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Developing a Livability Program for Indian Reservations: A Methodology and Case Study

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ABSTRACT

Livability is a fairly new concept well understood in urban areas, but less so in rural areas and Indian reservations. A methodology was developed to identify the important livability issues for Tribal communities and consists of data collection, analysis, and development of the program. The methodology was implemented on the Wind River Indian Reservation (WRIR). Data was collected from a needs determination survey known as the WINDS III, and also from stakeholder and resident surveys. Common livability themes from the different sources of information were discovered. A definition was formulated, which focuses on a community having well-maintained roads with safe pedestrian/bicycle facilities that benefit people by providing access to jobs, health care, and recreational activities and by preserving the culture and sovereignty.

The final step in the methodology was to develop a livability program that includes the existing programs and projects. It also will include other programs for future consideration, which address identified issues. Coordination and collaboration is important to the success of a practical livability program and includes engaging the community for feedback and review.

This methodology can be implemented on other Indian reservations across the United States and will require coordination with other states, tribal governments, Local Technical Assistance Program (LTAP), and Tribal Technical Assistance Program (TTAP) centers. The commonalities from a broader implementation will provide comparisons and analysis of important issues of livability on Indian reservations, which will help guide tribes to make decisions and better allocate resources for transportation, economic development, and improved quality of life.

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LIST OF ABBREVIATIONS

AI/AN	American Indians Alaskan Natives
BIA	Bureau of Indian Affairs
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
IRR	Indian Reservation Roads
LTAP	Local Technical Assistance Program
NCHRP	National Cooperative Highway Research Program
TTAP	Tribal Technical Assistance Program
USDOT	United States Department of Transportation
WRIR	Wind River Indian Reservation
WYDOT	Wyoming Department of Transportation
WINDS III	Needs Determination Survey

EXECUTIVE SUMMARY

Livability is a fairly new concept. It is understood in urban areas, but not as much in rural areas, and even is less so on Indian reservations. In this report, a methodology was developed to identify important livability issues for Tribal communities. This methodology consisted of data collection, analysis and development of the program. The methodology was implemented on the Wind River Indian Reservation (WRIR). Data was collected from the Needs Determination survey (WINDS III), stakeholder, and resident surveys, and common livability themes from different sources of information were discovered. A definition was formulated, and focused on a community having well-maintained roads with safe pedestrian/bicycle facilities that benefits people by providing access to jobs, health care, and recreational activities, and by preserving the culture and sovereignty.

The final step in the methodology was to develop a livability program that included existing programs and projects, and programs for future consideration that will address identified issues. Coordination and collaboration with leaders and the community is important to the success of a practical livability program and includes engaging the community for their feedback and review.

This methodology can be implemented on other Indian reservations across the United States and will require coordination among states, tribal governments, Local Technical Assistance Program (LTAP) and Tribal Technical Assistance Program (TTAP) centers. Commonalities from a broader implementation will provide comparisons and analysis of important issues of livability on Indian reservations, which will then help guide tribes to make decisions and better allocate resources for transportation, economic development, and improved quality of life.

1. INTRODUCTION

1.1 Background

Livable communities are the by-product of a coordinated and participatory transportation and community planning process (USDOT, 1999). Though the concept of livability doesn't have a long history, it has recently gained recognition. Livability mainly focuses on improving community quality of life with the support of sustainable goals. To make a community livable, efforts should replicate the sustainability of quality of life, economic growth and environmental preservation.

America's transportation industry comprises the world's largest highway networks, connecting people, businesses, and communities. Throughout history, the development of transportation systems has become a backbone for the development of communities and the country (Transportation Authority of Marin County, n.d.). The spectrum of transportation has changed with time and as technology becomes more advanced.

Historically, walking was the main mode of transportation. This continued until development of the rail and automobiles in late 19th century. Industrialization changed our culture. Cities started transforming as factories were built and this drew more people to live and work there. Mass transportation began with horse drawn coaches, evolved to street cars and trolleys, and later developed to rail and automobiles.

The elements of transportation are an integral part of livability. Accommodation of various modes of transportation, improved access, relieving congestion and preserving the natural environment are some of the elements of transportation projects that must be considered as part of a successful livability program. Transportation plays a vital role in defining livability, acting as a catalyst for the community beyond the movement of vehicles (Black, 1996). It also includes the comfort and safety of pedestrians and bicyclists, as well as accommodating alternative mobility options to meet the varying needs of individuals within the community. Transportation includes requirements for an attractive, inviting, more human-scale street environment that reflects, preserves, and enhances a community's unique personality, provides opportunities for people to meet, and is supportive of local business.

1.2 Problem Statement

Livability is the integration of social, environmental, and economic systems, which emphasize improving the quality of life in a community. It focuses on elements such as transportation, community (culture), and quality of life. No distinct definition of livability exists, as it varies from one community to another whether it is urban, rural or tribal. The concept of livability is well-defined for urban areas and more vaguely defined for rural areas. It is understood even less for Indian reservations. Rural, as well as tribal communities are facing many challenges. The concept of livability becomes much broader when it is applied to these communities. Tribal communities also have their unique challenges and cultural differences that must be considered when trying to define livability for their people. The priorities of a community will help in defining livability of that community.

This research is part of an earlier study, conducted by Shinstine, on roadway safety on Indian reservations. The author explores the concept of livability and the importance of highway safety regarding quality of life for Indian tribes (Shinstine D. , 2014).

The purpose of this study is to develop a methodology for Indian reservation programs and priorities, which will provide support in defining livability in the context of transportation, economic development,

and quality of life. The priorities obtained, if incorporated on the current projects and programs, may help develop broader applications of livability for all tribal communities across the country.

1.3   Research Objectives

The objectives of the study are as follows:
- Identify livability needs of rural and tribal communities and how they relate to transportation.
- Identify programs that have been successfully implemented in rural and tribal communities.
- Determine what other states are doing to address livability in rural areas to understand the community-level definitions of livability. The definitions may vary according to diversity of communities, from urban to rural to extremely rural.
- Develop a methodology for Indian reservations that can be used to implement livability principles and programs with sustainable strategies.
- Implement methodology on the Wind River Indian Reservation (WRIR).

1.4   Report Organization

This report consists of six sections, with literature review in Section 2. It focuses on the livability issues on rural and tribal lands, which possess similar challenges such as housing, transportation, environmental concerns, cultural assets, etc. Section 3 discusses demographics and statistics about different issues on Indian reservations related to livability such as population, population density, and availability of transportation choices, condition of roads, pedestrian and their safety. Section 4 presents the methodology to implement livability programs on Indian reservations. Section 5 highlights a case study on the WRIR, which will describe what livability really means to the tribal community. This would be beneficial for other tribal communities while developing a program and priorities for WRIR. Finally, Section 6 provides conclusions and recommendations of this study with a proposed definition and concept of livability for Indian reservations and a methodology to develop programs and priorities related to livability.

2. LITERATURE REVIEW

2.1 Livability

The primary elements of livability include transportation, quality of life, and economic development (Vuchic, 2005). Different communities, whether they are urban, rural or tribal, have begun focusing interest on making their locality livable. Many livability programs are designed for urban communities, however, few are for rural areas and even fewer are related to tribal communities. Communities have their own characteristics. People also possess different interests. The value of livability is increasing as people's interest in livability has emerged. They recognize the unlivable aspects of places where they live, work, and spend recreational time. People express their strongest concerns about livability of their communities when referring to problems encountered on a daily basis.

2.1.1 Definition

Different definitions and concepts exist regarding livability. Definitions vary from one community to another, whether it is urban, rural, or tribal. The idea of livability also is dependent on federal, state, and regional governments. However, most common definitions generally include transportation, community, and quality of life. Concern about livability is not confined to neighborhoods in large inner cities. It exists in suburbs, small towns, and even in the smallest villages.

Former U.S. DOT Secretary Ray LaHood defines livability as, "*Livability means being able to take your kids to school, go to work, see a doctor, drop by the grocery or post office, go out to dinner and a movie, and play with your kids at the park-all without having to get in your car.*" (La Hood, 2009)

Livability in transportation is about using the quality, location, and type of transportation facilities and services available to help achieve broader community goals. These goals include access to employment options, community services, affordable housing, quality schools, and safe streets.

Federal Highway Administrator Victor Mendez defined livability as, "*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…*" (Mendez, 2010)

Livability also is related to environmental issues such as air quality, water quality, and conservation of bio-diversity. In addition, it focuses on housing accessibility and affordability, cultural vitality, and adequacy of recreational resources, which includes open space and using alternate modes of transportation.

The Washington Department of Transportation (WSDOT) has a definition for livability that states, "*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 recreatio*n" (WSDOT, 2010).

2.1.2 Interagency Partnership for Sustainable Communities

In the past, agencies and organizations were working in their own context with their concept and definitions of livability. The Environment Protection agency (EPA) was working to help communities expand economic opportunity, protect public health and the environment (EPA, 2012). The United States Department of Transportation (USDOT) was trying to incorporate transportation facilities and

infrastructure to projects and programs to ensure a fast, safe, efficient, accessible and convenient transportation system (USDOT, 2012). The United States Department of Housing and Urban Development (HUD) mission is to create strong, sustainable, inclusive communities, and quality affordable homes for all. The common ground among these agencies was to create a livable community with sustainable programs, but they were working independently without regard to the others' efforts.

These three agencies USDOT, EPA and HUD finally, in June 2009, joined efforts to form the Interagency Partnership for Sustainable Communities. Its mission was to help communities across the country improve access to affordable housing, increase transportation options, and lower transportation costs while protecting the environment. The partnership ultimately addressed livability in a broad sense. The agencies developed six livability principles as the foundation of their partnership (HUD, USDOT, EPA, 2009):

- Provide more transportation choices.
- Promote equitable, affordable housing.
- Enhance economic competitiveness.
- Support existing communities.
- Coordinate and leverage Federal policies and investment.
- Value communities and neighborhoods.

Many communities have adopted livability goals defined by these six principles. This has helped agencies and communities find common ground when working together to plan and build their communities. Communities have different perspectives and priorities when formulating programs to pursue livability (Hass & Fabish, 2013). The agencies tried to integrate the livability principles into the planning and design of community-based programs and projects. By doing this, efficiency of a community can be maximized. Planning and development of projects reflects the desires of communities, and takes into account the community and natural environment.

2.2   Sustainability

Sustainability is a condition in which economic, social, and environmental factors are optimized. It takes into account indirect and long-term impacts (Ewing, 1995). The 1987 United Nation's Brundtland World Commission on Environment and Development discussed sustainability: "*concerned about the accelerating deterioration of the human environment and natural resources and the consequences of that deterioration for economic and social development*" (Young, 2012.). Sustainability makes it possible to achieve economic growth and industrialization without damage to the environment.

Livability and sustainability are distinct concepts, although there is substantial overlap and they may be occasionally used interchangeably (Litman, 2011). Livability refers to the subset of sustainability impacts that directly affects people in a community and includes: local economic development, local environmental quality, equity, affordability, public safety and health, and community cohesion. Livability is considered sustainable if it satisfies the needs of the present without reducing the capacity to satisfy the needs of future generations.

Livability considers both social and physical elements for wellbeing and progress of the community, and of the individual persons as members of the community. At the community level, livability is concerned with environmental and social quality as perceived by residents, employees, customers, and visitors (Faiz, 2012). This includes safety and health, local environmental conditions, the quality of social interactions, opportunities for recreation and entertainment, aesthetics, and existence of unique cultural and environmental resources. Livability is achievable if projects and programs are sustainable.

2.3 Urban Livability

There are different applications of livability. Most livability literature and programs are designed for urban settings. To achieve livability goals, different livability programs such as smart growth, context sensitive solution, complete streets, new urbanism, and transit oriented development, emerged as tools to implement livability and develop sustainable communities. Increasing transportation choices, creating housing opportunities and choices, supporting existing communities, and valuing communities and neighborhoods have different applications depending upon type of community.

Population growth, increased traffic, reduced housing affordability, income disparity, and environmental pollution are issues prevalent in urban areas (VisionPDX, 2006). Many of the most prominent examples of livability projects are in urban and suburban areas. Urban communities have enjoyed successful implementation of livability programs such as smart growth, transit oriented development, complete streets, and new urbanism. The following are a few examples of successful implementation of urban livability initiatives:

- Oregon's Emerald Express (EmX) Green Line Bus Rapid Transit (BRT) is constructed along a four-mile stretch between two urban transportation hubs—Eugene, and Springfield (FHWA, 2010). It is designed to provide more ridership, convenient neighborhood connections, reliable service, and higher person-carrying capacity for the Franklin Corridor. This service resulted in reduced travel times and improved levels of service reliability. It reduced average travel times from 16 minutes to 15 minutes. It also enhanced other non-transit-specific infrastructure, such as bicycle improvements, new sidewalks, etc.
- The San Joaquin Valley Regional Policy Council (2011), representing all eight counties of the Valley's Councils of Government and one Regional Transportation Planning Agency (Valley COGS), adopted 12 Smart Growth principles in their San Joaquin Blueprint Roadmap, which serves as a decision-making document to increase community livability (Small Valley Places, 2011).
- The City of Seattle, WA, (2011) used their Complete Streets program to make explicit concessions for non-motorists when building infrastructure (USDOT, FHWA, 2010). The complete streets program provided improved crossings, good lighting and sidewalks for pedestrians; bicycle lanes; adequate lane width for freight and transit operation; convenient transit stops for transit riders; and street trees, landscaping and other features, such as improved lighting, that make streets good for community life.

