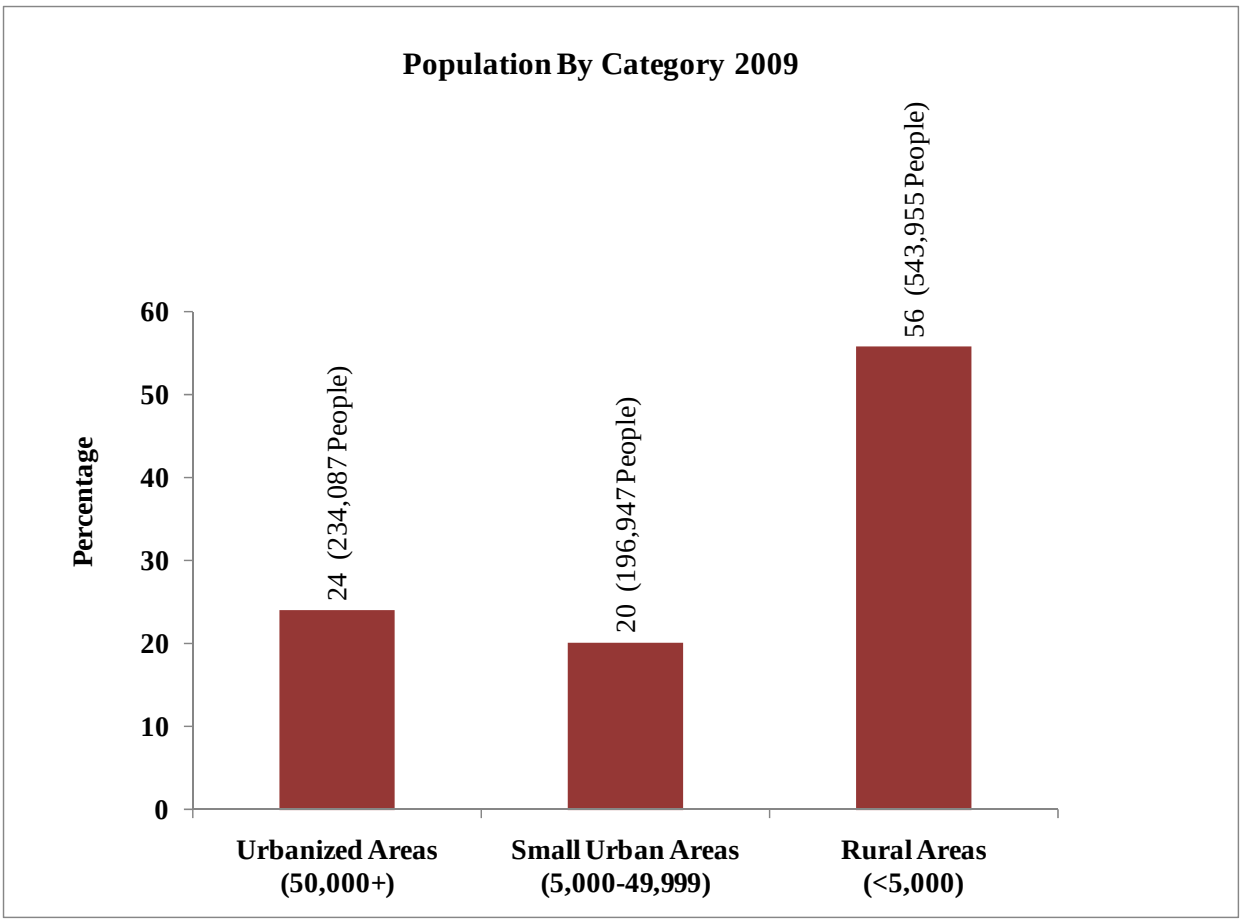

Figure 13: Population by Community Size (Data Source: U.S. Census, 2010)

3.1.3. Montana Health Care Facilities

Access to quality health care for Montana citizens could be considered a measure of livability. Further, this could be related to transportation, particularly access to transit services. Local transit service may be important to provide access to nearby health care facilities. Intercity transit service may also be important since Montana's rural nature means many residents need to travel long distances for health care services. The measure of a community's health care is tied to the number of physicians and health care facilities serving the community. Family medicine practitioners (primary care physicians) play an important role in a rural state like Montana. Montana ranks 35th nationally in the number of family medicine physicians per capita, with 87 per 100,000 people. The national average is 120 per 100,000 people (Montana AHEC, 2010). Montana has nine counties with no physicians in active practice (Table 3). Moreover, five of the nine counties do not have any local public transportation system. More than 20 percent of the population of these counties is currently 65 years or older.

Table 3: Elderly Population and Transit Access for Counties with No Physicians

Counties	Population Estimates 2009	65 or Older Population Estimates 2009	Public Transportation System	Hospital
Carter	1,202	248 (20.6%)	Yes	Yes
Garfield	1,173	212 (18.1%)	Yes	Yes
Golden Valley	1,057	226 (21.4%)	Yes	No
Judith Basin	2,051	429 (20.9%)	No	No
McCone	1,624	354 (21.8%)	No	Yes
Petroleum	440	94 (21.4%)	No	No
Powder River	1,664	356 (21.4%)	Yes	No
Treasure	612	139 (22.7%)	No	No
Wibaux	897	218 (24.3%)	No	No

Data Source: Montana AHEC, 2010.

Six of the nine counties listed in Table 3 do not have a hospital located within the county. Jefferson County, not listed in the table, has no hospital, but does have a physician. Some specialized medical needs can only be handled in larger hospitals. Access to these specialized services can require long travel distances for some rural communities in Montana. The American College of Surgeons (2010) categorizes hospitals according to their capabilities related to trauma care, with level one being the highest level of care available. Although specific to trauma care, this categorization is used by the industry to provide a measure of general capabilities available at a hospital. There are no level-one trauma centers in Montana. Billings, Great Falls and Missoula each have a level-two trauma center. Bozeman, Butte and Kalispell have level-three trauma centers (Figure 14). The remaining 44 counties in Montana have some sort of hospital or clinic.

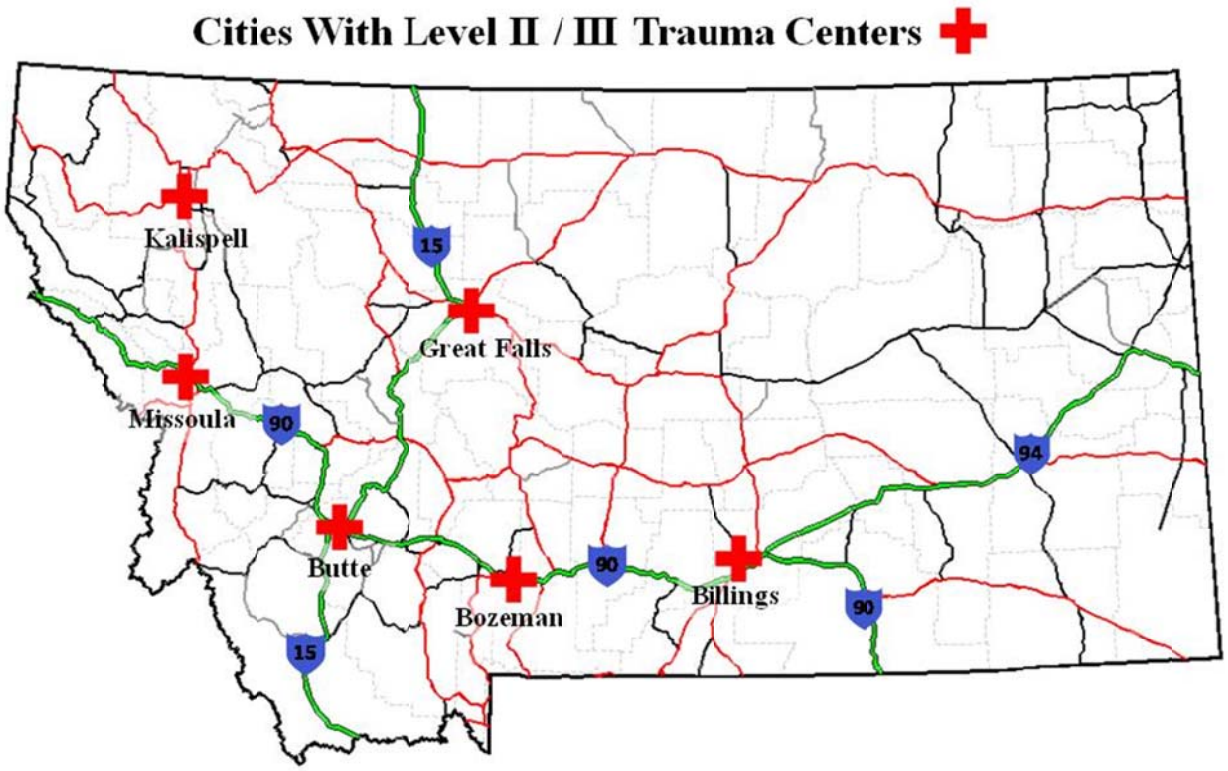

Figure 14: Major Medical Facilities (Data Source: American College of Surgeons, 2010)

3.2. Transportation Infrastructure

This section contains information about Montana's roads, airports, and freight infrastructure. Also considered within this section is infrastructure safety, vehicle registration data, commuting information and transportation energy information.

3.2.1. Transportation Infrastructure of Montana

A majority of roads in Montana are rated in good or very good condition under Federal Highway Administration (FHWA) reporting requirements. Compared to surrounding states, Montana has the lowest number of roads in mediocre or poor condition (Figure 15). Road condition is a measure of how smooth the pavement surface is using the international roughness index and present serviceability.

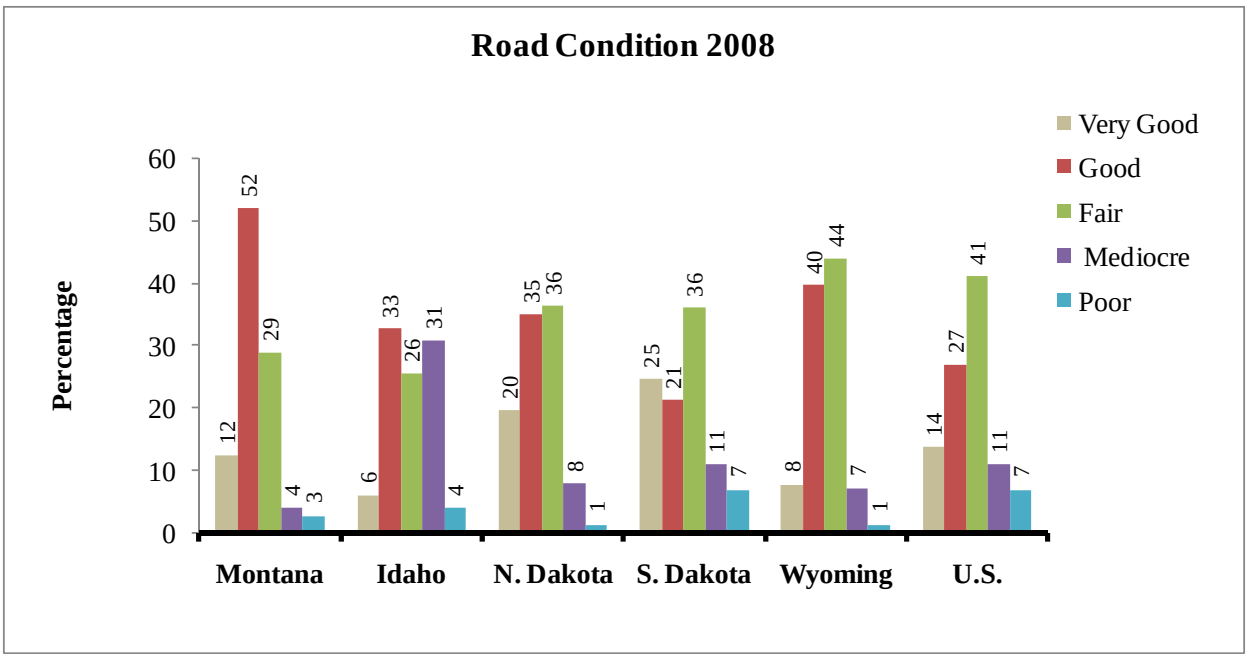

Figure 15: Road Condition Ratings by Percentage of Total Miles (Data Source: USDOT RITA, 2009)

Montana air travel ports include airports, heliports, short take-off and landing (STOL) ports, and seaplane bases. Montana has fewer airports (223 airports) than North Dakota (269 airports), and more airports than Idaho (217 airports), South Dakota (145 airports) or Wyoming (91 airports). Montana has a similar number of heliports as each surrounding state (Figure 16).