2.3 Rural Livability

Rural America makes up about 19.3% of the country's population and covers 75% of the land area (US Census Bureau, 2010). It includes towns and small cities, as well as working lands, farms, prairies, forests, and rangelands. The livability issues in rural areas are different than those in urban settings. Livability in rural areas focuses on the towns, villages, working lands, and natural resources that surround and connect them. As in urban communities, rural communities see livability in relation to transportation—using the quality, location, and types of transportation facilities and services available to help achieve broader community goals (USDOT, FHWA, 2010). The availability of facilities, such as access to good transportation services, availability of job opportunities, safer and efficient highways, are more unique to rural communities. These types of issues should be considered in making the community livable.

Rural communities face different problems regarding mobility and accessibility, and also often lack transportation choices (International City/County Management Association, 2010). A livable rural community manages change while maintaining the essence of its natural and cultural identity. It adapts to

constantly changing physical, economic, and social conditions in creative ways that preserve fundamental qualities while capitalizing on new ideas, people, and resources. The rural livability concept is slowly increasing in suburbs, small towns, and even in the smallest village or the most rural areas where these challenges are encountered on a daily basis. Factors affecting rural livability include geographical challenges, accessibility and mobility, safety, and availability of funding and technical resources.

2.3.1 Geographical Challenges

Livability is largely affected by physical location and condition of public facilities. Transportation facilities, such as transit and the roadway network, can have obstructed access to education, job opportunities, health care, and recreational activities. Due to geographical challenges, accessibility and mobility in rural areas is difficult. People have to travel long distances from their home to the nearest central business district in search of daily basic needs and for other services, such as education and healthcare facilities. People rely heavily on personal vehicles, which is another problem for elderly, disabled, or financially disadvantaged.

2.3.2 Accessibility and Mobility

Mobility refers to the movement of people or goods. Accessibility (or just access) refers to the ability to reach desired goods, services, activities, and destinations (Victoria Transport Policy Institute, 2003). Accessibility and mobility are directly related to the availability of transportation facilities, which includes multi-modal transportation, public transit, and infrastructure, such as road conditions, road side facilities, and safety. Low income, mobility of disabled individuals, and transportation service deficiencies are transportation problems for rural residents (Rucker, 1994). Vehicle ownership is comparatively lower than that of urban residents.

The availability of public transportation contributes a key role in accessibility of rural residents (NADO Research Foundation). Public transportation is an integral component of livability. Public transit is easy to use and provides flexible transportation options. This option helps older adults access local grocery and retail stores, and health care services; establish and maintain social and family contacts, and preserve independence and well-being. Transit provides low-cost, environmentally sustainable access and mobility to all community members. Transportation contributes to economic growth in rural areas and has the potential to create jobs, stimulate development and redevelopment, increase business revenues and profits, reduce personal transportation costs, increase value and income for property owners, and benefit local and state tax revenues.

2.3.3 Safety

Safety is a major component of livability in rural areas. Because destinations in rural areas are spread over large areas, residents of rural communities must travel long distances to access everyday activities (FHWA, 2005; FHWA, 2005). In 2007, 57% of traffic fatalities occurred on rural roads with only 23% of the nation's population living in rural areas (Chandler & Anderson, 2010). The quality and safety of rural transportation routes from country roads and high speed highways to walking trails and bike paths are essential to the basic health and prosperity of rural residents and businesses. So, livable programs and projects must focus on reducing vehicular crashes due to high-speed moving traffic, uncontrolled access from side roads, truck traffic, slower moving vehicles sharing the roadway, or adding roadway shoulders to accommodate pedestrians and bicyclists. Also, requiring people to drive long distances frequently affects their quality of life in time and fuel expense and is an adverse impact on the environment.

2.3.4 Availability of Funding and Technical Resources

Rural communities often lack the capacity or financial resources to address livability issues (US Department of Agriculture, 2011). Many rural communities have difficulty competing successfully for regular transit grants through traditional funding sources. The challenges they face can be even more difficult when rural communities seek grants for livability-related objectives. Communities select the most appropriate approaches for their context and adapt them to respond to local needs and interests. Less than 10% of federal public transportation funding goes to rural areas (Rooney & Suter, 2012). With this challenge, rural communities cannot support, embrace, and improve their livability.

2.4 Livability Initiatives in Rural Settings

To enhance livability in small urban and rural communities, the Small Urban and Rural Livability Center (SURLC), Western Transportation Institute (WTI) and the Upper Great Plains Transportation Institute (UGPTI) have developed rural livability principles (Western Transportation Institute (WTI), 2010). Following are the rural livability principles developed by SURLC (as defined by the U.S. Department of Transportation):

- Provide more transportation choices to decrease household transportation costs and reduce our dependence on oil, improve air quality, and promote public health.
- Expand location- and energy-efficient housing choices for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined costs of housing and transportation.
- Improve the economic competitiveness of neighborhoods by giving people reliable access to employment centers, educational opportunities, services and other basic needs.
- Target Federal funding toward existing communities through transit-oriented and land recycling, to revitalize communities, reduce public work costs, and safeguard rural landscapes.
- Align Federal policies and funding to remove barriers to collaboration, leverage funding, and increase the effectiveness of programs to plan for future growth.
- Enhance the unique characteristics of all communities by investing in healthy, safe and walkable neighborhoods, whether rural, urban or suburban.

Problems, such as mobility and accessibility, and lack of transportation choices, degrade the quality of life in making rural communities comparatively less livable. More efforts are needed to improve livability and much work needs to be done to implement livability programs and initiatives. However, efforts have been made to address challenges of rural communities. A report on Livability Case Studies developed by FHWA describes some examples of the successful implementation of rural livability (Sean, Barry, 2007).

- Huran, SD, Public Transit: This is an example of public transit implemented in a rural community. Known as People's Transit, it started as a pilot program for the state of South Dakota in the mid-1970s, bringing seniors to meals, recreational activities, and health services. This transit is providing service especially to the senior population, who are now able to access life's essentials. They also added round up passenger seats for ease-to-ride for elderly and added the wheelchair-accessible van to their fleet for the disabled (Sean, Barry, 2007).
- Laconia, NH, Smart Road: A successful implementation of a smart road can be seen in Laconia, NH, which is a tourist destination and hotspot for vacation homes and retirees. From the EPA's Smart Growth Implementation Assistance program, investment was encouraged in three core neighborhoods of downtown Laconia, Weirs Beach and Lakeport where EPA traffic engineers helped transform a congested area that had been unsafe for both driving and walking. Now, bicyclists and pedestrians have easy access and driving also is safer (Sean, Barry, 2007).

2.5 Livability on Indian Reservations

Indian reservations share some of the same challenges that rural communities do. In addition, tribes are sovereign nations and have individual cultures. Indian reservations often are spread apart with forest and rangeland between where people live, work, and where they go for groceries, health care or other services. The factors affecting livability on Indian reservations include people and culture, public transit, road safety, and coordination and collaboration with other agencies.

2.5.1 People and Culture

Indian Reservations vary significantly in size, population, proximity to urban centers, and cultural beliefs and practices. There is a common connection as tribal livability also focuses on elements of transportation, community, and quality of life. Walking is a significant part of their culture, but they lack adequate pedestrian facilities. Safety for pedestrians also is a main concern as rural highways are not pedestrian- and bicycle-friendly. By identifying transportation needs of tribal residents, livability can be addressed along with environmental conservation and culture preservation, which are important to them.

2.5.2 Public Transit

A reliable public transit service can provide transport around the reservation and to essential services such as jobs, education, recreational activities. Physical constraints, such as geographic challenges and vastness of reservation, can make access difficult. The economic condition also can be a challenging aspect on Indian reservations. Vehicle ownership is typically low. Public transportation can address these challenges and provide access to health care facilities, shopping, for the elderly, and disabled.

2.5.3 Road Safety

Safety is an integral part of a livable community. From a safety perspective, Indian reservations are not comparatively safe. Over the past 25 years, 5,962 fatal motor vehicle crashes occurred on Indian reservation roads, with 7,093 lives lost (National Center for Statistics & Analysis, 2004). While the number of fatal crashes in the nation declined 2.2% during 1975-2002, the number of fatal motor vehicle crashes per year on Indian reservations increased 52.5% (National Center for Statistics & Analysis, 2004). Therefore, the goal of livability programs should include achieving safer highways on Indian reservations.

2.5.4 Coordination and Collaboration with Agencies

Indian reservations fall under their own jurisdiction. To address tribal livability concerns, coordination and communication with different agencies is necessary to provide them with the resources needed.

The Bureau of Indian Affairs (BIA), Tribal Technical Assistance Program (TTAP), Local Assistance Programs (LTAP), the Federal Highway Administration (FHWA), and state agencies are among the many agencies that can provide tribes with assistance to address development and transportation needs. The federal government allocates funding and planning, especially in transportation development, from different partner agencies. With all the programs and initiatives available, having partners with state, federal, and other local governments is key to successfully implementing programs that will improve transportation options, preserve the natural beauty of the lands, and improve the quality of life.

2.5.5 Livability Initiatives on Indian Reservation

Livability on Indian reservations is a burgeoning concept; and efforts are being made to improve quality of life on Indian reservations. Many livability-related programs and initiatives, such as better access and mobility, safety improvements, and pedestrian and bicycle safety, have been developed. Every population must have access to safe transportation services to get to work, housing, medical services, schools, shopping, and other essential activities. There has been successful implementation of projects and programs that affect tribal livability, including the following:

- Pedestrian and walkway safety planning: Availability of safe and secure pedestrian facilities is necessary where walking is a part of the culture. Safety plans help reduce pedestrian injuries and deaths, and increase walking rates. For example, Wind River Indian Reservation has developed a pedestrian and walkway long-range transportation safety plan. This plan addresses the ongoing problem of pedestrian injuries and deaths by improving unsafe, insufficient, or presently missing walkways, bikeways, and crossings (Gores & Ed Steele, 2012). This plan also identified potential facility improvements and other activities including education, law enforcement, and encouragement programs that help achieve non- motorized transport goals.
- Roadway Safety: Safety is an important concern on Tribal roads. Two separate roadway safety projects were implemented on WRIR. The WRIR was selected for a pilot (one of three) Tribal Transportation Safety Management Plan (TSMP), a program instituted by the Federal Highway Administration (FHWA) to assist tribes in developing their own highway safety strategic plan (Shinstine & Ksaibati, 2013). This plan identified challenges such as limited resources, lack of coordination across jurisdictions, the rural nature of many of the roadways, and lack of crash data, and implemented strategies to address them. Another project was the Indian Reservation Safety Improvement Program, which developed a methodology for Tribal communities to identify low-cost safety improvement on roadways. This methodology will help in reducing the high crash rates on Indian reservation roads.
- Rural Transit: The Menominee Indian Reservation includes almost 250,000 acres of largely rural and forested land with hundreds of miles of rivers and streams and dozens of native plant species, so transportation was a significant challenge (Sean, Barry, 2007). Menominee Regional Public Transit was established in 1982 because people needed help getting around the reservation and accessing services. More than 90% of the tribal population of 3,200 uses Menominee Transit and the service makes more than 80,000 trips every year.

2.6 Summary

This section describes literature concerned with livability. The definition of livability is not exact, but definitions always connect transportation, environment, and quality of life. Geographical challenges, accessibility and mobility, and availability of funding sources are main issues in rural livability. In addition to these, tribal communities possess other challenges such as road condition and safety, environment protection, cultural preservation, and coordination and collaboration with different agencies. Housing, walkable neighborhoods, and economic development also affect a community's livability. The key livability challenge in rural and tribal areas is the delicate balance between meeting mobility needs and preserving environmental and community values.

The livability projects initiated in urban settings are more successfully implemented than in rural and tribal settings. But efforts are being made to implement programs and projects in rural and tribal lands to improve livability. The livability needs of communities, if incorporated into transportation, benefit communities.

3.   DATA SOURCES

This sectioncomprises demographic information from national statistics related to transportation, which will be compared with the other Indian reservations and with the U.S. national average. These demographic and infrastructure data will help quantify potential measures of livability on Indian reservations. The national statistics include information on population and population density of American Indians and Alaska Natives (AI/AN). Transportation statistics have information on condition of roads, road safety, pedestrian paths and sidewalks. This chapter also includes information from the latest official census on Wind River Indian Reservation (WRIR) known as the WINDS III survey. All this information will help to tie common themes of livability from the bigger national picture with detailed information from the WRIR WINDS III surveys.

3.1   National Statistics

The National Statistics contain data related to total population, and population density of AI/AN. This will help compare AI/AN in different states based on population and density, which also are compared with US national averages.

3.1.1   Population of American Indians and Alaska Natives

According to the 2010 Census, 5.2 million people in the United States identified as American Indian and Alaska Native (AI/AN), either alone or in combination with one or more other races. Out of this total, 2.9 million people identified as AI/AN alone. Almost half of the AI/AN population, or 2.3 million people, reported being AI/AN in combination with one or more other races. AI/AN in combination population experienced rapid growth, increasing by 39 percent since 2000. Table 3.1 shows total population of the top ten reservations in the country. The Navajo Nation has the largest population among them.

Table 3.1 Population and Population Density of AI/AN

Name of reservation	Population	Area (sq. miles)	Density (people/sq. miles)
Navajo Nation (AZ-NM-UT)	169,321	27413	6.18
Pine Ridge Reservation (SD – NE)	16,906	3469	4.87
Fort Apache Reservation (AZ)	13,014	2627.608	4.95
Gila River Indian Reservation (AZ)	11,251	583.749	19.27
Osage Reservation (OK)	9,920	2304	4.31
San Carlos Reservation (AZ)	9,901	2910.7	3.4
Rosebud Indian Reservation and Off-Reservation Trust Land (SD)	9,809	1970.362	4.98
Tohono O'odham Nation Reservation and Off-Reservation Trust Land (AZ)	9,278	4340.984	2.14
Blackfeet Indian Reservation and Off-Reservation Trust Land, (MT)	9,149	3000	3.05
Flathead Reservation, (MT)	9,138	1938	4.72

(Source: The Top Ten: Largest Native American Reservations in the U.S. | Infoplease.com)

3.1.2 Population Density

Population density is the number of people per area. Population density in the United States was last measured at 87.4 people/square mile in 2010, according to the Census Bureau (US Census Bureau, 2010). There are 310 Indian reservations in the United States. The collective geographical area of all reservations is about 55,700,000 acres (22,500,000 ha), which represents 2.3 percent of the area of the United States -- 2,379,400,204 acres (962,909,100 ha) (U.S. Census Bureau, 2010). Table 3.1 lists the population densities for the top 10 reservations in the U.S. All the reservations have densities much smaller compared to the U.S. average, indicating sparse populations on Indian reservations.

3.2 Transportation Statistics

Transportation-related issues, such as condition of roads, road safety, mobility and accessibility, are discussed in this section.

3.2.1 Condition of Road

Indian Reservation Roads (IRR) are public roads that provide access to and within Indian reservations, Indian trust land, restricted Indian land, and Alaska native villages. Roads on reservations are categorized as Bureau of Indian Affairs (BIA), state, and tribal roads; and federal highways, local and county roads (BIA; USDOT, 2012).

Many of the roads were never planned or properly designed. They started as gravel and are still used today for vehicular traffic. Vehicles traveling at high speeds cause further degradation of the road surface and increased environmental issues due to dust and dirt. A report published in 2003, Figure 3.1, shows total miles of Indian Reservation Roads (IRR) in 10 states (BIA, 2003). The diverse combination of roadway systems on IRR roads represents how cross jurisdictional issues vary from state to state.
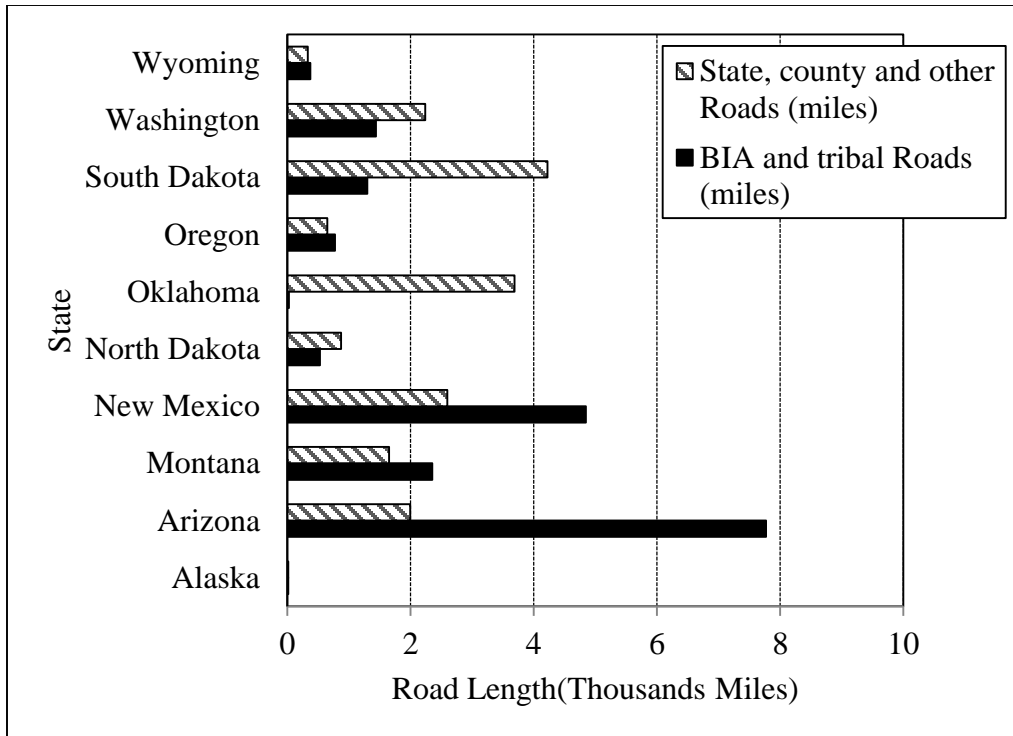
Figure 3.1 Classification of Indian Reservation Roads

In a study conducted by FHWA on the nation's highways, bridges and transit, of the total miles of IRR roads maintained by the BIA across the United States, less than half are paved. According to condition ratings reported by FHWA, 45 % of their roads are rated as poor and only 16 percent as good (FHWA, 2013). Table 3.2 identifies road surfaces on Indian reservations as primarily gravel. BIA system roads (public roads owned and maintained by the BIA and tribal governments) comprise about 32,996 miles. There are approximately 57,735 miles of state and local roads on Indian reservations.

Table 3.2 Roads on Indian Reservation by Surface

	Gravel	**Paved**	**Total**
BIA	21,278	6,817	28,095
Tribes	4,532	369	4,901
State	593	13,014	13,607
Local	27,567	16,561	44,128
Total	**53,970**	**36,761**	**90,731**

3.2.2 Road Safety

Safety is the most important concern in transportation. It also is the major concern on Indian reservation roads. Safety plays a significant role in livability. Agencies such as BIA, US DOT, State DOTs, and tribal governments all are concerned about safety as a goal to eliminate fatal and serious injury crashes.

Physical condition of the roadway and behavioral issues contribute to fatalities and crashes. Poor geometrics, lack of shoulders, lack of traffic control, and lack of roadway lighting all contribute to increased crashes (Herbel & Kleiner, 2010). In a United States Department of Transportation (USDOT) report, Fatal Analysis Reporting System (FARS) reported that geography of the area also is a cause for

fatalities. More than 80% of Indian reservation fatalities occurred within the borders of five states: Arizona – 39%, Montana – 15%, South Dakota – 11%, New Mexico – 10%, and Idaho – 9%) (USDOT, 2013).

The behavioral issues of drivers have a great impact on roadway safety. High speed driving, use of alcohol, and not using seat belts are major safety concerns (Herbel & Kleiner, 2010). Drunk driving continues to play a major role in the motor vehicle traffic crash experience across race, ethnic, age, and gender divides. Statistics show that the percentage of fatally-injured drivers, who were drinking, as highest for Native Americans (57%) and Hispanics or Latinos (47%) (Hilton, 2006). Figure 3.2 shows the number of motor vehicle-related deaths among AI/AN in the U.S. Figure 3.2 shows that the ratio of male/female motor vehicle-related deaths is about 2:1 on Indian reservation roads.
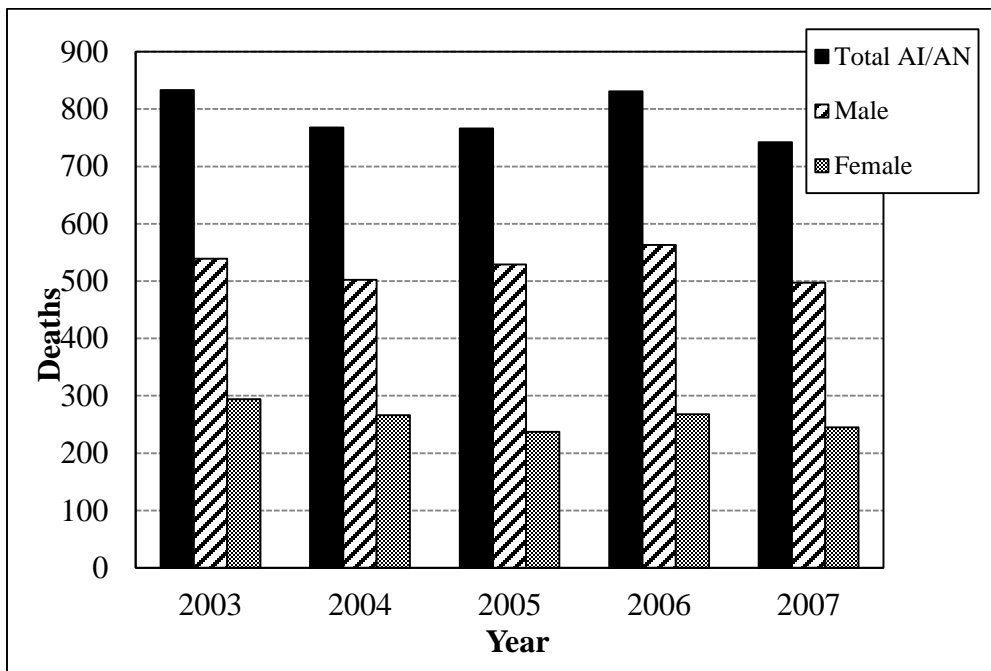
Figure 3.2 Number of Motor Vehicle Related Deaths in U.S.

The tribes have started operating safety programs, which include signalization, channelization, road configuration, signage, speed control, pedestrian/bicycle and sidewalk safety, child car seat safety, seat belt safety, safe routes to schools, alcoholism counseling (Shinstine, Ksaibait, & Gross, 2014). Certain safety concerns proved to be more prevalent than others within tribal transportation programs. Speed control, programs that address alcohol and substance abuse, distribution of car seats, and signage for safety are high on most tribal safety agendas.

3.2.3 Mobility

Mobility is defined as the movement of people and goods from one place to another, for example: jobs, health care, education, shopping and recreational activities by means of transportation facilities, such as train, public transit, bicycle, ambulance, vans, etc.

The different modes of transportation used while commuting to work are shown in Table 3.3. About 72% of AI/AN drove alone in their car, truck or van; however, about 77% of the total working force in the United States commute to work by means of car, truck or van alone. (US Census Bureau, 2000).

Table 3.3 Travel Modes for Commuting to Work

Commuting to Work	AI/AN (%)	US (%)	Rural (%)	Urban (%)
Car, truck, or van - drove alone	71.5	76.4	81.4	74.8
Car, truck, or van - carpooled	14	9.8	9.9	9.8
Public transportation (excluding taxicab)	4.2	5	0.6	6.3
Walked	4.1	2.8	1.8	3.1
Other means	2.6	1.7	1.2	1.9
Worked at home	3.7	4.3	5.2	4
Mean travel time to work (minutes)	24.3	25.3	26.9	24.8

(Source: US Census Bureau (2000). US Census Fact Finder. Washington, DC: US Census Bureau)

The availability of transportation facilities greatly influences mobility, and mobility influences quality of life. Travel time is time required to travel from origin to destination. Travel time differences between modes of transportation can vary widely from each other and by type of journey. Higher travel time means either distance traveled is high or individuals do not have their own car and depend on public transportation, which can take a longer time to travel.

Carpooling helps to reduce traffic volume, reduce fuel consumption, and thus reduce emissions. The benefit of carpooling is that it helps commuters reach destinations more quickly, encourages people to socialize and spend time together, while it reduces air pollution.

Employment status is the metric used in national statistics to measure mobility. Unemployment rate is the measure of population of the active work force that is unemployed but actively seeking employment and willing to work. An adult out of the labor force is defined as the measure of population of a working group who left their job (disliking of current job, forced to leave) and are searching for a better job. Table 3.4 shows the top 10 reservations, their unemployment rate and adults out of the labor force.

Table 3.4 Employment Status of Indian Reservations

Reservation	Unemployment Rate (%)	Adults out of the Labor Force (%)
Navajo Indian Reservation	11.1	55.8
Uintah and Ouray Indian Reservation	5.4	40.1
Tohono O'odham Indian Reservation	9.9	58.8
Cheyenne River Indian Reservation	8.6	43.1
Standing Rock Indian Reservation	6.7	48.7
Crow Indian Reservation	10.5	38.8
Wind River Indian Reservation	7.5	34.7
Pine Ridge Indian Reservation	16.9	48.8
Fort Peck Indian Reservation	10.9	37.9
San Carlos Indian Reservation	16.4	53.7
Average		46.04

(Source: US Census Bureau (2000). US Census Fact Finder. Washington, DC: US Census Bureau)

Among the top 10 reservations, the highest unemployment rate is on Pine Ridge Indian Reservation (16.9%). The Navajo Indian Reservation has 55.8% of adults out of labor force. The national average of adults out of the labor force is 35%, whereas the average for the 10 reservations listed in Table 3.4 is 46.04%.

3.2.4 Public Transportation

The availability of public transportation can be another measure of livability of a community. Public transportation helps to reduce traffic congestion, pollutant emissions and fuel consumption; and provides transportation to those who choose not to or cannot drive. According to a report from the Public Transportation Fact Book, from 1995–2012, public transportation ridership increased by 34%, a growth rate higher than the 17% increase in the U.S. population and higher than the 22% growth in the use of the nation's highways over the same period (American Public Transportation Association, 2013). Americans living in areas served by public transportation save 865 million hours in travel time and 450 million gallons of fuel annually in congestion reduction alone. Without public transportation, congestion costs would have been an additional $21 billion (American Public Transportation Association, 2013).

The availability of public transportation greatly influences the mobility and accessibility of tribal residents. In Synthesis 366, a report published by NCHRP, out of 30 tribes surveyed, two-thirds reported that they operate some sort of public transportation system (NCHRP , 2007). Table 3.5 shows details of the operation of public transportation systems on Indian reservations. According to the report, operation of public transportation is funded by agencies such as the tribes themselves, tribe and state together, city only, and state and county together. Still, about one-third of the tribes surveyed have not developed a public transportation system.

Table 3.5 Operation of Public Transportation on Tribal Lands for 30 Tribes

Operation of Public Transportation	Percent (%)
Tribe	57
No Operation	33
Tribe, State government	3
City	3
State Government, county government	3

Source: NCHRP synthesis 366, Tribal Transportation Programs, A synthesis of Highway Practice

3.2.5 Sidewalks and Bike Lanes

In a recent FHWA study, American Indians have the highest rates of pedestrian injuries and deaths per capita of any racial or ethnic group in the United States (FHWA, 2005). Pedestrian and bicycle safety receives slightly less attention in rural areas. This is concerning, since walking is a significant part of the tribal culture. Few pedestrian facilities are available on tribal lands due to vast complexity of the lands. Tribal governments and agencies are working toward developing programs for pedestrian and bicycle safety. Sidewalks and bike lanes are an important aspect of livability, from a safety and cultural provisions point of view.