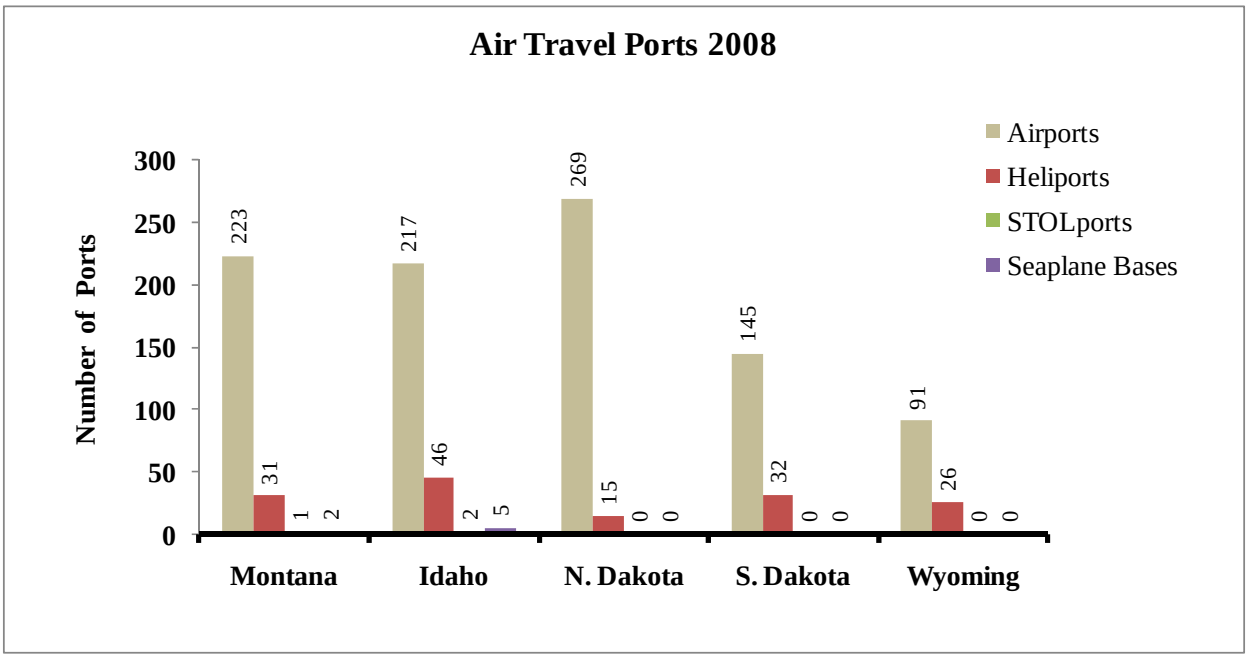

Figure 16: Air Travel Ports (Data Source: USDOT RITA, 2009)

Montana has the lowest number of freight shipments originating in the state in terms of dollar value compared to surrounding states, but it is third in tonnage and second in ton-miles (Figure 17).

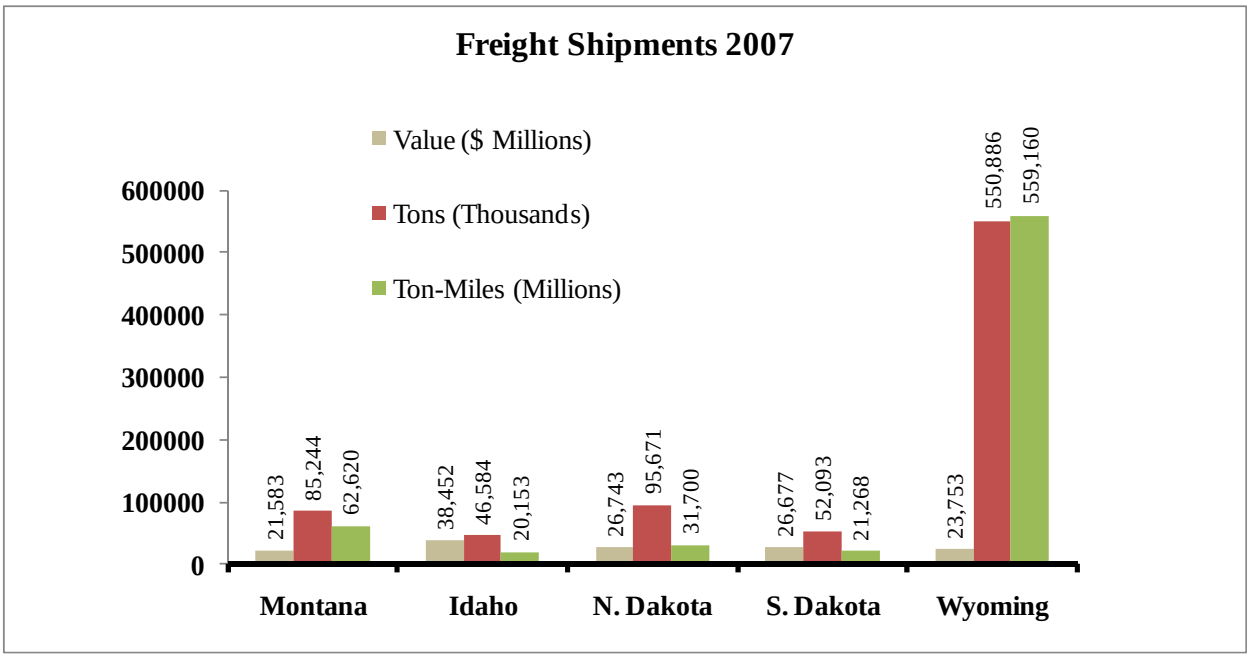

Figure 17: Annual Freight Shipments by State of Origination (Data Source: USDOT RITA, 2009)

3.2.2. Safety

In 2008, Montana had 209 traffic fatalities. Total fatality figures from Montana and other states are shown in Figure 18. These figures may provide a benchmark but are not an adequate standard for comparing of the safety of Montana's roads with other states due to differences in population and road mileage.

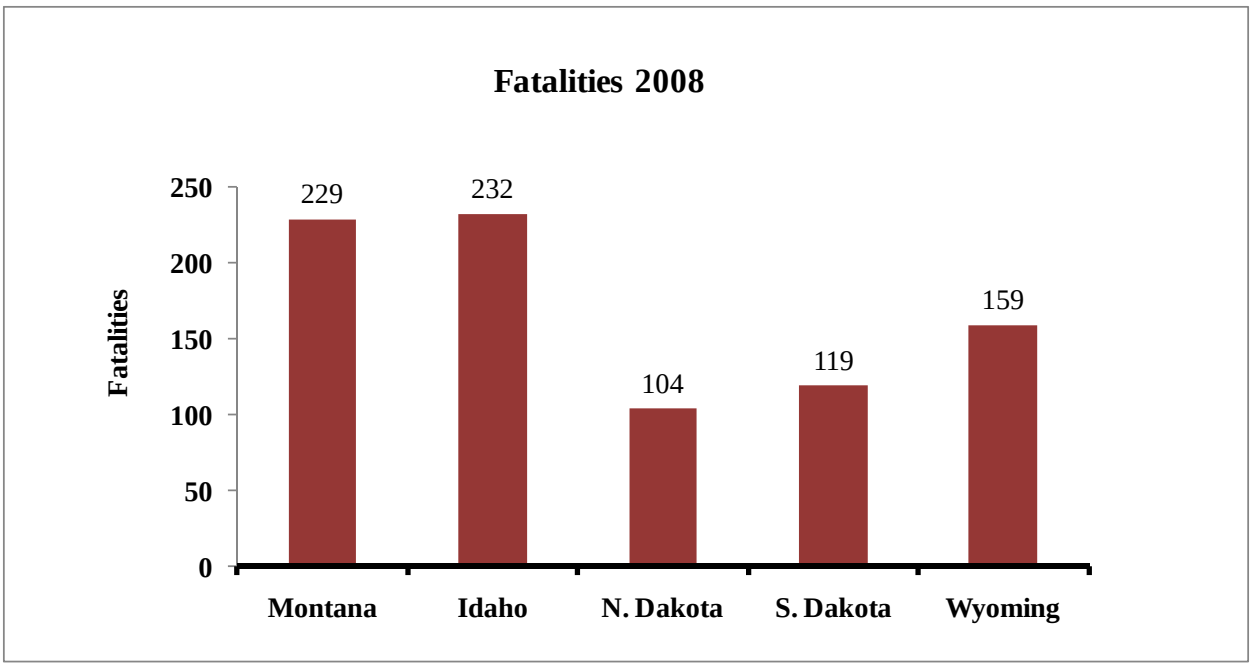

Figure 18: Total Road Fatalities (Data Source: USDOT RITA, 2009)

3.2.3. Mobility

Montana has more workers per capita than the national average but fewer than North Dakota, South Dakota, or Wyoming (Figure 19).

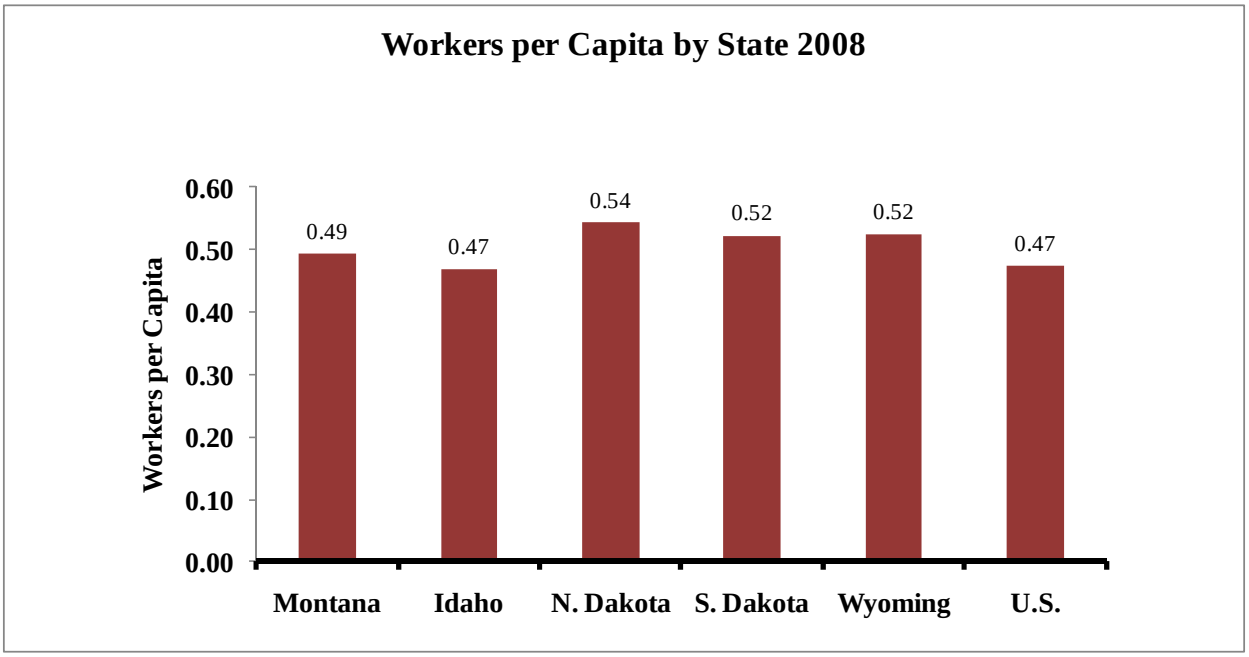

Figure 19: Workers per Capita (Data Source: USDOT RITA, 2009)

Montana has the lowest percentage of people who report driving to work alone in a vehicle (72.8 percent) compared to surrounding states, and a slightly lower percentage than the national average (75.5 percent). Montana and the surrounding states all have a substantially smaller percentage of commuters using public transportation than the national average of five percent (Figure 20). In Montana, 11.4 percent of the people commute in a car, truck, or van pool, slightly higher than the national average (10.7 percent). Montana's performance is higher than surrounding states and the nation as a whole for other transportation management strategies such as walking (5.5 percent) and working at home (6.5 percent). Nationally 2.8 percent walk to work and 4.1 percent report working from home.