Different agencies provide the technical and financial sources for maintenance and construction of sidewalks and bike lanes (NCHRP, 2007). This report shows that 50% of total construction and maintenance of sidewalks is monitored and financed by tribal government. The remaining is either conducted by the tribe and BIA, or BIA alone. Table 3.6 shows construction and maintenance of sidewalks and bike lanes, and the coordination with different agencies. Financial assistance for

construction and maintenance of sidewalks and bike lanes is provided by the tribe alone, tribe and BIA in combination, or BIA alone.

Table 3.6 Construction and Maintenance of Sidewalks and Bike Lanes

Agencies	Construction and Maintenance	
	Sidewalks (%)	Bike lanes (%)
Tribe Only	50	30
Tribe and BIA	7	16
BIA Only	7	3
No Construction and Maintenance	37	53

Source: NCHRP synthesis 366, Tribal Transportation Programs, A synthesis of Highway Practice

On average, tribal governments themselves provide about 40% of the funds required for construction and maintenance of sidewalks and bike lanes. Agencies, such as BIA, tribal consultants and state government, sometimes assist with the construction and maintenance of sidewalks and bike lanes. On average, about 45% of sidewalks and bike lanes lacks proper maintenance (NCHRP , 2007).

3.3   WINDS III Survey

The Wind River Indian Reservation Needs Determination Survey of 2010, known as the WINDS III, is the latest official census on the Wind River Indian Reservation (WRIR) (Butler, Holder, & Hopkins, 2011). The goal of the WINDS III was to gather current data on population demographics of the WRIR; housing and household services; employment, unemployment, and job training; income and poverty; availability of health care and reported health problems; social services; attitudes and opinions about crime and social problems; education availability attainment and future likelihood; transportation; substance use and abuse.

The WINDS III used a different approach than that of the WINDS II survey (1998). Two separate surveys were designed for each household—the Household Survey and the Individual Survey. The Household Survey was conducted with an adult member of the household willing to participate, preferably the head of the household. The household survey consisted of 106 questions and gathered demographic data on each member of the household including education, age, sex, employment, tribe, and other variables. Data were obtained on 4,821 WRIR residents. The Individual Survey contained 95 questions, and was conducted with a member of the household (18 or over) in a private setting. The individual survey contained questions about substance abuse, mental health, and other sensitive topics. Individual Surveys were completed by 1,615 WRIR residents.

3.3.1 Data

The WINDS III survey was carried out as a census of households. Its primary focus was to gather data on Native Americans living on the WRIR and face-to-face interviews were conducted to collect data. A radio and print advertising campaign was conducted in the spring of 2010, which encouraged WRIR residents to participate in the survey. More than 60 Native American individuals were given full-day interviewer training before they were sent to the study area to administer the surveys. They gathered household survey data from 1,437 Native American households and 120 non-Native households. The information categories provided by the WINDS III survey were**:** Family and Household composition, Housing and Household services, Income and Material Sufficiency, Educational Attainment and Employment, Personal and Environmental Health, and Substance Use.

WRIR is shared by the Eastern Shoshone and Northern Arapaho tribes. It also is home to other Native Americans. The WINDS III gathered separate data for Northern Arapaho (N. Arapaho), Eastern Shoshone (E. Shoshone) and other natives.

Family and Household Composition

Different categories were created and studied separately under individuals living in Arapaho-only households, Shoshone-only households, mixed households majority Arapaho; mixed households majority Shoshone. Data were collected and results were compared as N. Arapaho, E. Shoshone, Other Native and All. Comparison was done with the WINDS II survey to demonstrate change. The survey provided information on: number of people living in household, median household size, sex distribution, median age, and marital status of individuals.

Housing and Household Services

Under this category, data were collected according to type of home, age of building, last major renovation, and owner of the home. This category also included information about condition of toilet, bathtub, shower, sink, sewer line or septic system, heating system and other utilities.

Income and Material Sufficiency

The respondents were asked to report total household income, and a comparison was done with the WINDS II survey to show the change in poverty level in 12 years.

Educational Attainment and Employment

Education is an important factor in the financial success of individuals. More education leads to greater employment opportunities. Employment and unemployment are complex topics to summarize. People may be working, but not paid. They may be working for a wage, but not working enough hours a week to sufficiently sustain themselves or their family. Unemployment is defined as people 18 to 54 years old, who are unemployed, looking for jobs and unable to find work. Unemployed individuals 18 and older, were asked to choose from a list of items that they "do not have access to" and that could keep them from getting a job. Transportation was the item most often chosen.

Personal and Environmental Health

The individual survey contained questions about how people would characterize their current health status, and specific health problems. They also were asked where they usually go to see a physician or doctor, dentist, about health insurance, mental and physical disabilities, etc.

Substance Use

This category describes the drug, alcohol, and tobacco consumption patterns. It was compared with the 2009 National Survey on Drug Use and Health (NSDUH) from the Substance Abuse and Mental Health Services Administration (SAMHSA) Office of Applied Studies. Questions related to drug, alcohol, and tobacco consumption were asked of individual participants of the individual survey.

3.3.2 WINDS III and Livability

The WINDS III survey focuses on different issues related to demographics on the Wind River Indian Reservation. The focus of this study relates to responses that are concerned with livability issues on Indian Reservations. Therefore, questions were re-categorized under housing and household services, employment, health issues, transportation issues, roadway conditions and safety.

Housing and Household Services

Most individuals on the WRIR live in houses rather than mobile homes, duplexes, or complexes. They own, rent, and use tribal housing provided by the tribes or BIA. About 70% of N. Arapaho and 73% of E. Shoshone live in houses. In comparison to the WINDS II survey, 1998, those living in houses had declined by 5%. In 2010, 43% of all household buildings were 31 years old or older on the WRIR. About 59% of those households indicated that the building in which they lived had never had a major renovation. The E. Shoshone and N. Arapahoe who are not homeowners most often live in tribal housing. Tribal housing is a program that provides a house for those who don't have their own house. N. Arapahos are somewhat less likely (56%) than E. Shoshone (69%) to live in tribal housing.

Employment

As stated previously, employment and unemployment are complex because there are several reasons a person may be temporarily or permanently unemployed. The report shows that 41.4% N. Arapaho and 36.7% of E. Shoshone residents are unemployed and unable to find work, which is a decrease from the earlier WINDS II Survey. The N. Arapaho unemployed decreased by nearly13% while the E. Shoshone unemployed declined by almost 10%. Reasons for unemployment included: unable to find work, retired due to age, in poor health /with disability, homemaker, caregiver to elderly or children, working seasonally, and student. Figure 3.3 shows the employment status of E. Shoshone and N. Arapahoe as it relates to job training.
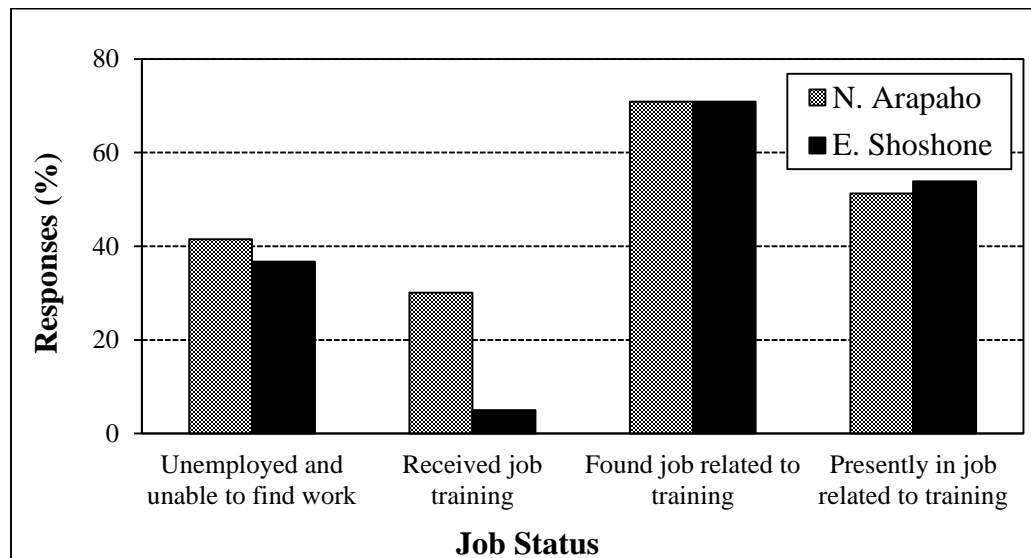
Figure 3.3 Employment Status

When respondents were asked if they had received job training, about 31% of N. Arapaho and 5% of E. Shoshone had received job training. Table 3.7 shows the source of job training provided on the WRIR. They include: Job Training Partnership Act (JTPA), Tribal Employment Rights Office (TERO), on-the-job-training (OJT), Job Corps/Manpower, Firm/Organization, Tribes, School/JOM, and Workforce Investment Act (WIA).

For N. Arapahos, on-the-job-training was the most common source of training (44%). A substantial number of members of both tribes received JTPA training. N. Arapahos also were likely to use the Tribal Employment Rights Offices (17%), while E. Shoshones were somewhat less likely at 9%. Tribal training was the source for 26% of E. Shoshones. Of those who received job training, a large majority found jobs related to that training. About 71% of N. Arapaho and E. Shoshone who received training found a job related to training. The Wind River Job Corps Center appears to have received little use by WRIR residents. More than 60% reported that they were not familiar with it.

Table 3.7 Sources of Training on WRIR

Sources of Training	N. Arapaho (%)	E. Shoshone (%)
JTPA – Job Training Partnership Act	16.1	18.2
TERO - Tribal Employment Rights Offices	17.1	9.1
OJT – On-the-job Training	44.1	29.1
Wind River Job Corps / Manpower Center	7.3	9.1
A firm / organization	4.2	5.5
Tribe(s)	13.3	26.4
Schools / JOM	8.0	17.3
WIA – Workforce Investment Act	7.3	12.7
Other (specify)	18.9	25.5

Health Issues

Most Indians reported that they relied primarily on Indian Health Services for health care. Table 3.8 lists different sources where WRIR residents receive health services. Of household respondents on the WRIR, the majority report some type of health insurance coverage. Overall, 73% of N. Arapaho households and 82% of E. Shoshone households report having one or more type(s) of coverage.

Table 3.8 Health facilities on WRIR

Health facilities Providers	N. Arapaho (%)	E. Shoshone (%)
Indian Health Service Clinic	88.8	86.9
Private Practice	12.2	14.3
Wind River Health Clinic	1.03	0.8
Veteran's Clinic	0.2	0.3
County Health Clinic	0.13	0.13
Other Public Clinic	0.14	0.42
Hospital Emergency Room	0.62	1.14
Other (specify)	0.9	0.13
Does not apply; do not go to physician	0.12	0.25

Transportation Issues

The WINDS III had specified different issues on transportation, including include accessibility and mobility, number of dependable vehicles, and availability of public transportation.

Other questions related to accessibility and mobility as the reasons for: not being involving in after-school activities, problems in getting medical care, getting to a facility needed for finding a job, and getting an off-reservation job. Table 3.9 shows responses provided by N. Arapaho and E. Shoshone on these transportation issues.

Table 3.9 Transportation Related Issues

Transportation Issues	N. Arapaho (%)	E. Shoshone (%)
Reason for not involved in after- school activities: Transportation	5.5	8.8
Problem in getting medical care: Access	23.1	21.3
Facility to find a job: Transportation	77	55.6
To get off reservation job: Access	18	11.8

In a response to number of dependable vehicles, 9.9% of N. Arapaho have zero (0) vehicles, whereas 44.6% of N. Arapaho household have access to one (1) vehicle and 34.7% have access to two (2) vehicles. Similarly, 5.9% of E. Shoshone have access to zero (0) vehicles, 30.4% have access to one (1) vehicle, and 34.8% have access to two (2) vehicles. Figure 3.4 shows the proportion of N. Arapaho and E. Shoshone with available dependable vehicles.
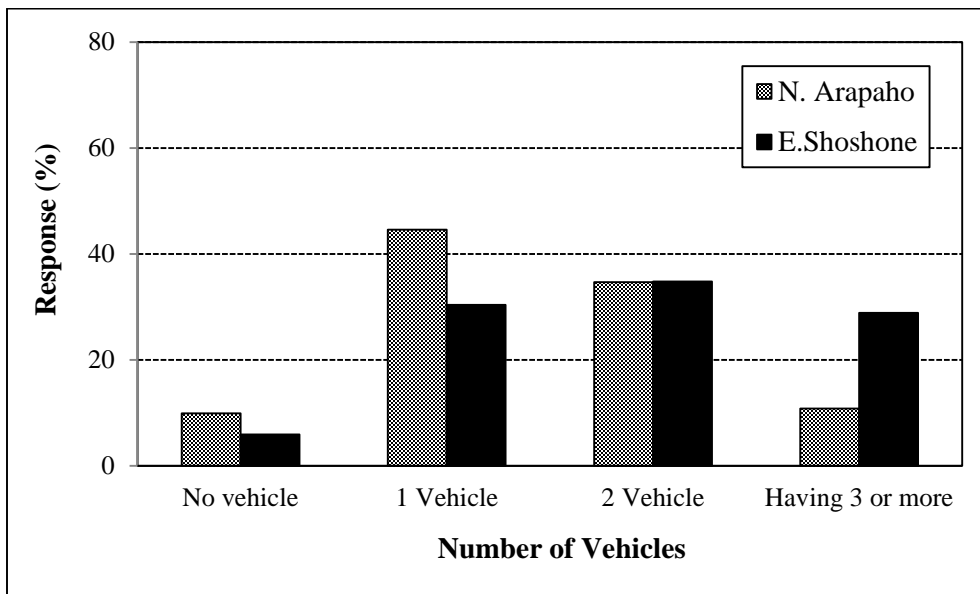
Figure 3.4 Dependable Vehicles

The availability of public transportation is another metric which measures livability. In a response related to public buses for use on the reservation, 93% of N. Arapaho and 90.4% of E. Shoshone agreed that public buses are important on the reservation.

In a question about use of the shuttle bus, about 96% of N. Arapaho and 94% of E. Shoshone households reported that they do not use the shuttle bus. Table 3.10 shows purposes for using the shuttle bus, which include shopping, pre-school or head start, medical services, getting to and from work, seeing friends and family, and traveling to senior centers.

Table 3.10 Purpose of Using Shuttle Bus

Purpose of Using Shuttle Bus	N. Arapaho (%)	E. Shoshone (%)
Shopping	11.4	14.3
Pre-school or head start	8.6	21.4
Medical service	28.6	14.3
Getting to and from work	45.7	14.3
Seeing friends and family	5.7	21.4
Getting to senior centers	5.7	14.3
Others	20	42.9

Road Condition and Safety

Road condition also measures livability of an area. In one response, 48.3% of N. Arapaho and 42.6% of E. Shoshone respondents agreed that road conditions on the reservation were generally good. More than 50% of respondents reported that roads were in bad condition.

Snow removal, speeding, animal hazards, drinking and driving were listed as problems that relate to roadway safety. Figure 3.5 shows that 77.5% of N. Arapaho and 75.8% of E. Shoshone agreed that snow removal on roads as a problem; 81.7% of N. Arapaho and 75.0% of E. Shoshone agreed that speeding as a problem; and 92.3% of N. Arapaho and 91.2% of E. Shoshone agreed drinking and driving is a common problem on the reservation. Similarly, 87.2% of N. Arapaho and 89.6% of E. Shoshone reported that animals present a hazard for drivers on the reservation.
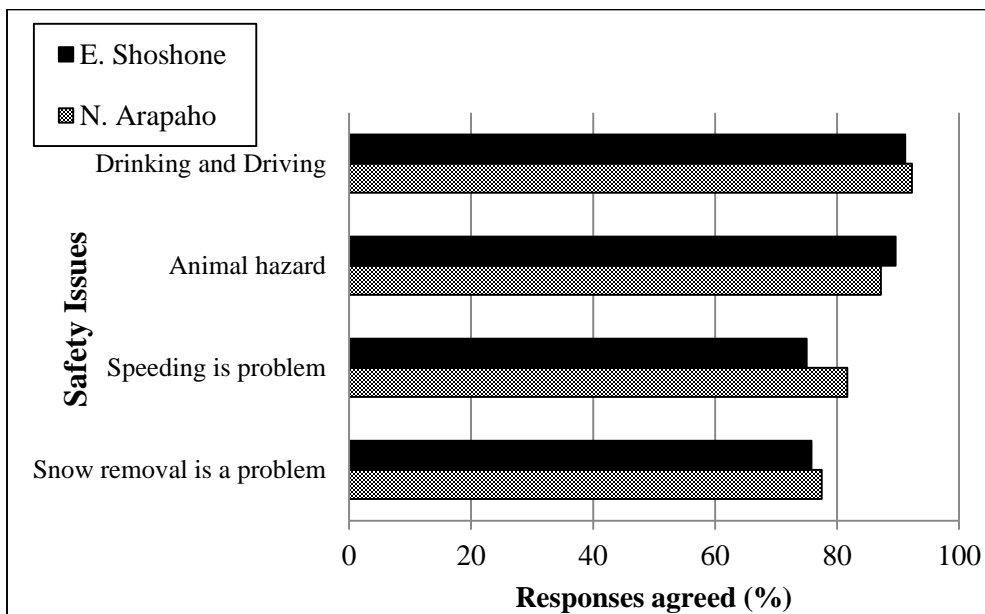
Figure 3.5 Safety Issues

Another question focused on the behavioral safety issue of using seatbelts while driving and as a passenger. Results revealed that 66.3% of N. Arapaho and 84.2% of E. Shoshone typically wear a seatbelt while driving, and 64.3% of N. Arapaho and 80.9% of E. Shoshone wear a seatbelt as a passenger in a vehicle. Figure 3.6 shows the distribution of seatbelt use as driver and passenger for N. Arapaho and E. Shoshone.
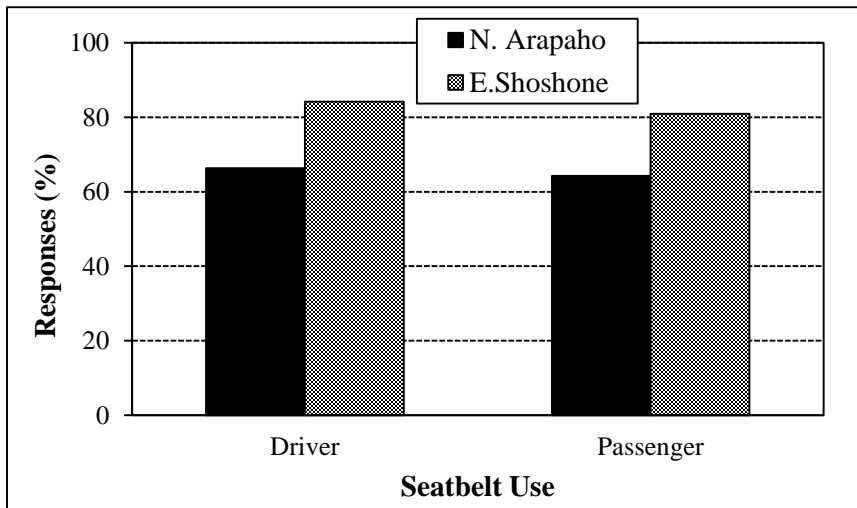
Figure 3.6 Seatbelt Use

3.3   Summary

This section discussed different national demographics and statistical data related to population and population density of AI/AN. It includes transportation related statistics such as condition of roads, road safety issues, and pedestrian access on Indian reservations.

Literature has shown that transportation-related issues are significant in defining livability of an area. That also is true for tribal communities. Walking is a part of their culture and the availability of walkway facilities is important. Tribal communities sometimes lack facilities such as good public transportation, well maintained roads, and safe pedestrian and bicycle facilities.

In the WINDS III survey different issues were discussed. The survey provided information on population demographics of the WRIR, which include housing and household services, employment, unemployment, job training, availability of health care, and transportation related issues. Nearly 40% of residents are unemployed. On average, about 35% of the employed received on the job training. Health condition is a substantial issue on WRIR and nearly 90% of respondents depend on Indian Health service (IHS). Lack of transportation on the reservation also is an important issue, hindering access to health services, jobs and other activities. About 90% of respondents have at least one vehicle. Few depend on the shuttle bus for shopping, medical service, and getting to and from work. Road safety is another issue on the reservations. Drinking and driving, speeding, and animal hazards are some of the problems that are prevalent.

4. METHODOLOGY

This section describes a three-step methodology for livability on Indian reservations, which was developed by the Wyoming Technology Transfer Center (WYT²/LTAP). The steps are data collection, data analysis and development of a livability program. The objective of the methodology is to assist tribes in defining livability for their communities and to help tribal communities implement livability programs.

4.1 Methodology Development

The developed three-step methodology is shown in Figure 4.1. The sequential implementation will help develop a Tribal livability program depending upon the data and the preference by the tribe. It will provide tools for the tribes in defining what is important to them to make their community more livable. Following are the three steps:
- Step I: Data collection
- Step II: Data Analysis
- Step III: Development of Livability Program

Figure 4.1 Three Step Process to Develop Tribal Livability Program

4.1.1 Data Collection

It is important to determine the types of data collection needed to define livability. Data were collected from both existing surveys and from new livability surveys. The U.S. Census data and the needs determination surveys were used as existing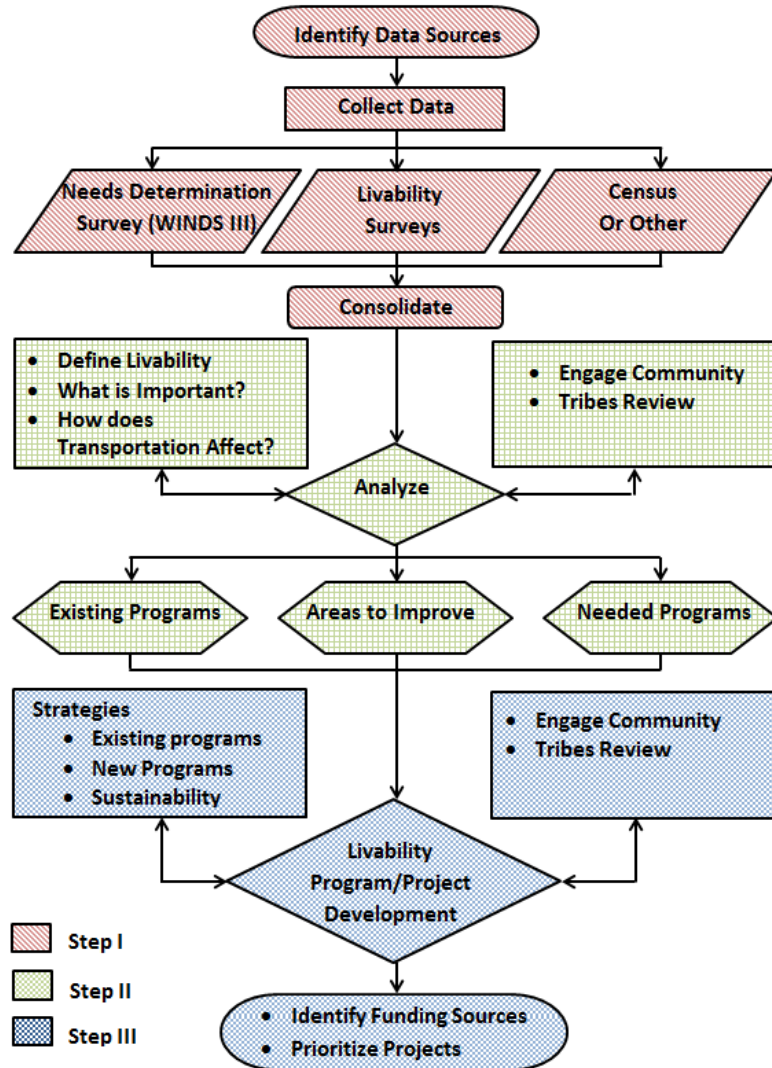 surveys to collect information related to livability issues. A new livability survey was developed to obtain specific information related to livability issues on Indian reservations. It contained two separate survey questionnaires: one for stakeholders and one for residents on the Indian reservation.

As described in Section 3, Wind River Indian Needs Determination Survey of 2010, the WINDS III, is the latest official census on the Wind River Indian Reservation (WRIR) (Butler S. H., 2010). WINDS III gathered current data on population demographics of the WRIR; housing and household services; employment, unemployment, and job training; income and poverty; availability of health care and reported health problems; social services; attitudes and opinions about crime and social problems; education availability attainment and future likelihood; transportation; substance use and abuse. The WINDS III survey contains questions related with transportation, roadway and safety, social and economic and other miscellaneous issues which could be included in this livability study.

Another source of information is livability surveys. Priorities of the community helps to define livability of that community. So, separate livability surveys were developed to learn which issues are related to livability. The purpose of a livability survey is to determine livability-related priorities from the perspective of the tribal community. It provides support in defining livability on Indian reservations in the contexts of transportation, quality of life, and economic development. The priorities obtained, if incorporated on current projects, might help communities to develop broader applications. The survey developed for this research is modeled after a survey used in the livability report of Montana (McGowen, et al., 2012). As most of Montana is rural, the livability concept obtained from that report is applicable in this context. Two separate livability surveys were developed, one for the stakeholder partners and one for tribal residents.

4.1.2 Analysis

After data collection, an analysis of information from different sources must be completed. Based on responses provided, results of each question will be analyzed so that the most important aspects of livability can be developed. Analysis of the important livability issues from different data sources will help define what is important to the Indian reservation as a whole. Later, those livability themes will be beneficial, from a planning and an administrative point of view, to prioritize sustainable programs focused on community development.

In the case of the WINDS III survey, results were expressed separately in the percentage of responses for Northern Arapaho and Eastern Shoshone. Data analysis of livability surveys will be based on responses provided during the livability surveys. These responses are expressed in percentages. The issues will be analyzed based on the high percentage responses.

The review of different issues of livability developed from analysis of the survey responses is important. Engagement of the tribal community on those reviews will help to constrain the study to the reservation issues. Based on the responses, feedback, and review of existing programs, areas of improvement can be determined. The existing programs that are functioning can be incorporated into the immediate livability program. Other programs, which are not presently active, can be reviewed and made functional by undergoing some administrative and technical improvements. New programs also can be initiated based on the responses and the review.

4.1.3 Development of Livability Program

The next task is to develop new programs and projects that are essential to the community that addresses the livability issues. The participation of the community is crucial for the success of any program or project. This is their programs and projects so their review is very important while developing a livability program. It is essential to incorporate the feedback and suggestions of the community as it reflects the real concerns and desires of the community.

After analyzing the possible programs that concentrate on livability issues, the focus is to make it efficient and develop a strategy to carry it out. The sustainability of such programs and projects is critical to the success of a viable livability program. The strategies should be developed to continue the existing programs and practicability of new programs should be examined. In order to sustain any program or project, funding is a very important aspect. Therefore, reliable funding sources need to be identified. A long term funding strategy will help to prioritize existing as well as new programs and projects.