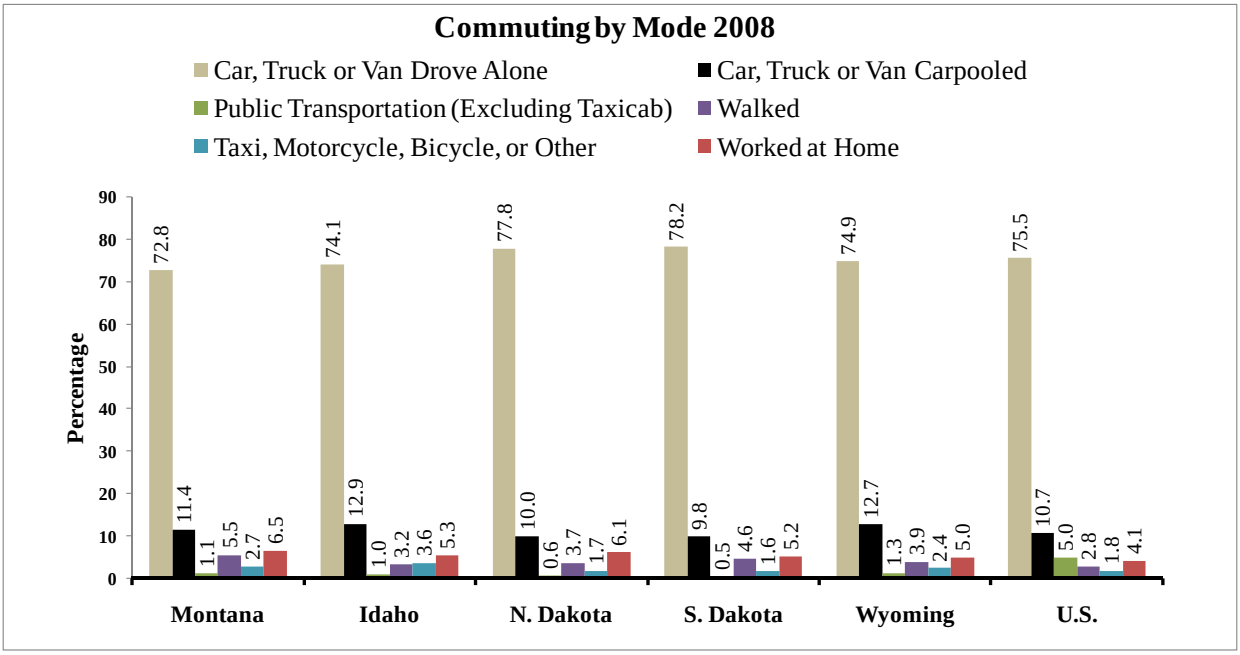

Figure 20: Commuting by Mode (Data Source: USDOT RITA, 2009)

Montana and the surrounding states all have shorter average travel times to work than the national average by at least five minutes (Figure 21). Idaho's commute time is five minutes less than the national average of 25.5 minutes, while Montana's is 7.4 minutes less and North Dakota's is nearly 10 minutes less.

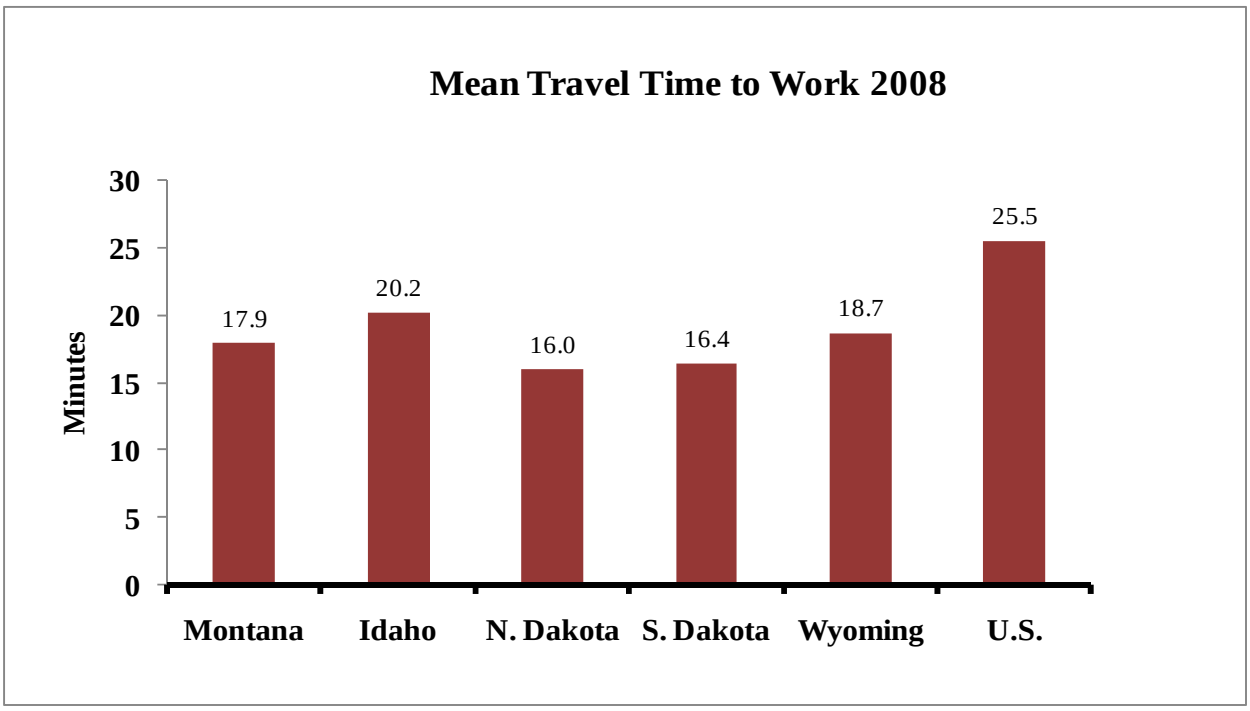

Figure 21: Mean Travel Time to Work (Data Source: USDOT RITA, 2009)

Montana, with 1.05 registered vehicles per capita, has a vehicle ownership rate higher than the national average of 0.83 vehicles per person. Per capita vehicle ownership is even greater in North Dakota (1.14 vehicles), South Dakota (1.18 vehicles) and Wyoming (1.26 vehicles). Idaho has slightly more registered vehicles per capita than the nation, with 0.89 vehicles (Figure 22).

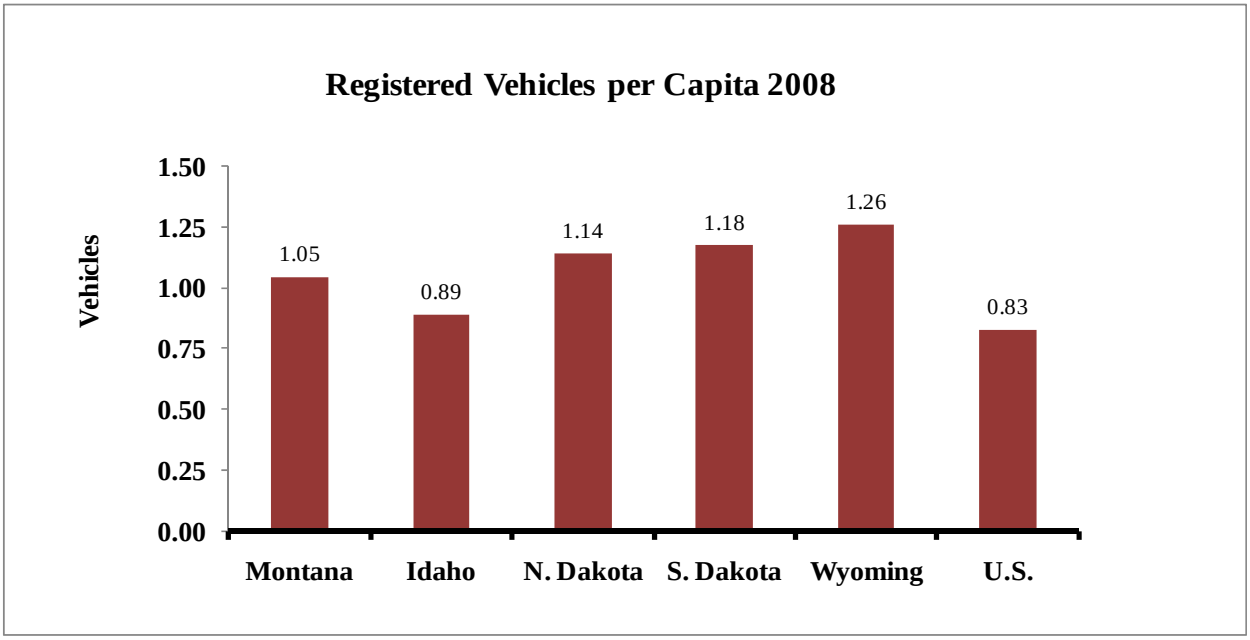

Figure 22: Registered Vehicles per Capita (Data Source: USDOT RITA, 2009)

Montana has the most licensed drivers per capita (0.764 drivers) of all surrounding states, and substantially more than the national average (0.685 drivers) (Figure 23).

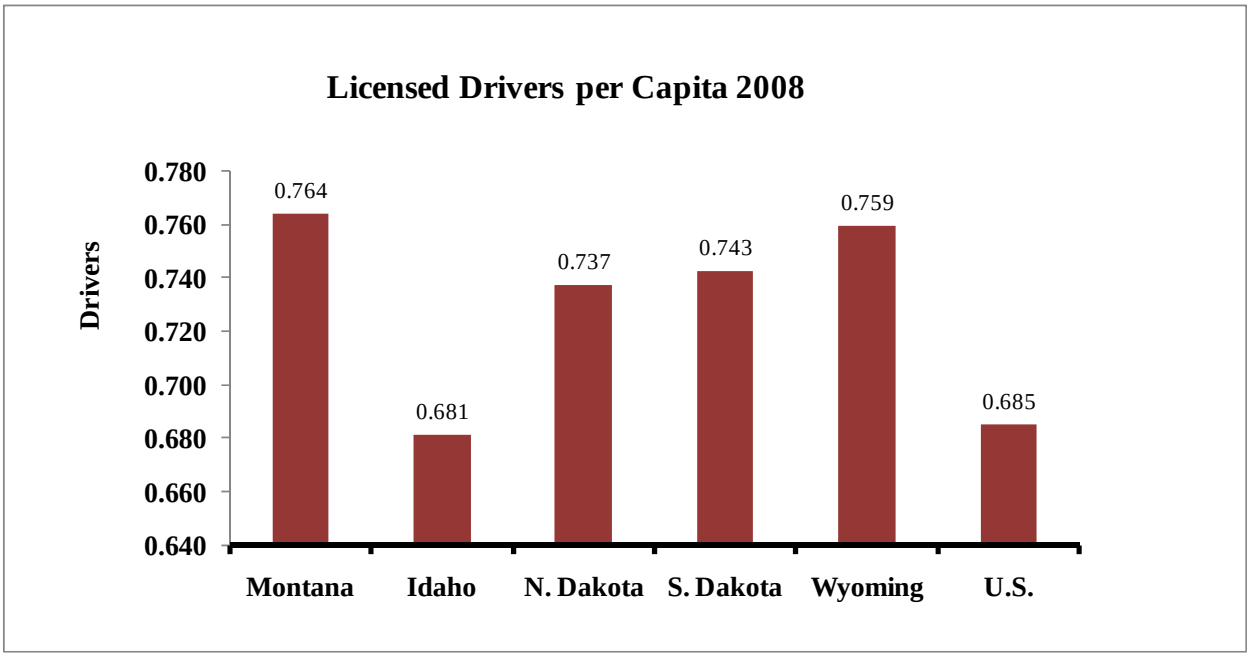

Figure 23: Licensed Drivers per Capita (Data Source: USDOT RITA, 2009)

Montana has similar numbers of registered semi-truck tractors, vans and SUVs as surrounding states. Montana has more pickup trucks than North Dakota and South Dakota but fewer than Idaho or Wyoming. Montana has many more "other light" registered vehicles (139,000) than all surrounding states, each of which has fewer than 40,000 (Figure 24).