4.2 Summary

This chapter summarizes the three step methodology of developing a livability program which includes data collection, analysis and development of livability programs and identifying projects. The types of data needed to be collected in order to define livability can be found from a needs determination surveys (WINDS III), census data and livability surveys. The review of different issues of livability that are developed from the analysis of the responses obtained from surveys is important. This will provide support in defining the livability on Indian reservations in the context of transportation, quality of life, economic development.

5. CASE STUDY: WIND RIVER INDIAN RESERVATION

The three step methodology was implemented on the Wind River Indian Reservation (WRIR). WRIR is an Indian reservation shared by the Eastern Shoshone and Northern Arapaho tribes in the central western portion of the state of Wyoming. It is the seventh-largest Indian reservation by area in the United States, with a land area of approximately 2.2 million square miles, encompassing just over one-third of Fremont County and one-fifth of Hot Springs County (NCHRP , 2007).

5.1 Surveys

Surveys were used to collect responses that would be beneficial for analyzing the livability issues and priorities on the WRIR. WYT[2]/LTAP developed a questionnaire that included different livability issues. A questionnaire from the Montana Livability report was analyzed and based on the information obtained; three different survey questionnaires for the tribal leaders, residents and the stakeholders were developed. In order to get some feedback from the tribes as well as stakeholders, WYT[2]/LTAP organized a meeting with delegates from WYDOT planning, WYDOT Transit, Shoshone Arapaho Department of Transportation (SA DOT). A meeting was held at the University of Wyoming, on October 10, 2013.

The meeting discussed different ongoing programs on livability such as transit service on the WRIR, emergency services, and safety services. In an open discussion, the attendees also discussed how to measure livability, how to distribute the survey questionnaire and obtain survey response on the WRIR. The different categories of the survey were discussed and suggestions and feedback on each category were gathered. The valuable information obtained in the discussion was incorporated into the survey questionnaire. The survey questionnaires were sent to delegates of FHWA, WYDOT, and the Northern Plains Tribal Technical Assistance Program (NP TTAP) center who were unable to attend the meeting.

After the discussion, two separate livability surveys were developed, one for the stakeholder partners and another for the residents of the WRIR. The group decided to make the stakeholder survey more detailed than the residents.

Another meeting was held with delegates from NPTTAP, SA DOT and WYT[2]/LTAP at the Tribal Transportation Safety Summit, in South Dakota on January 29, 2014. The different issues that are connected with livability on Indian reservation and about the three step methodology were discussed. Along with transportation issues, Indian reservations are also facing problems on health, food, and water which are the basic needs. Including these issues on the livability study will be beneficial for residents as well as for the planners and administrators to develop a strategic plan and policies on Indian reservation. The Director of SADOT suggested a stakeholder meeting be organized at the WRIR.

5.1.1 Stakeholder Partners Survey and Feedback

The stakeholders involved in the process know the problems related to the transportation, community and quality of life on the WRIR. These partner included representatives for education, healthcare, transportation and social development.   The stakeholder meeting was initiated by SA DOT in coordination with WYT[2]/LTAP on March 19, 2014. The stakeholder partners were invited to the meeting by SA DOT.

Based on the feedback from previous meetings, WYT[2]/LTAP prepared a survey questionnaire for the stakeholders. The survey contained six categories which were general livability, transportation, roadway and safety, social and economic, environmental issues and stakeholder affiliation. The survey contained 33 questions. Few stakeholders actually attended the meeting but key areas were represented including

tribal leadership, healthcare, emergency medical service (EMS), and transportation planning. The stakeholders who attended the meeting are listed below:

- SA DOT
- SA DOT engineering consultant
- Northern Arapaho Tribe/Tribal Liaison
- Northern Arapaho Tribal Health Program
- Community Health Center of Central Wyoming
- WYDOT System Planning and Rail Roads
- WYDOT Public Relations
- WYT^2/LTAP

Stakeholders provided feedback and suggestions on what they think about livability on the WRIR. An informal discussion with the stakeholders was organized to learn about what are important aspects in defining livability on the WRIR.

5.1.2 Residents Survey

In order to gather more comprehensive information about livability issues from a community perspective, a survey questionnaire was distributed to the residents of WRIR. The survey contained fourteen questions. The questions were related to society, roadway conditions, transportation, and safety issues. This proved to be helpful on analyzing the livability status of the WRIR. This survey for residents was developed based on the feedback from the stakeholder meeting and was designed to be short enough so that people would be willing to participate.

The survey was distributed at the Wind River Summer Safety Fair organized by TRiP (Tribal Re-entry Program) supported by the Eastern Shoshone and Northern Arapaho Tribes. It was organized on June 18, 2014 at Ethete, WRIR. Forty-four responses were collected during four hours of the safety fair.

5.2   Survey Results

5.2.1 Stakeholder Survey

The stakeholder survey contained six categories which were general livability, transportation, roadway and safety, social, economic and environmental issues, and stakeholder affiliation. The detailed questionnaire that was distributed at the stakeholder meeting is shown in Appendix A. Seven stakeholders provided the response on the survey questionnaire. Multiple responses were recorded on most of the questions so the calculated percentage is higher than 100.

Category: Livability. This category contained four questions.

Question 1. How do you rank your community as a good place to live?

In a response to rank the community, 42.9 percent of stakeholders ranked their community as average place to live. Figure 5.1 shows the responses provided by stakeholders as above average, average and below average.
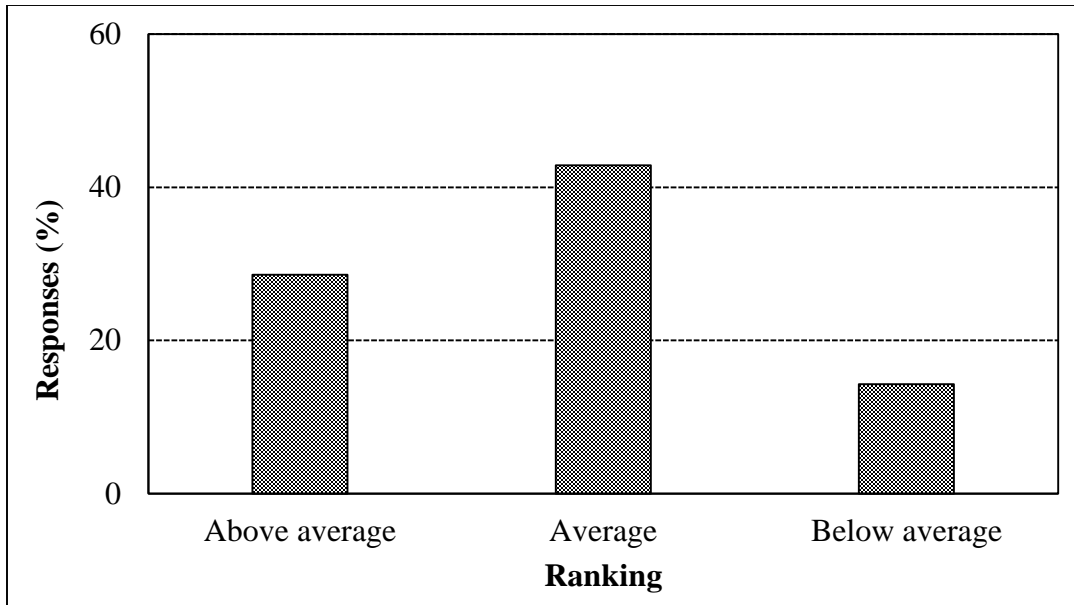
Figure 5.1 How Stakeholders Rank the Community as a Good Place to Live

Question 2. Which of the following elements do you consider important to make your community a good place to live?

In this question, each respondent provided multiple responses. There were nine options provided. According to the responses provided, 71.4% of stakeholders reported housing facilities, public safety, transportation infrastructure, access to services and industry and business development as most important elements. Figure 5.2 shows the graphical representation of elements that are important to make the community a good place to live. The other elements were public utilities, recreational/youth center, tourism, and access to hunting and fishing.
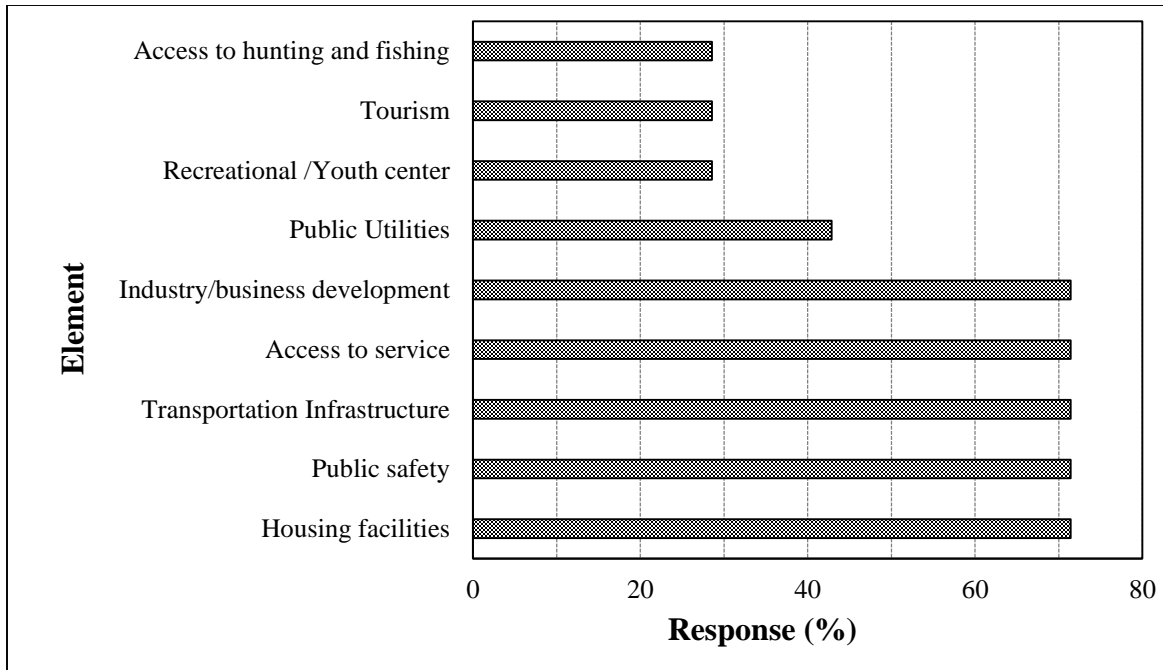
Figure 5.2 Elements Important to Make Community a Good Place to Live

Question 3. What might be the challenges on the Wind River Indian Reservation to making it a better place to live?

The respondents provided multiple responses. While responding on different challenges on WRIR, 71.4% of respondents agreed that lack of job opportunities is a challenge. Apart from this, 57.1% responded that effective management of federal and other funding is another challenge on WRIR. Table 5.1 shows a list of other challenges including as lack of emergency services, lack of proper planning, lack of law enforcement, and lack of transportation options.

Table 5.1 Challenges on WRIR

Challenges on WRIR	Responses (%)
Lack of job opportunities	71.4
Effective management of Federal and other Funding	57.1
Lack of Emergency service	42.9
Lack of proper planning	42.9
Lack of law enforcement	14.3
Lack of transportation options	14.3

Question 4. Do you think recreation opportunities such as parks, trails, and public spaces and business centers makes a community a better place to live?

All respondents agreed on the fact that recreational opportunities are helpful in making a community good place to live. This is an important element while defining any livability concept on tribal lands because outdoor recreation, including hunting and fishing is an important aspect of their culture.

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Category: Transportation. Eight questions related to transportation facilities were asked to the respondents.

Question 5. Which of the following elements do you consider important to make your community a good place to live from a transportation perspective?

There were five options as important elements from a transportation perspective. The respondents provided multiple responses; all respondents agreed that well maintained roads are most important. Apart from that, bicycle lane/paths were ranked second most important. Good public transportation, roadway safety and sidewalks and pedestrian crossings were all considered important to make the community a good place to live from a transportation perspective.

Question 6. Rate the availability of transportation facilities such as well-maintained roads, good public transportation, sidewalks and pedestrian crossings, bicycle lanes in your community.

On the response about availability of transportation facilities on WRIR, about 60% of stakeholders rated the facilities as average.

Question 7. What type of facilities would you like to be added in order to improve transportation options in your community?

The options provided were four in number and the respondents provided multiple responses. On the responses, 71.4% of stakeholders responded that well maintained roads and public transportation as the important facilities that should be added to improve the transportation options on WRIR. Figure 5.3 shows the responses on the type of facilities to improve transportation options.
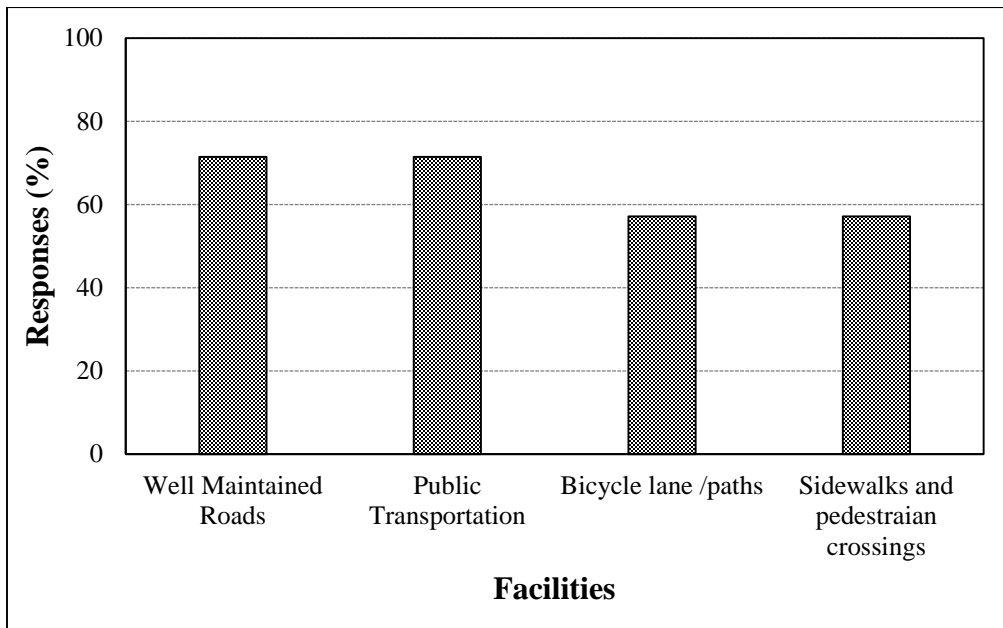
Figure 5.3 Facilities to Improve Transportation Options

Question 8. What mode of transportation do you usually depend upon?