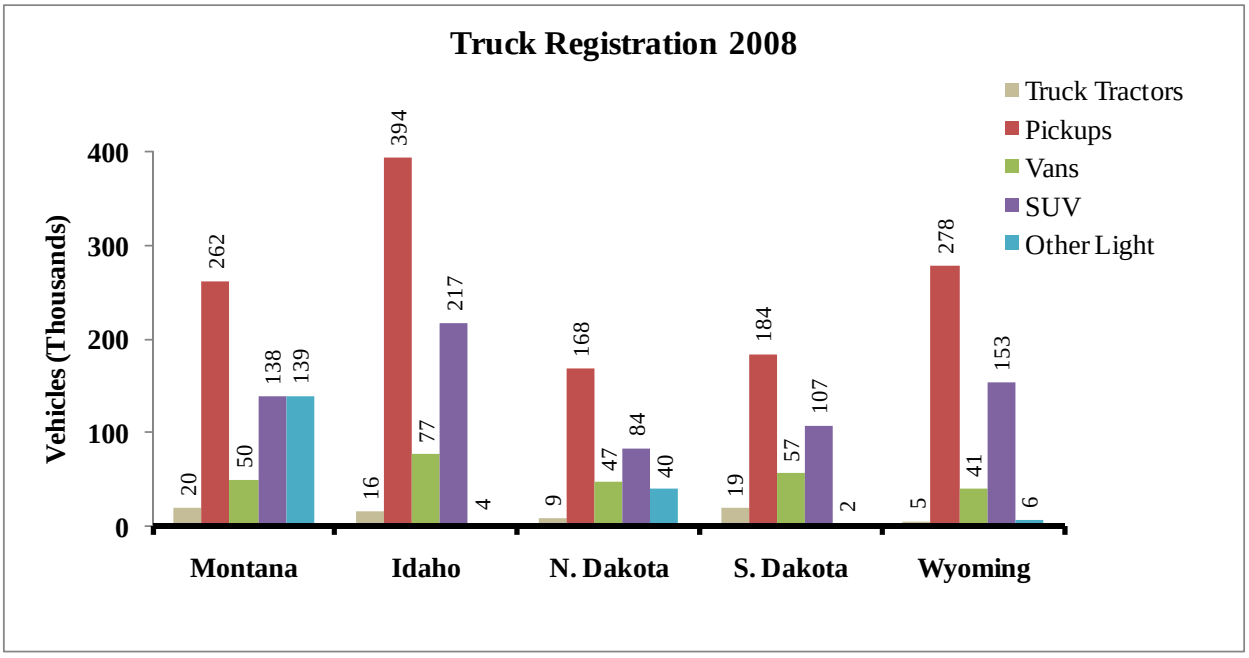

Figure 24: Truck Registration (Data Source: USDOT RITA, 2009)

In 2008, Montana reported a similar number of vehicle-miles traveled (VMT) per capita (11,176 miles) as all surrounding states except Wyoming (17,735). However, the national per capita VMT of 9,779 miles is less than each of these states (Figure 25).

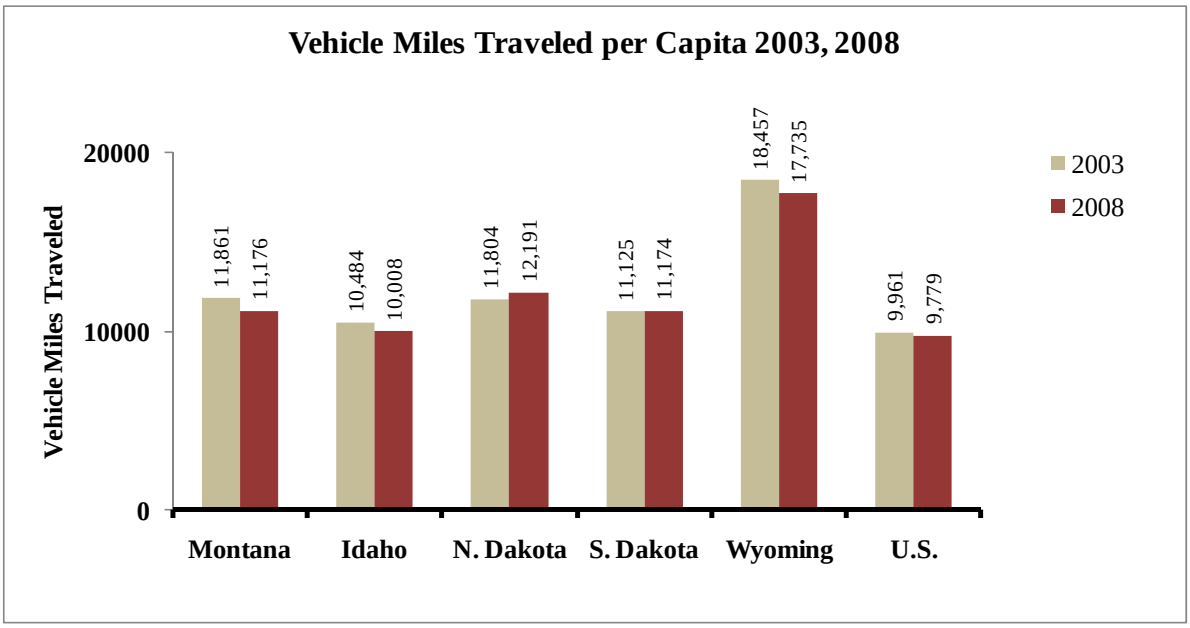

Figure 25: Vehicle-Miles Traveled (Data Source: USDOT RITA, 2009)

Montana has more transit systems per capita than the national average, and the most among surrounding states (Figure 26). This is the sum of all transportation establishments including public transit, urban transit centers, chartered buses, school buses, interurban buses, and taxi services. Not included are scenic tour buses, sightseeing buses, and car pool services.

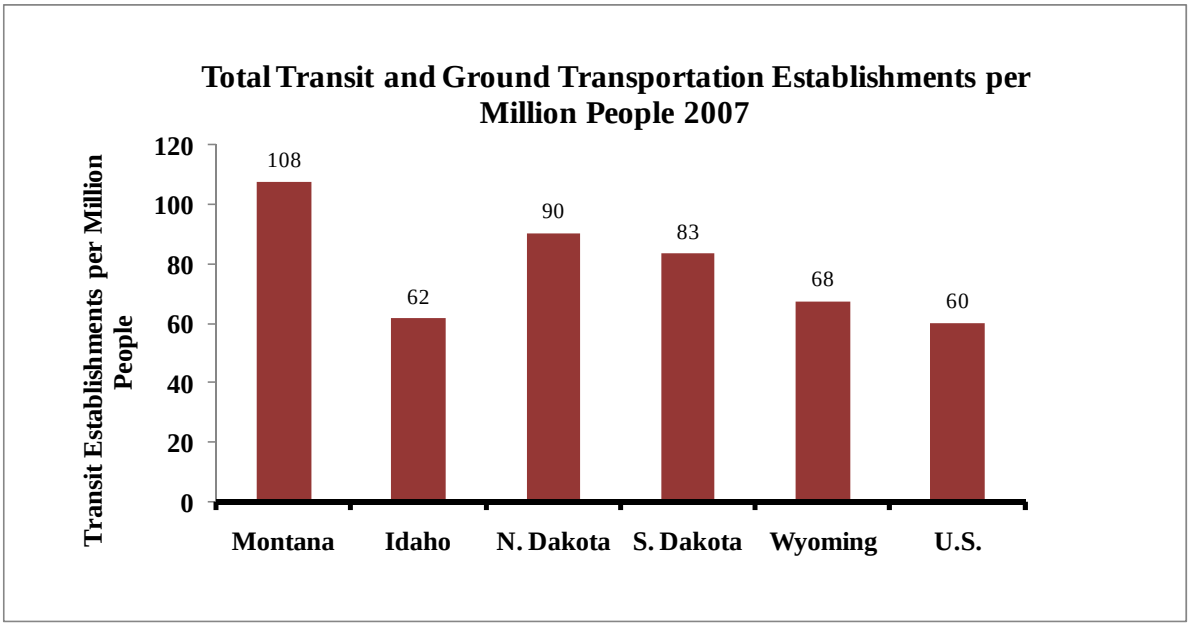

Figure 26: Transit Systems (Data Source: USDOT RITA, 2009)

State and local governments in Montana spend $843 per person on transportation, a figure similar to what is spent in North Dakota and South Dakota. Idaho spends $572 per person. The national average is $718. Wyoming spends much more per capita on transportation than surrounding states or the national average. Spending on transit, however, is much lower per capita in Montana and surrounding states than the national average of $156 (Figure 27).

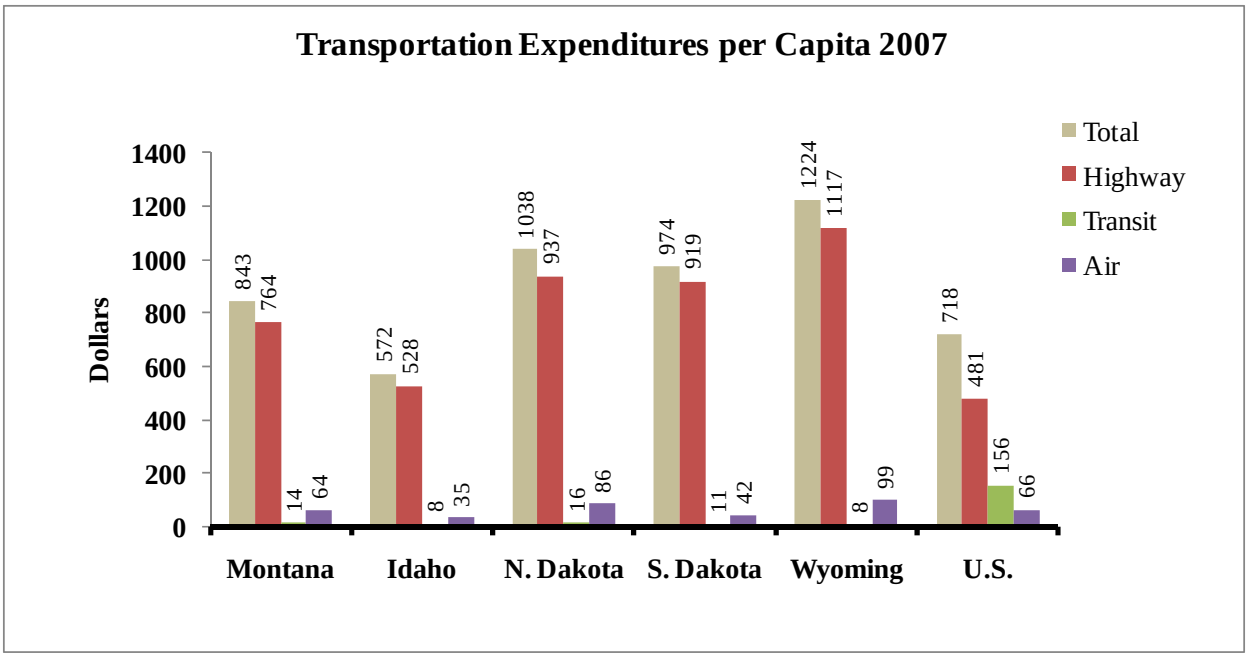

Figure 27: Annual Government Transportation Expenditures (Data Source: USDOT RITA, 2009)

3.2.4. Transportation Energy

Montana consumes more transportation energy per capita (134 million BTU) than the national average (97 million BTU). However, this is only about only half as much as Wyoming (242 million BTU). Idaho uses slightly less than the national average of transportation energy per capita (91.3 million BTU) (Figure 28).