All stakeholder partners reported that they usually depend upon a car as a mode of transportation.

Question 9. How important is local public transportation in making your community a good place to live?

The survey showed 71.4% of respondents agreed that local public transportation is very important to make the community a good place to live.

Question 10. For what purpose do you use the public transportation services?

There were six options provided and respondents provided multiple response. In the responses, about 72% stakeholder responded that getting to and from work is the most significant purpose of using public transportation. Other purposes of using public transportation are medical service (57.1%) and shopping (42.9%). Figure 5.4 shows the different purposes for using public transportation.
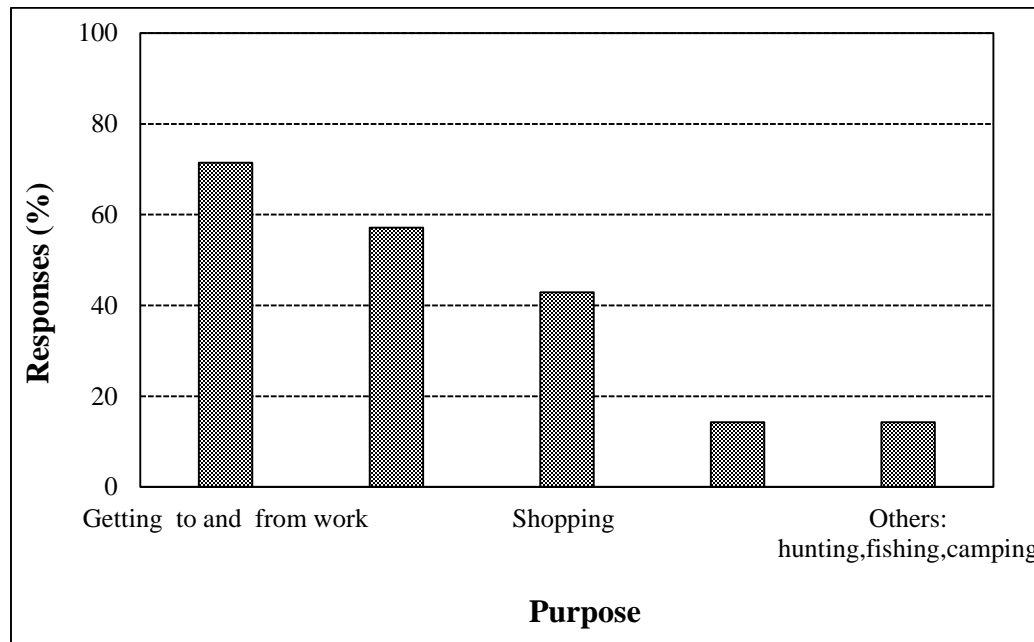
Figure 5.4 Purpose of Using Public Transportation

Question 11. Do you consider the available public transportation facility adequate?

About 58 percent of respondents agreed that there are not adequate public transportation facilities on the WRIR.

Question 12. Is access to affordable air service important to your community?

In this response, 42.9% reported access to affordable air service as important, and 28.6% reported access to affordable air service as very important.

Category: Roadway and Safety. Ten questions were related to the condition of highways and roadways on WRIR from a safety perspective.

Question 13. How do you rate the condition of the main highways on the Wind River Indian Reservation?

In a response about condition of highways on the WRIR, about 42% of respondents provided that the conditions of highways are average and the same proportion reported them as above average.

Question 14. How do you rate the condition of the local roads on the Wind River Indian Reservation?

The respondents agreed that the condition of local roads on WRIR is below average. Figure 5.5 shows the stakeholders response on condition of highways and local roads on WRIR. This illustrates that the condition of highways is better than the local roads on WRIR.
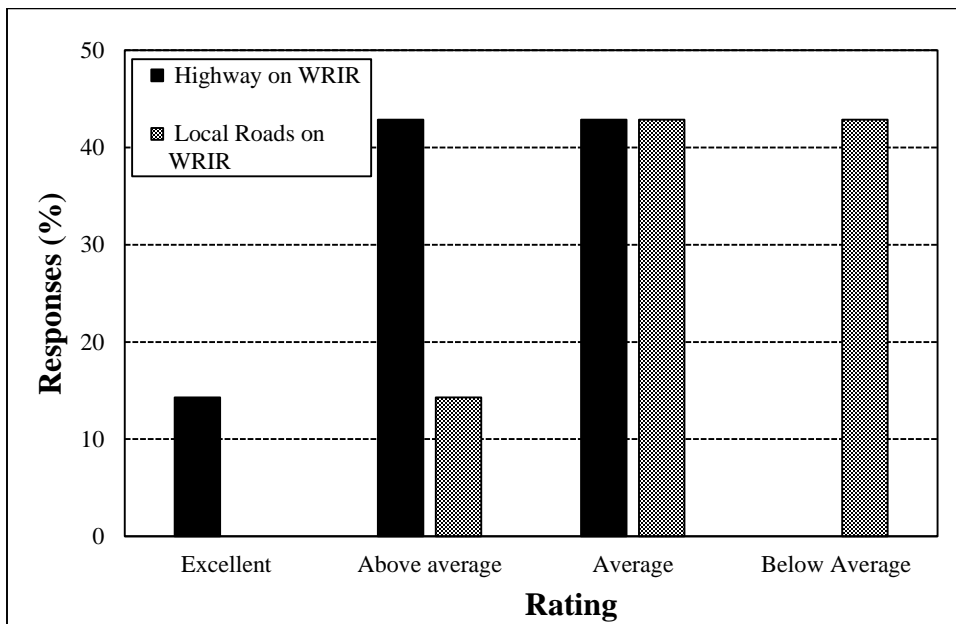
Figure 5.5 Condition of Highway and Local Roads

Question 15. How important is the condition of the roads in making your community a good place to live?

In this response, 57.1% responded that condition of the roads in making their community a good place to live as very important.

Question 16. Which type of road is most widely available in your community?

In this response, 71.4% of stakeholders responded that a paved road surface is the most widely available road surface, whereas 28.6% reported gravel and earthen roads. This is because most of the stakeholders live near the community areas and use paved surfaces most.

Question 17. How do you rate the safety of the highways/local roads on the reservation?

More than 70% responded that road safety is average on the WRIR.

Question 18. In your opinion which of the following factor most affects the safety of these roads?

Four options were provided with multiple responses obtained. About 86% respondents noted that having no shoulders on roads is the most significant factor that affects the safety of roads on WRIR. Figure 5.6 shows factors mostly affecting safety of roads on WRIR. The other factors are sharp curves, no sidewalks, and no sight distant that affect safety.
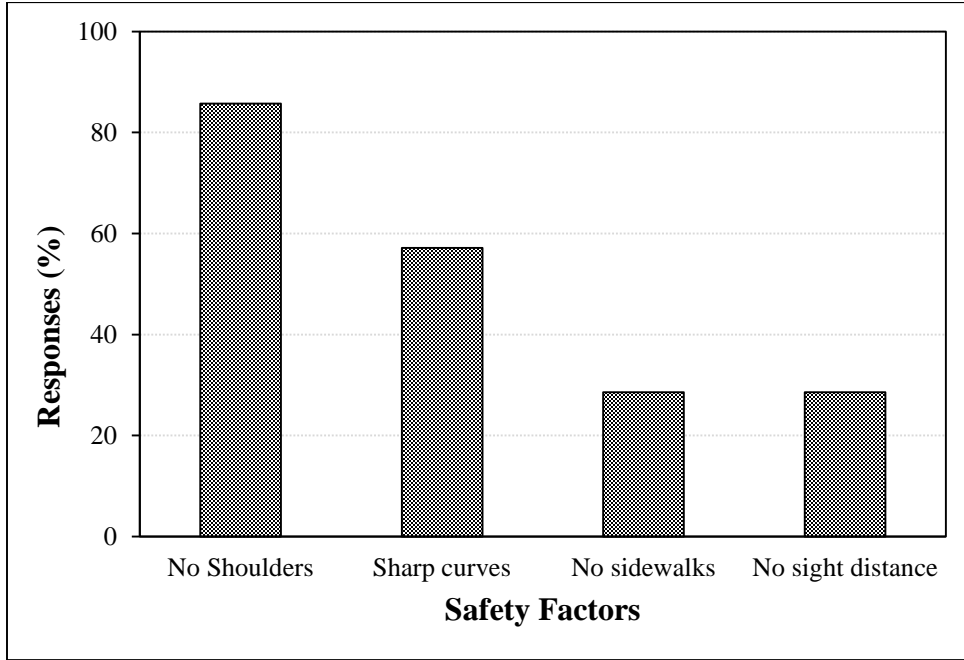
Figure 5.6 Safety of Roads on WRIR

Question 19. How is the provision of safety for children as they walk and bicycle to school in your community?

The survey response shows that safety for walking and bicycling to school is below average (57.1%) and poor (14.3%) respectively.

Question 20. What type of safety provisions would help to make the roads in your community safer?

The question had five options and stakeholders provided multiple responses. All respondents agreed that education/awareness campaigns will help to make the roads safer. Figure 5.7 shows the proportion of responses provided by respondents on other types of safety provisions, such as bike lanes/paths, wide and well maintained roads, and pedestrian lanes for walking and street lights.
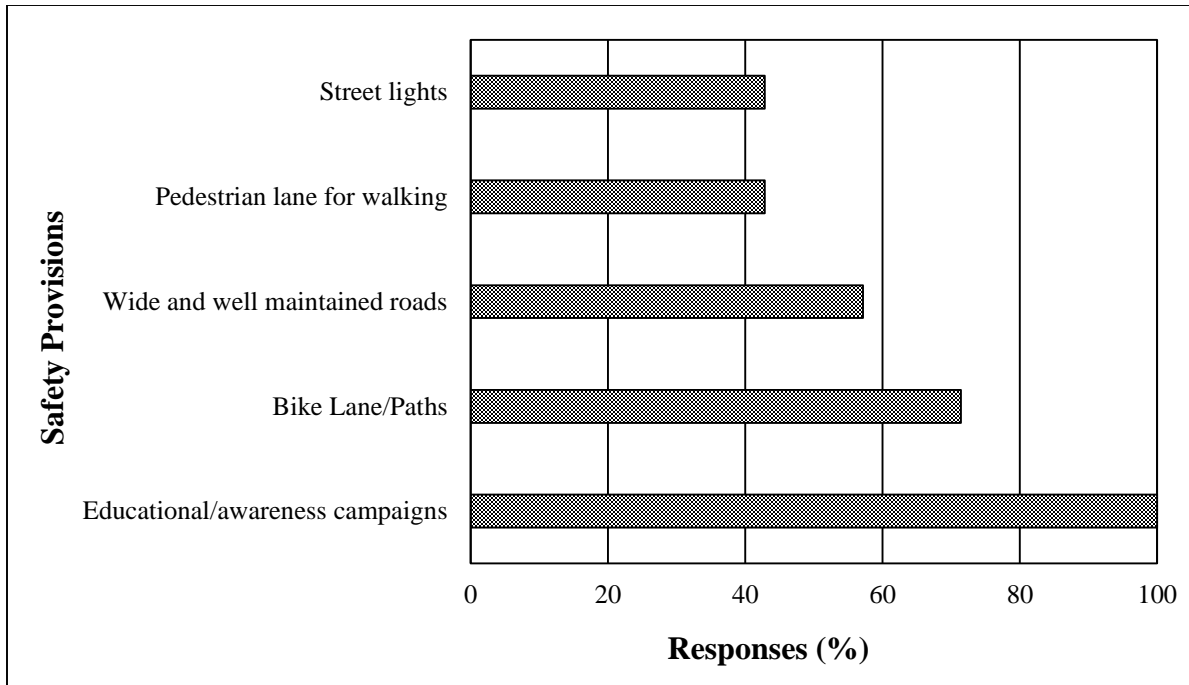
Figure 5.7 Type of Safety Provision

Question 21. How important is pedestrian-friendly infrastructure such as sidewalks and pedestrian crossings in making your community a good place to live?

The responses showed that nearly 58% respondents agreed that a pedestrian friendly environment is very important in order to make a community more livable.

Question 22. How is the condition of infrastructure such as sidewalks and pedestrian crossings in making your community a good place to live?

In this response, 58% of stakeholders found that conditions of sidewalks and pedestrian crossing is below average and 28.6% as average and 14.3% as poor on WRIR.

Category: Social and Economic Issues. Six questions were related to social and economic condition of the reservation.

Questions 23. What are the major social issues that should be addressed in a livability program?

The survey question contained four main social issues as options where respondents provided multiple responses. According to the responses provided, 71.4% of respondents think that alcoholism and substance used is the most significant social issue. Figure 5.8 shows social issues that affect livability, including mental health and depression (57.1%), suicide (42.9%), early marriage and pregnancy (42.9%).