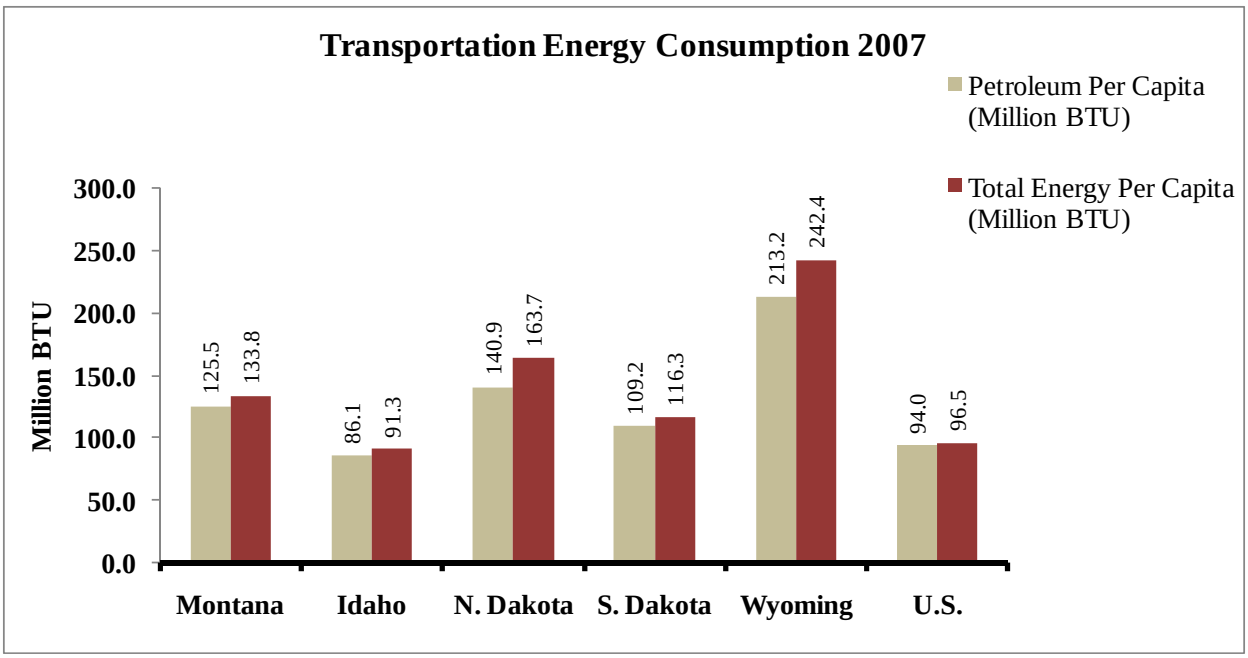

Figure 28: Transportation Energy Consumption (Data Source: USDOT RITA, 2009)

The number of alternatively fueled vehicles registered in Montana (3,869) is similar to what is reported in surrounding states (between 3,500 and 4,000 vehicles). Wyoming is the exception, with fewer than 2,700 vehicles. Most of these vehicles use ethanol (Figure 29).

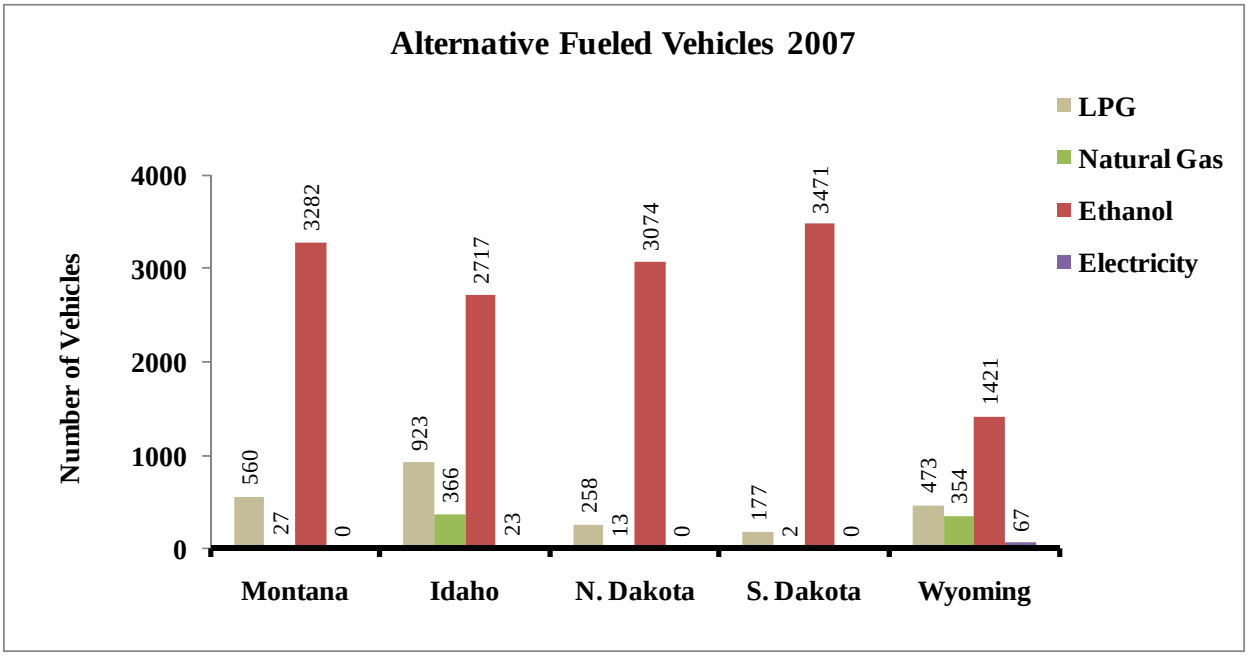

Figure 29: Alternative Fueled Vehicles (Data Source: USDOT RITA, 2009)

3.3. Alternate Modes of Transportation

This section describes public transportation data for the state of Montana. Air and rail service information is also discussed. Quality bicycle and pedestrian facility information could not be found.

3.3.1. Public Transportation

Typically the more populated areas in the state have the most public transportation options, but most counties offer some local bus transit service. Twelve counties report no form of local public transportation available (Figure 30).

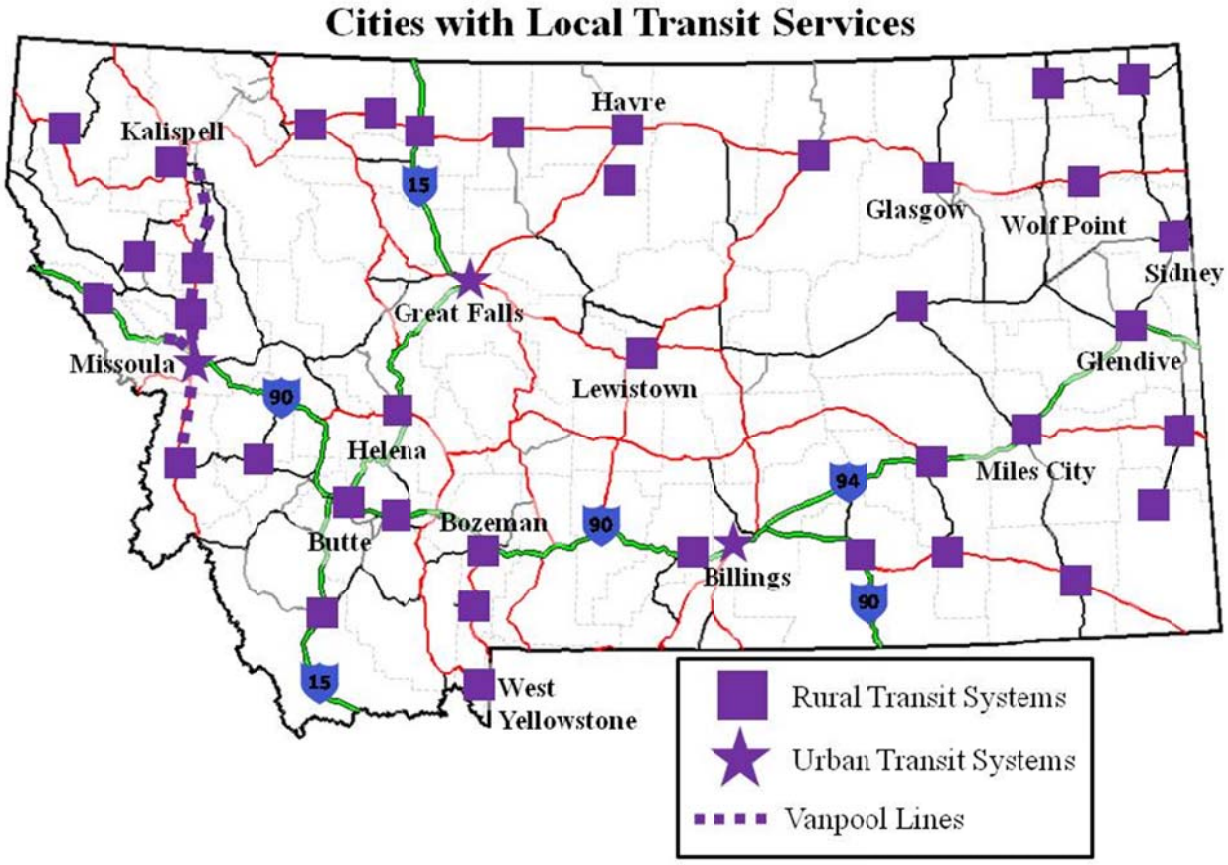

Figure 30: Local Public Transportation

While local transit services provide public transportation within communities, public transportation options between cities are mostly limited to intercity bus service. Montana has 34 cities/towns with an intercity bus stop. The total population of the cities/towns with an intercity bus stop is 436,799, which represents about 45 percent of the population (Appendix A). Intercity bus stops for the purpose of this report are defined as stops listed by the intercity bus providers (Greyhound, Rimrock Stages/Trailways and Salt Lake City Express). Many more communities are connected to the intercity bus service through a route provided by the local transit service connecting to the nearest intercity bus stop. For example North Central Montana Transit,

discussed previously, connects Havre and the surrounding communities to Great Falls. Intercity rail service (Amtrak) exists in the northern part of the state connecting towns along the High Line (Figure 31). The central part of Montana is only sparsely served by intercity buses. Another intercity transit option is the essential air service described further in the next section.

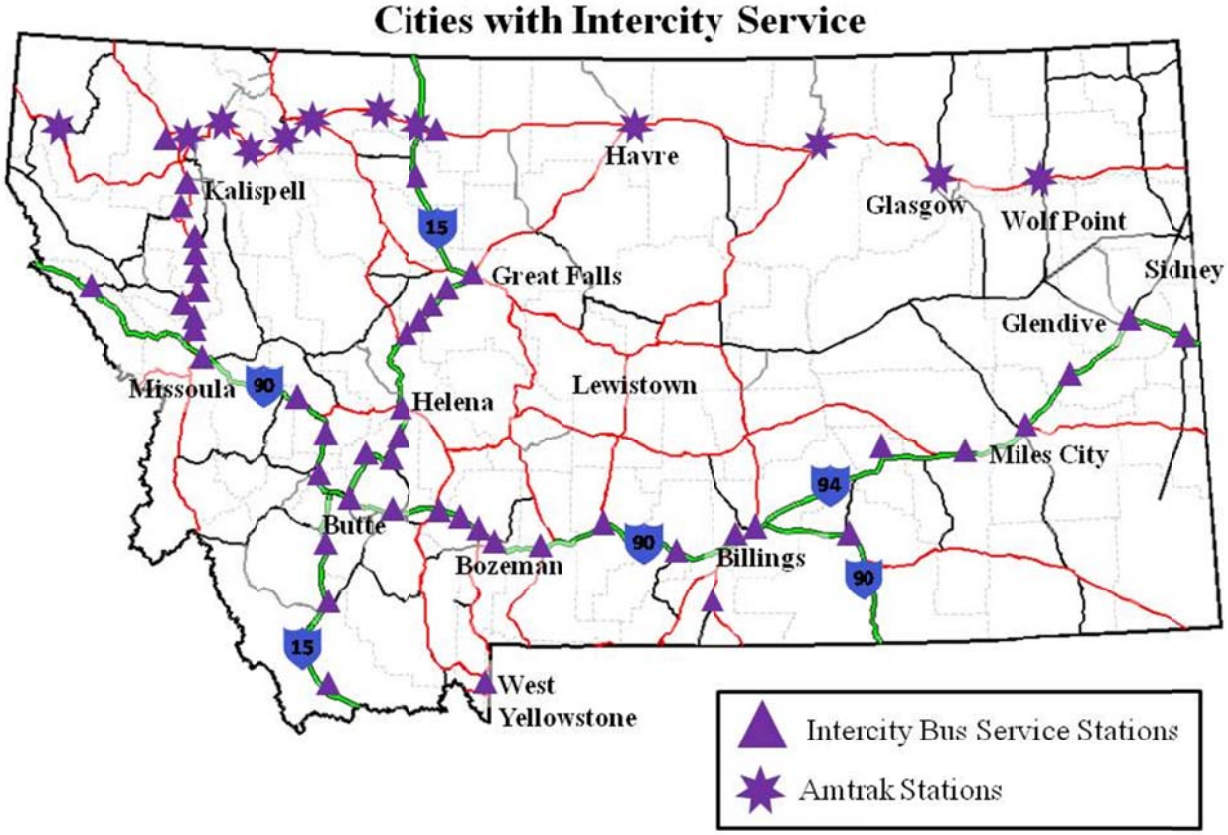

Figure 31: Intercity Bus and Rail Systems in Montana

3.3.2. Air Services

Montana has seven primary airports with commercial air services. International airports are located in Billings, Great Falls, Kalispell, and Missoula, and regional airports are in Bozeman, Butte and Helena. In addition to these seven primary airports, Montana has 225 non-primary airports for general aviation use. Seven cities—Havre, Malta, Glasgow, Wolf Point, Sidney, Glendive, Miles City, and Lewistown—are served by an "essential air service." Essential air service (EAS) refers to airlines subsidized by the USDOT with the aim of maintaining commercial air services at a minimal level for small and rural communities. West Yellowstone is a unique case; it is not officially EAS, but is included in Figure 32 since it does receive some subsidies to maintain seasonal commercial service, although it is not operational year round. Figure 32 shows air service locations in Montana.

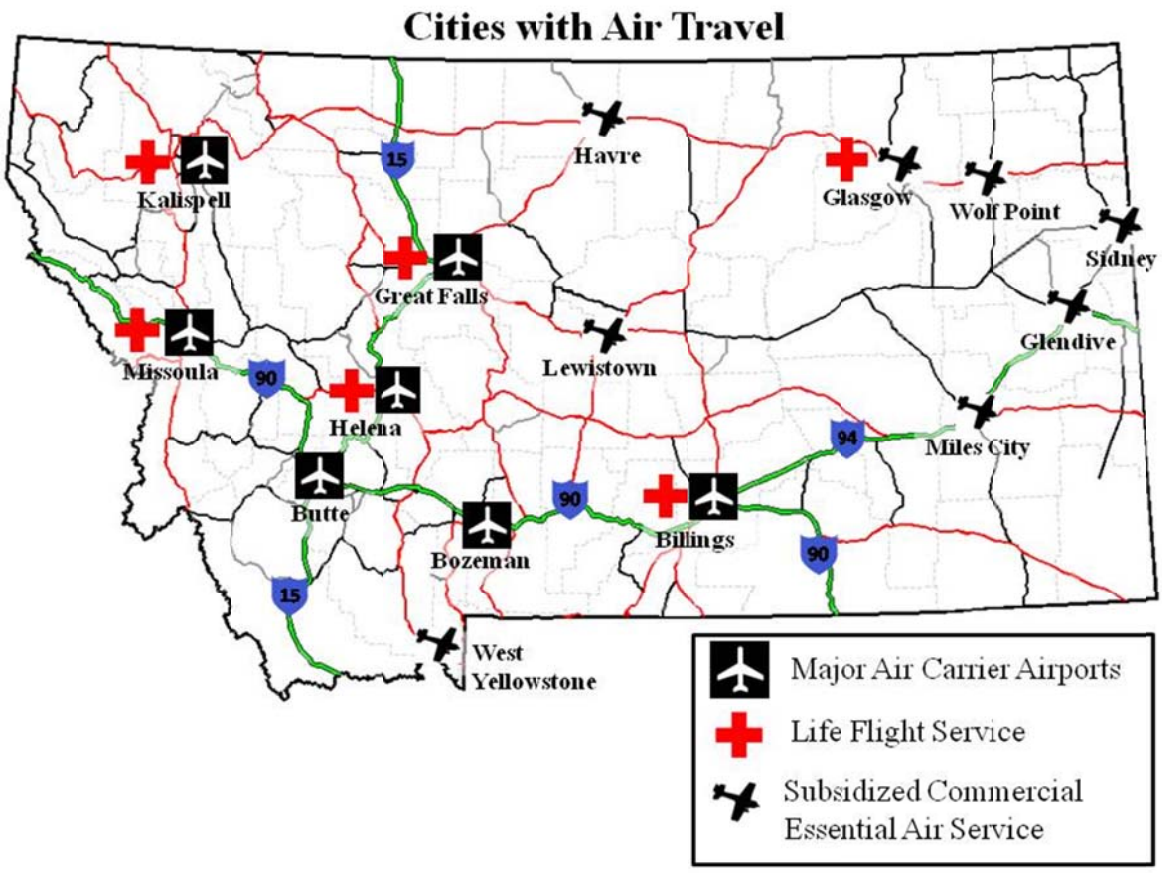

Figure 32: Air Travel (Data Source: USDOT Office of Aviation Analysis, 2010)

3.4. Summary

Montana has some unique characteristics that may have a bearing on its measures of livability. There is a wide range of community types, both in size and growth rate. There are three urbanized areas, the largest of which is Billings, with 105,845 people. Small urban areas range from Bozeman, with 39,282 people, down to Polson, with 5,231 people. Rural areas include unincorporated areas and small incorporated communities ranging in size from Hamilton, with 4,974, to Ismay, which has just 25 residents. Over half the state's population lives in rural areas.

The range of community types can also be seen from a perspective of population density. Twenty-three of the 56 counties in Montana have two or fewer people per square mile. When looking at the census block level, 82 percent of the land area has a population density of less than one person per square mile, while 62 percent of Montana residents live in population densities of 800 or more people per square mile.

From 2000 to 2009, 36 of Montana's 56 counties reported negative growth. At the extremes of population change, Treasure County lost 28.9 percent of its population while Gallatin County grew by 33.2 percent. Montana's population is aging. Projections indicate that by 2030 around 25.8 percent of Montanans will be over 65; this will be the third highest proportion of elderly residents of any state in the nation.

Some areas have limited access to health care. Montana has nine counties with no working physicians. Five of these nine counties have no public transportation and six of these counties have no hospitals.

Roads in Montana are in good condition compared to surrounding states. About 64.5 percent of the state's roads are categorized by the FHWA reporting requirements as being in good or very good condition. Only 6.6 percent of the state's roads are deemed in mediocre or poor condition, which is better than surrounding states, where the range is from 8.3 percent for Wyoming to 34.8 percent for Idaho (the national average is 16.9 percent).

When comparing Montana and the four neighboring states for freight shipments originating from the state, Montana ranks fifth, third and second in dollar value, tons and ton-miles, respectively.

Typical of rural states, Montanans tend to drive more than the national average as evidenced by higher reported VMT (11,176 per year vs. 9,779 nationally), transportation expenses ($843 per year vs. $718 nationally), and transportation petroleum energy used (126 million BTUs per year vs. 94 million BTUs nationally).

Specific to work trips, Montanans have a shorter (in time) commute, with an average of 17.9 minutes, compared to the national average of 25.5 minutes. Also, Montana has a lower percentage of people who drive to work alone (72.8 percent) than surrounding states or the national average (75.5 percent). This could be due to higher proportions of Montanans who walk to work (5.5 percent) and work at home (6.5 percent) than the national average (2.8 percent walking and 4.1 percent working at home). The shorter work travel times but higher VMT, transportation expenses and energy use could be the result of lower congestion resulting in longer distances travelled to work at faster speeds and/or less work travel combined with more non-work travel.

Montana has the most transit systems per capita (108) of all surrounding states and more than the national average (60). Yet Montana (1.1 percent) and the surrounding states all have a smaller percentage of commuters who use public transportation than the national average (5.0 percent). Montana has 34 cities/towns with intercity bus service. The total population of the cities/towns served by intercity buses is 436,799, which is about 45 percent of the population. No form of local public transportation exists in 12 counties in Montana.

4. TRANPLAN 21 COMMENTS

The Montana Department of Transportation developed a statewide transportation plan in 1995 called TranPlan 21. This plan is used to develop and implement policies with input from the public, stakeholders, and others. TranPlan 21 is updated regularly with input from the public and other stakeholders through telephone surveys on perceptions of the transportation system in Montana (Bureau of Business and Economic Research, 2009). The two most recent surveys, completed in 2009 and 2007, are summarized in this chapter. The sample size of the public survey was 1,011 in 2007 and 1,222 in 2009. Responses to the TranPlan 21 survey could provide insight into the perception of Montana citizens and stakeholders on the importance of livability.

Much of the survey is composed of ordinal scale questions (e.g., rate your satisfaction with Montana's transportation system from 1 to 10). Respondents were asked to prioritize ways to improve the transportation system, and were given 17 possible actions to choose from. Among the choices were actions to improve alternative modes of transportation, which are closely tied to the national definition of livability. "Supporting efforts to preserve existing passenger rail service" received the highest average score in 2009 and the second highest in 2007. This action and other alternative transportation mode choices are ranked in Table 4.

Table 4: TranPlan 21 Responses to Possible Improvements, Alternative Modes

	Public Rank		Stakeholder Rank	
Possible Action	**2007**	**2009**	**2007**	**2009**
Support efforts to preserve existing passenger rail service	2nd	1st	5th	1st
Promote use of local transit systems	6th	7th	7th	3rd
Ensure adequate pedestrian facilities	9th	8th	9th	9th
Increase scheduled airline service	10th	9th	8th	7th
Ensure adequate bicycle facilities	15th	12th	16th	12th

The top five ranked possible improvements for 2009 are shown in Table 5. Aside from the previously mentioned top ranked improvement related to rail service, the following four improvements are related to safe, well maintained roads, which clearly affect the quality of life in Montana.

Table 5: TranPlan 21 Responses to Possible Improvements, Top Five

	Public Rank		Stakeholder Rank	
Possible Action	**2007**	**2009**	**2007**	**2009**
Support efforts to preserve existing passenger rail service	2nd	1st	5th	1st
Maintain road pavement condition	1st	2nd	1st	2nd
Inform public about transportation issues	3rd	3rd	6th	6th
Improve condition of other roads (not interstate/highway)	5th	4th	4th	4th
Improve transportation safety	4th	5th	3rd	5th

The survey did not include questions specific to livability such as asking about how transportation affects affordable housing and community values. The survey did provide

opportunity for comments. The following open-ended question was asked on both the public and stakeholder surveys:

- Are there any other transportation-related issues you think need to be addressed by the Montana Department of Transportation?

Another question allowing an open-ended response was only asked on the public survey. This question was:

- Do you have any other suggestions for ways MDT can improve the function of Montana's roadways?

The comments provided for these questions in 2007 and 2009 were reviewed and categorized by type in order to identify potential livability needs. The following is a summary of the types of comments received.

Public responses to transportation-related issues are summarized in Table 6. These are ordered by the most common response in 2009. Caution should be used in considering the order since some categories could be combined (e.g., "safety and road design" and "wildlife vehicle collisions"), which would affect their ranking. The most common themes seen in the comments were:

- improve alternative modes such as rail, bus and air travel, and bike;
- maintain or improve existing road condition by creating smoother surfaces and removing potholes;
- improve roadways through additional lanes, wider roads (increased lane widths and shoulder widths), bridge repairs, and more rest area access; and
- improve safety.

Table 6: TranPlan 21 Public Responses to Other Transportation-Related Issues

Comment Type	2007	2009
Rail Service (freight and passenger)	12.8%	20.8%
Maintain/Improve Roadway Condition	10.7%	14.0%
Bus Service (local and intercity)	7.5%	6.3%
Need for Additional Lane(s)	5.3%	6.0%
Air Service	5.1%	5.7%
Increased Snowplowing and Sanding	3.2%	4.8%
Bike Paths	2.9%	3.9%
Public Transportation (not specified as bus or rail)	1.6%	3.6%
Need for Signage, Signals, and Lane Marking	5.1%	3.3%
Widen Road	2.9%	3.3%
Cell Phone Hazard	0.5%	3.0%
Elderly & Disabled Transportation Access	2.4%	2.4%
More Rest Area Access	4.5%	2.1%
More Law Enforcement	3.2%	2.1%
Reduce Speed Limit	3.7%	1.8%
Safety of Road Design	2.4%	1.8%
Pedestrian Access	2.7%	1.5%
Wildlife Vehicle Collisions	1.3%	1.5%
Improve Planning	1.3%	1.5%
Traffic Congestion	1.1%	1.5%
Construction Timeliness	1.3%	1.2%
Bridge Repairs and Maintenance	1.1%	1.2%
Report Road Conditions Online	--	0.9%
Winter De-Icer Complaints	2.4%	0.6%
Garbage on Roadside	1.6%	0.6%
Alternative Energy Use	1.3%	0.6%
Construction Zone Safety	0.8%	0.6%
Taxi Service	0.8%	0.6%
Road to Bypass Downtowns	0.5%	0.6%
Emergency Call Box	--	0.6%
Carpool/Vanpool	--	0.6%
Fuel Price Too High	--	0.6%
Drunk Driving Hazard	2.1%	--
Educating Drivers	1.9%	--
Improve Land Use Coordination	1.1%	--
More Lighting	0.5%	--
Weed Control	0.5%	--
Improve Bus Stations	0.5%	--
Motorcycle Awareness	0.5%	--
All Other Comments with Frequency of 1	2.4%	0.9%
Total Responses	314	292

The stakeholder surveys conducted in 2007 and 2009 had the same open-ended question as the public surveys relating to other transportation-related issues. The types of comments were similar to the public survey and are summarized in Table 7.

Table 7: TranPlan 21 Stakeholder Responses to Other Transportation-Related Issues

Comment Type	2007	2009
Widen Road	17.3	14.5
Bike Paths	19.7	14.0
Maintain/Improve Roadway Condition	16.5	13.5
Need for Additional Lane(s)	19.7	10.9
Need for Signage, Signals, and Lane Marking	10.2	9.8
More Law Enforcement	5.5	4.7
Increased Snowplowing and Sanding	4.7	4.1
Wildlife Vehicle Collisions	5.5	3.6
More Rest Area Access	3.1	2.6
Bus Service (local and intercity)	2.4	2.1
Public Transportation (not specified as bus or rail)	2.4	2.1
Rail Service (freight and passenger)	4.7	1.6
Improve Planning	--	1.6
Bridge Repairs and Maintenance	1.6	1.6
Winter De-Icer Complaints	1.6	1.6
Reduce Speed Limit	5.5	1.0
Safety of Road Design	2.4	1.0
Pedestrian Access	1.6	1.0
Construction Timeliness	3.1	1.0
Educating Drivers	1.6	1.0
Don't Allow Bikes on Roadway	3.9	--
More Rumble Strips	3.1	--
More Lighting	2.4	--
Drunk Driving Hazard	1.6	--
Traffic Congestion	1.6	--
All Other Comments with Frequency of 1	11.8	6.7
Total Responses	282	102

The second open-ended question on the public survey relating to ways to improve roadways received comment types shown in Table 8.

Table 8: TranPlan 21 Public Responses to Suggestions to Improve Roadways

Comment Type	2007	2009
Bike Paths	9.3	14.4
Need for Additional Lane(s)	14.0	12.4
Widen Road	6.0	10.3
Maintain/Improve Roadway Condition	19.3	8.2
Need for Signage, Signals, and Lane Marking	2.0	7.2
Wildlife Vehicle Collisions	5.3	6.2
Use Roundabouts	--	6.2
Public Transportation (not specified as bus or rail)	12.0	5.2
Don't Use Rumble Strips	--	4.1
Reduce Speed Limit	1.3	4.1
Rail Service (freight and passenger)	20.7	2.1
Pedestrian Access	4.0	2.1
More Snowplowing and Sanding	--	2.1
Bridge Repairs and Maintenance	2.7	2.1
More Lighting	--	2.1
Educating Drivers	2.0	2.1
Air Service	12.7	--
Elderly & Disabled Transportation Access	10.7	--
More Rest Area Access	6.0	--
Bus Service (local and intercity)	4.0	--
Safety of Road Design	2.7	--
Improve Planning	2.7	--
Traffic Congestion	2.7	--
Smart Growth	2.7	--
Carpool/Vanpool	2.7	--
Weed Control	2.0	--
More Law Enforcement	1.3	--
Beautification	1.3	--
All Other Comments with Frequency of 1	6.0	9.3
Total Responses	151	186

5. INTERVIEWS WITH OTHER STATES

This chapter covers interviews with selected DOT officials from other states conducted to determine what actions and ideas about livability are underway in those states. State officials from planning offices within the departments of transportation of Colorado, Idaho, North Dakota, Oklahoma, South Dakota and Wyoming responded to a survey developed by the research team. States that have not responded include Arizona, Utah, and Washington. Ten livability-related questions were asked covering livability definitions, rural vs. urban livability, actions and projects, and expectations for the future.

Livability Definition: None of the states responding to the survey have a formal definition of livability, but some are working on the task. Idaho, North Dakota, and South Dakota have made no attempts to define livability as it pertains to their DOTs. Colorado, Oklahoma, and Wyoming have all begun processes aimed at defining livability. At this point Oklahoma is generally following the FHWA definition.

Washington State did not respond to this survey, but as noted in Chapter 2 it defines livable communities as providing and promoting "civic engagement and sense of place though safe, sustainable choices for a variety of elements that include housing, transportation, education, cultural diversity and enrichment, and recreation" (WSDOT, 2010).

Livability—a New Concept or Just a New Label: When asked if they felt livability was a new and different concept to their DOTs or just a new label for many things their DOTs already do, Oklahoma and Idaho officials said it was a new and different concept. Colorado, North Dakota, South Dakota and Wyoming officials all said livability was just a new label given to tasks their state DOTs were already planning and performing (Table 9).

Table 9: How States Are Defining Livability

State	Formal Definition	New Concept	New Label
Colorado	In Progress		✓
Idaho		✓	
North Dakota			✓
Oklahoma	In Progress	✓	
South Dakota			✓
Wyoming	In Progress		✓

Documents Concerning Livability: Livability-specific documents have not been developed in the responding states. Colorado has a study currently underway on integrating land use and transportation planning. Several states indicated they have incorporated (or plan to incorporate) livability into various planning documents.

All states except North Dakota indicated livability will be incorporated, either explicitly or implicitly, in their next statewide transportation plan update. Livability was explicitly identified in Wyoming's 2010 Long Range Transportation Plan as an emerging issue among stakeholders it surveyed. North Dakota said it has taken no actions in regard to livability and transportation. Wyoming officials mentioned they continue to work with local communities to incorporate livability principles into local transportation plans.

Actions Concerning Livability: Colorado is improving transportation infrastructure by implementing transportation calming devices, real-time traveler information, and a "GreenLITES" pilot project concerned with sustainability of transportation project design. Oklahoma has improved transportation infrastructure through the "development of ports of entry" that employ technology-based commercial motor vehicle weight and credential screening techniques. Wyoming uses CSS to improve transportation infrastructure. Encouraging community development is happening in Colorado through participation in the "Sustainable Main Street Initiative," and in Wyoming by using "planning grants from Transit, Highway, and Safe Routes to School" for community development. Some states indicated they generally promote alternative transportation through their transit division and their bicycle/pedestrian coordinator. Colorado mentioned its "Climate Change Workshop" as a livability action. Wyoming mentioned the WYOLINK program, which is a "public safety communications system designed to coordinate and integrate communications between state, local, and federal public safety agencies."

Project Examples with Livability Connections: Examples of projects that may relate to improving livability were provided by Colorado, Oklahoma and Wyoming. Colorado cited its Sustainable Main Streets Initiative and the development of a sustainability committee by the Colorado Transportation and Environmental Resource Council (TERC). Oklahoma described the "Tulsa I-244 Arkansas River Multimodal Bridge Replacement Project," which will include facilities for passenger rail, commuter rail, and a bicycle/pedestrian path. Wyoming cited examples of projects from the city of Cheyenne, WYOLINK, and a program called "Building the Wyoming We Want."

State DOT Role: Respondents were asked to list the livability activities in which they would like to see their agency take the lead, participate, or not be involved. Many states either did not respond to this question or were noncommittal (i.e., will consider on a case-by-case basis). South Dakota indicated it should lead rural connectivity efforts. Wyoming stated it would participate in collaborative efforts, but it should not lead direct local land use planning efforts.

Transportation Needs and Relevance to Livability: When asked about the most important transportation needs, DOT officials responded similarly even though the question was open ended (i.e., there was not a list of answers to choose from). Needs cited included funding, safety, preservation of the transportation system, improved access and mobility, improving multimodal options and freight movement. States were asked to rank their top transportation needs according to their relevance to livability. States ranked all of these needs as either very important or somewhat important to livability (Table 10). This shows the difficulty of pinning down a definition of livability as all top transportation needs were perceived to be related to livability.

Table 10: Transportation Needs

Most Common Transportation Needs	Relevance to Livability (No. of Ratings)		
	Very Relevant	Somewhat Relevant	Not Relevant
Adequate Funding	4		
Preservation of the Transportation System	2	1	
Safety	4	1	
Access/Mobility/Connectivity	5		
Multimodal Transportation Options and/or Transit	3		

Rating Livability Issues: When given specific transportation topics to be rated based on importance to livability, states answered similarly. The two choices found to be uniformly important for both urban and rural areas were well-maintained roadways and local transit services. Table 11 shows the rankings.

Table 11: Importance of Transportation Choices

Transportation Choice	Urban Areas			Rural Areas		
	Very Important	Somewhat Important	Not Important	Very Important	Somewhat Important	Not Important
Well-maintained Roadways	4	1		4	1	
City/County Transit	4	1		3	2	
Air Services	3	2		1	4	
Essential Rural Air Services		2		3	2	
Biking	3	2		2	3	
Rail System/Amtrak	4		1	1	3	1
Intercity Bus	3	2		2	2	
Walking	3	2		1	3	1
Carpooling		4	1		3	2
Vanpooling		3	2		2	3
Rideshare Program		3	2		2	3
Water Transportation	1		4		1	4

Metrics to Measure Livability Progress: Metrics to determine how well livability is being addressed by the state DOTs were hard to find. The only state that claimed to have any form of metrics was Oklahoma, which cited its tracking of transit services via the National Transit Database and tracking of crashes and highway safety improvements by the Traffic Engineering Division and the Strategic Highway Safety Plan.

Expectations of Future Livability Legislation: When asked what expectations their DOTs have for the next federal transportation authorization bill, most states wanted funding and flexibility. Colorado stressed support for developing multimodal transportation options and desired an increase in transit funding. Oklahoma wanted federal legislation to allow states to "take the lead" in determining how best to address livability. Wyoming stressed flexibility was critical to ensuring connectivity of its rural communities. With only two MPOs, both with less than 100,000 in population, Wyoming wanted the flexibility to determine what livability was for those two "unique centers." Wyoming officials also said, "The bill needs to recognize that

Wyoming's definition of livability includes the desire for access to wide open spaces and recreational opportunities that can only be maintained by vehicle travel."

Other Livability Concerns: When given the opportunity to voice all other concerns with livability in rural areas, Colorado officials said livability was a difficult concept because the state is approximately 80 percent rural and 20 percent of its population lives in rural areas. North Dakota's concerns were: "Will the incorporation of livability into the transportation planning process result in another unfunded mandate? Will livability be defined allowing some degree of flexibility (New York vs. North Dakota—concern about one size fits all) in its application to transportation planning?" Wyoming also stressed the impossibility of a "one-size-fits-all" policy across or even within states.

From these responses it is clear some states have begun efforts to define what livability means to them; however no state has a formal definition and there are concerns over what it means for rural areas. Some states have begun incorporating livability ideas into their long-range transportation plans, but a clear way to do so seems elusive. Project examples with livability ideals are plentiful but calling them "livability projects" may not be warranted. Concerning the next transportation bill, all states expressed the concern that funding and flexibility with funding are crucial to livability progress. No metrics dealing solely with livability progress have been developed.

6. CONCLUSIONS

Through a review of literature, demographic data analysis, review of TranPlan21 survey information, and interviews with other states, this report provides supporting information for defining what livability, in relation to transportation, could mean for Montana. While this information may provide a framework for developing such a definition, it needs to be filled in through the public survey and other forthcoming tasks for this project.

According to national definitions, livability is a broad term with a wide range of potential implications for transportation. Themes present in the national livability discussion as it relates to transportation include (1) improving opportunities for use of modes such as biking, walking, and riding transit; (2) coordinating transportation planning with land-use planning; (3) incorporating context-sensitive processes when planning and designing transportation facilities (i.e., involve the public and other stakeholders, leverage funding, incorporate community values, and consider aesthetics); (4) considering environmental impacts, particularly fossil fuel use and greenhouse gases, in transportation system design; and (5) not sacrificing capacity and safety needs for the sake of improving livability.

There are numerous national and local efforts that incorporate the term livability, or contain elements related to livability as it is defined nationally. Clearly there is momentum behind this initiative within the transportation industry and in other sectors (e.g., housing and health).

There are no uniform metrics for measuring community livability. There is currently a research project underway to identify livability metrics for transit funded by the Oregon Department of Transportation (Appendix B). A similar research project will start soon following a recent request for proposal from the Federal Transit Agency to identify appropriate livability measures for public transit. The need for improving livability metrics was also a common theme at the recent Transportation Systems for Livable Communities Conference in Washington, DC.

From the state DOT interviews and Montana demographic data, it is clear that a livability template, “one-size-fits-all” approach is not appropriate. Montana differs from the nation as a whole in several ways. Montana has a lower average population density (although there is a wide range of population densities and community types within the state), an aging population, and many communities with limited access to health care. Travel habits in Montana also differ from those in other states. While the average Montanan’s total auto travel is higher, work trips are shorter and fewer Montanans drive alone to work compared to the national average.

The information in this report provides a basic understanding of the national definition of livability and what transportation issues may be important to Montana. This information provides a foundation to be built upon in the remainder of the research project, which will include a survey of the public, stakeholder input, and internal meetings with MDT staff.

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8. APPENDIX A: DEMOGRAPHIC DATA

Select raw data summarized in Chapter 3 is provided in this appendix. Montana's incorporated communities are listed in Table 12 and Table 13. Communities with city transit are listed in Table 14

Table 12: Urbanized Areas (2009 Estimates)

No.	City	Population
1	Billings	105,845
2	Missoula	68,876
3	Great Falls	59,366

Table 13: Urban Areas (2009 Estimates)

No.	City	Population
1	Bozeman city	39,282
2	Butte-Silver Bow county	32,268
3	Helena city	29,939
4	Kalispell city	21,640
5	Havre city	9,656
6	Anaconda-Deer Lodge county	8,792
7	Whitefish city	8,400
8	Belgrade city	8,192
9	Miles City city	8,123
10	Livingston city	7,380
11	Laurel city	6,750
12	Lewistown city	5,933
13	Columbia Falls city	5,361
14	Polson city	5,231

Source: U.S. Census Bureau, Population Estimates - Released June 10. 2010

Table 14: City/Town with Intercity Bus Services

No.	City/Town	2009 Population Estimate
1	Billings	105,845
2	Missoula	68,876
3	Great Falls	59,366
4	Bozeman	39,282
5	Butte-Silver Bow	32,268
6	Helena	29,939
7	Kalispell	21,640
8	Whitefish	8,400
9	Belgrade	8,192
10	Miles City	8,123
11	Livingston	7,380
12	Laurel	6,750
13	Polson	5,231
14	Glendive	4,628
15	Dillon	4,226
16	Hardin	3,532
17	Shelby	3,523
18	Deer Lodge	3,517
19	Conrad	2,488
20	Columbus	2,039
21	Ronan	1,999
22	Three Forks	1,970
23	Forsyth	1,865
24	Pablo	1,781
25	Big Timber	1,740
26	Manhattan	1,677
27	West Yellowstone	1,502
28	Boulder	1,475
29	Lakeside	1,415
30	Whitehall	1,191
31	St. Ignatius	807
32	Ulm	798
33	Wolf Creek	794
34	Cascade	770
35	Bridger	736
36	Terry	567
37	Arlee	501
38	Wibaux	480
39	Jefferson City	409
40	Craig	338
41	Drummond	322
42	Evaro	300
43	Basin	233
44	Hysham	233
45	Lima	231
46	St. Regis	220
47	Melrose	175
48	Ravalli	67
49	Warm Springs	25
	Total Population w/service	449,866

Source: U.S. Census Bureau, Population Division (SUB-EST2009-04-30); Release Date: June 2010

9. APPENDIX B: TRB RESEARCH IN PROGRESS DATABASE SEARCH: LIVABILITY

This section lists current research projects related to transportation and livability.

1. **Integrated Multimodal Transportation, Air Quality, and Livability Corridor Study: Measuring, Understanding, and Modeling the Interactions Between Traffic, Transit, Pedestrians, Traffic Signals, Emission**
   Start date: 2010/10/1
   End date: 2011/9/30
   Source Organization: Oregon Transportation Research and Education Consortium

2. **Linking Traffic Safety to Emerging Livability Initiatives**
   Start date: 2010/9/1
   End date: 2011/8/31
   Source Organization: Texas A&M University, College Station

3. **Livability Performance Metrics for Transit**
   Start date: 2010/10/1
   End date: 2011/9/30
   Source Organization: Oregon Transportation Research and Education Consortium

4. **Livability, Mobility and Seasonality**
   Start date: 2010/7/1
   End date: 2011/6/30
   Source Organization: University of Vermont, Burlington

5. **Mobility and Livability: Season and Built Environmental Impacts: Bicycle Travel**
   Start date: 2010/7/1
   End date: 2011/6/30
   Source Organization: University of Vermont, Burlington

6. **Marginal Cost Pricing and Subsidy of Transit in Small Urbanized Areas**
   Start date: 2010/7/1
   End date: 2011/6/30
   Source Organization: North Dakota State University, Fargo

7. **Transit Ridership and the Built Environment**
   Start date: 2010/7/1
   End date: 2011/6/30
   Source Organization: North Dakota State University, Fargo

8. **Increasing Bicycling for Transportation: The Role of Cyclist Type and Infrastructure**
   Start date: 2010/10/1
   End date: 2011/9/30
   Source Organization: Oregon Transportation Research and Education Consortium

9. **Bicycle and Pedestrian Engineering Design Curriculum Expansion**

Start date: 2010/10/1
End date: 2011/9/30
Source Organization: Oregon Transportation Research and Education Consortium

10. **Transit Agency Strategies that Encourage Mixed Uses Around Stations**
    Start date: 2010/9/1
    End date: 2011/8/31
    Source Organization: Texas A&M University, College Station

11. **Evaluating the Effect of Street Network Connectivity on First/Last Mile Transit Performance**
    Start date: 2010/9/1
    End date: 2011/8/31
    Source Organization: Texas A&M University, College Station

12. **Evaluation of Equity for Vehicle Miles Traveled Fee Scenarios in Texas**
    Start date: 2010/9/1
    End date: 2011/8/31
    Source Organization: Texas A&M University, College Station

13. **Economic Benefits of Cycling**
    Start date: 2010/10/1
    End date: 2011/9/30
    Source Organization: Oregon Transportation Research and Education Consortium

14. **Sustainable Cities Initiative (SCI)**
    Start date: 2010/10/1
    End date: 2011/9/30
    Source Organization: Oregon Transportation Research and Education Consortium

15. **Effect of Low-Impact Sustainable Transportation Design as a Strategy for Alleviating Stormwater Runoff and Reducing GHG Emissions**
    Start date: 2010/8/22
    End date: 2011/8/21
    Source Organization: University of Connecticut, Storrs

16. **Transportation System Sustainability and Adaptation Using Physarum Polycephalum**
    Start date: 2010/8/22
    End date: 2011/8/21
    Source Organization: University of Connecticut, Storrs

17. **Evaluating Emissions Reductions and Tradeoffs in Urban Pickup and Delivery Systems**
    Start date: 2009/7/1
    End date: 2010/12/31
    Source Organization: University of Washington, Seattle

18. **Transportation and Environmental Justice Best Practices Guidebook**
    Start date: 2009/9/22
    End date: 2010/3/21
    Source Organization: Federal Highway Administration

19. **Healthy Communities and Urban Design: A Multi-Disciplinary National Analysis of Travel Behavior, Residential Preference, and Urban Design**
    Start date: 2008/10/1
    End date: 2009/9/30
    Source Organization: Oregon Transportation Research and Education Consortium

20. **Freeway Deconstruction and Urban Renewal: Land Market and Transportation Impacts**
    Start date: 2005/8/1
    End date: 2008/7/31
    Source Organization: University of California, Berkeley

21. **A New Process for Determining TCRP New Paradigms Research Topics**
    Start date: 2008/3/31
    End date: NA
    Source Organization: Transportation Research Board

22. **Long Term Evaluation of Individualized Marketing Programs for Travel Demand Management**
    Start date: 2007/10/1
    End date: 2008/9/30
    Source Organization: Oregon Transportation Research and Education Consortium

23. **Historic Preservation of Intermodal Transit Centers: Integration Versus Isolation**
    Start date: 2001/6
    End date: 2002/12
    Source Organization: Federal Transit Administration

24. **New York City Harlem 110th Street Station Security Enhancements**
    Start date: 1995/5
    Source Organization: Federal Transit Administration
    Notes: Livable Communities Initiative Demonstration Project