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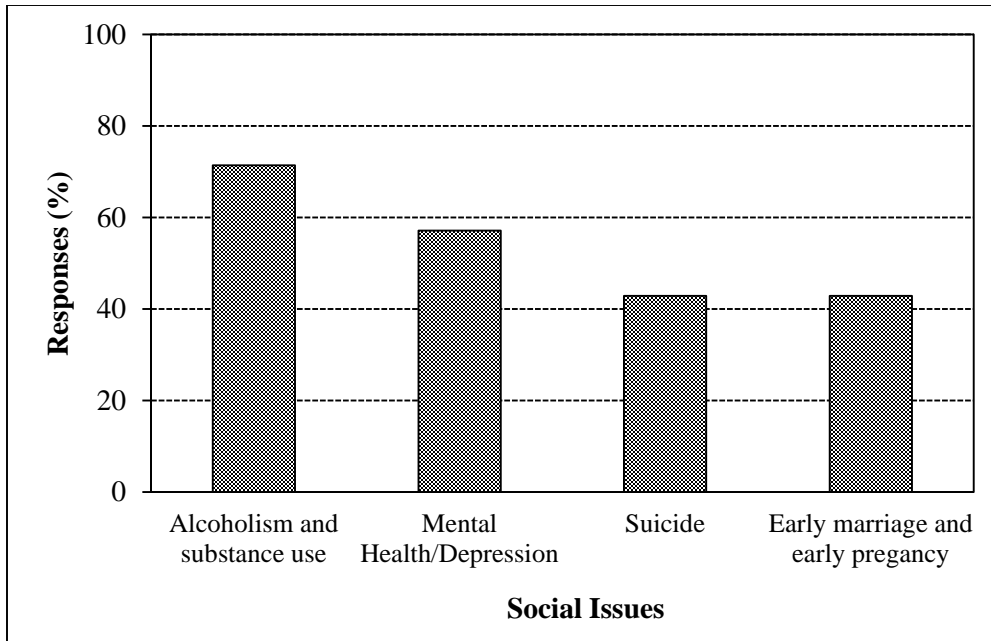
Figure 5.8 Major Social Issues

Question 24. What types of facilities are provided to the elderly and disabled people?

A list of facilities was provided and multiple responses were obtained. The responses to facilities that are provided for elderly and disabled are health facilities/nursing homes (42.9%), public transportation (28.6%) and others (14.3%).

Question 25. What major economic issues should be addressed in a livability program?

The major economic issues are infrastructure for business, lack of jobs, availability of financing self-employment, and job corps opportunities. The proportion of responses on economic issues provided by the stakeholders is as shown in Figure 5.9.
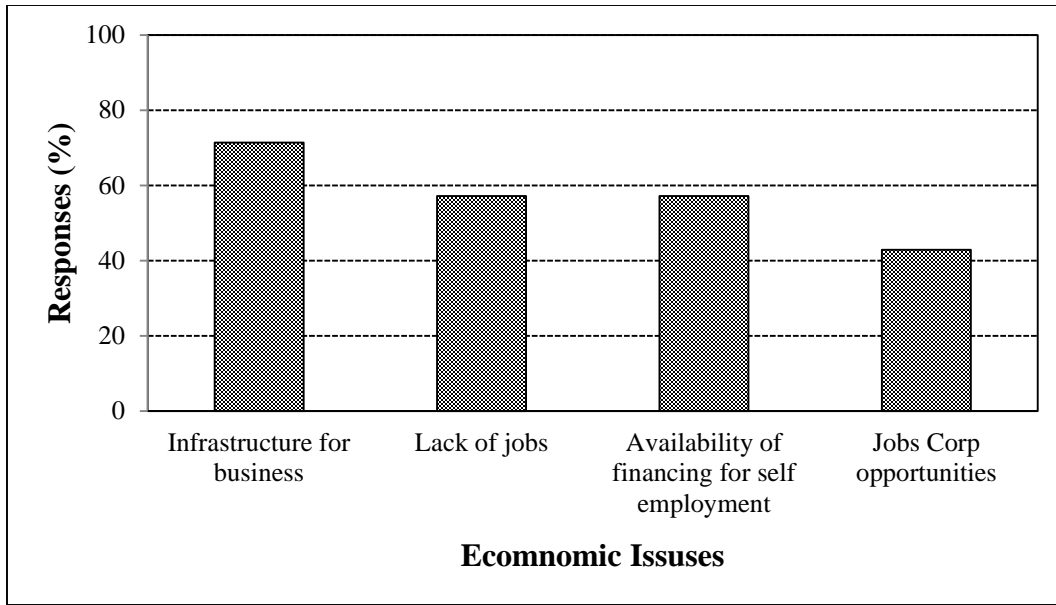
Figure 5.9 Economic Issues

Question 26. How important would an incubator for small business be for your community?

About 58 of responders agreed that an incubator for small business is important in making the reservation a livable place from an economic perspective.

Question 27. From which media do you get/provide information about the development activities in your community?

In responses about media sources providing information on development activities, respondents noted radio (71.4%) is more significant followed by Internet, local newspaper, and public meetings and hearings.

Question 28. Do you think residents would get more involved in the development of your community if there was better media communications of upcoming projects?

About 86 percent of respondents think residents would be involved in the development of their community if there were better media communications about upcoming projects.

Category: Environment Issues. Under environmental issues, the survey contained two questions.

Questions 29. What are the major environmental issues in the tribal community?

Respondents reported that air pollution is the major environmental issue on WRIR. Other issues are water quality, drought, and depletion of natural resources as shown in Figure 5.10.
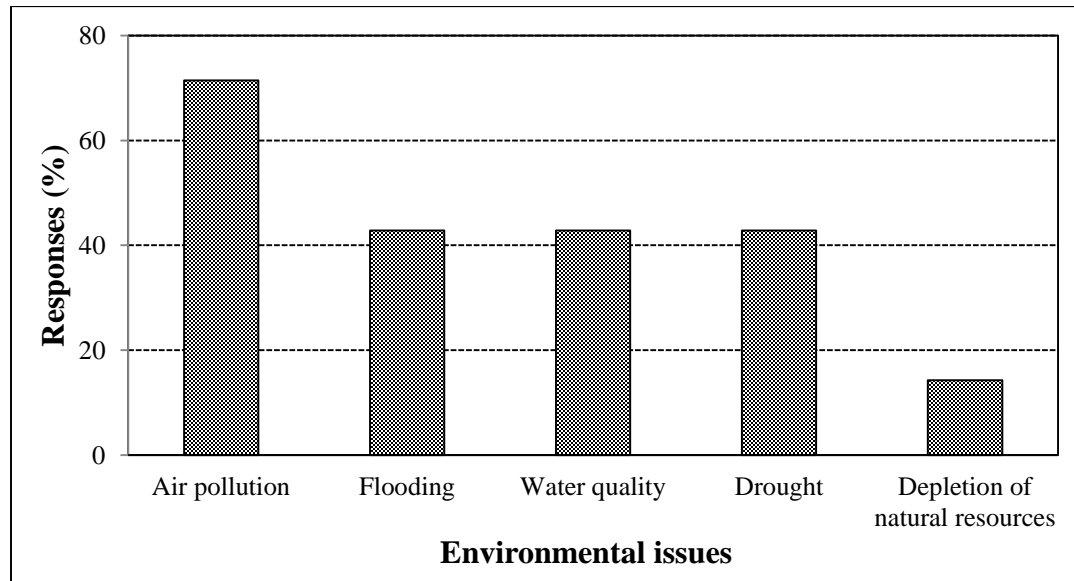
Figure 5.10 Major Environmental issues

Category: Stakeholders. This category contained three open-ended questions about the stakeholder's perspective on WRIR. The following responses were provided on open ended questions:
- Access to goods and service
- Job, health care for all, sex education and birth control
- A good job, good home, education, transportation
- Need assistance for tribal cattle research, improved EMS service, safety support, resources for school education
- More programs to support services to protect cultural sites, education for young, roadways improvement to allow access to hunting, camping, recreational areas
- Housing, transportation, health care
- Communication and involvement of many people
- Planning for infrastructure, water, electricity, sewer, roads, and fiber optics for internet
- Access to jobs, safe routes to schools

5.2.2 Important Elements from Stakeholder Perspective

A Stakeholder meeting was conducted on the WRIR. It was organized by the Shoshone Arapahoe Department of Transportation (SADOT) in coordination with Wyoming Technology Transfer Center (WYT2/LTAP). Apart from distributing the survey questionnaire, an informal discussion ensued among stakeholders, regarding prevalent issues on WRIR. The purpose of this discussion was to learn about the important aspects that are defining livability on Indian reservations. Most of the agencies have highlighted different livability elements from a community perspective. Most of the stakeholders emphasized the health condition of the population on WRIR and the facilities provided, and having better access to health services. Apart from health services, other elements most often discussed were education

and awareness programs for health issues, animal control, and poor road condition, access to fishing and hunting, and job training. Table 5.2 shows the important discussion elements. The full list is attached in Appendix B.

Table 5.2 Important Elements from Stakeholder Perspective

Stakeholder	Important elements
Fremont County- EMS	• Health care • EMS services • Rolling clinics
Tribal Liaison	• Computer and Technology • Access to job • Safe access • Health facilities • Funding
Community Health Centre of Central Wyoming	• Education • Job trainings • Housing • Computer and technology • Health services • Coordination and collaboration among agencies
Northern Arapaho Tribal Health Program	• Poor road • Access • Recreational and tourism • Animal control • Transportation facilities • Public transportation • Law enforcement
WYDOT	• Public transit • Driving behavior • Access to public transportation • Animal control • Pedestrian programs • Environmental issues
SADOT	• Social issues • Health issues • Ridership in public transit • Behavioral issues in driving • Animal control • Emergency services during flood, fire etc.

5.2.3 Tribal Residents Survey

To make the survey less time-consuming and more information-oriented, a condensed survey with 14 questions was developed to obtain responses from the residents of Wind River Indian Reservation. The purpose of this survey was to determine priorities for residents of the reservation, which will provide support in defining livability and determining important issues related to livability on WRIR in the context of transportation infrastructure, roadway and safety etc. The full format of the Tribal resident survey is attached in Appendix C.

Forty-four responses were collected. Responses provided on each question were analyzed, based on percentages. The questions were provided with options listed and most of the respondents provided multiple responses so the calculated percentage in some questions are more than 100 percent.

Question 1. How do you rate your community as a good place to live?

In the responses to rank community as a good place to live, 56.8% of residents think that WRIR is an average place to live. Figure 5.11 illustrates the responses provided by residents.
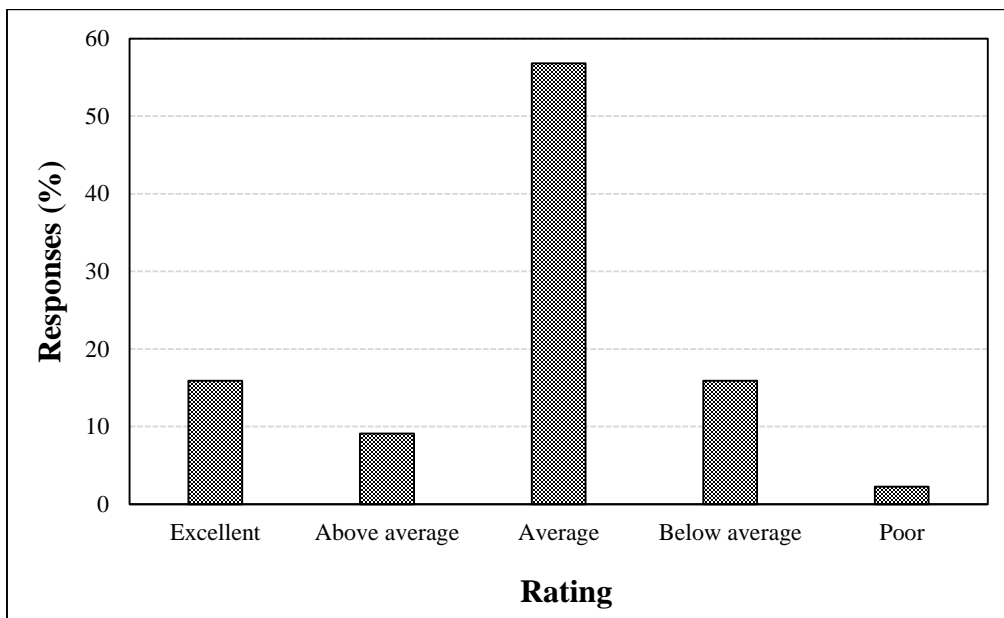
Figure 5.11 Rating Community as a Good Place to Live

Question 2. Which of the following elements do you consider important to make your community a good place to live?

The survey responses reported that about 60% agreed that provision of a recreational/youth center is the most significant element that will help make the WRIR a good place to live. Table 5.13 shows the list of important elements from a resident perspective to make WRIR a good place to live. Other elements are public safety, well planned community, job trainings, access to hunting and fishing, public utilities, tourism, industry/business development, transportation infrastructure, and more local restaurants and shopping.

Table 5.11 Most Important Elements

Important Elements	Number of responses	Percent (%)
Recreational /Youth center	26	59.1
Public safety	23	52.3
Well planned Community	18	40.9
Job Trainings	17	38.6
Access to hunting and fishing	13	29.6
Public Utilities	11	25.0
Tourism	11	25.0
Industry/business development	9	20.5
Transportation Infrastructure	7	15.9
More local restaurants and shopping	4	9.1

Question 3. Which of the following elements do you consider important to make your community a good place to live from a transportation perspective?

Respondents provided multiple responses to five options. Figure 5.12 shows the graphical representation of the response provided by residents about these elements. The responses about elements is important from a transportation perspective, 63.6% of residents responded that well-maintained roads are most significant. Other priorities identified included bicycle lane/paths, roadway safety, sidewalks and pedestrian crossings, and good public transportation.
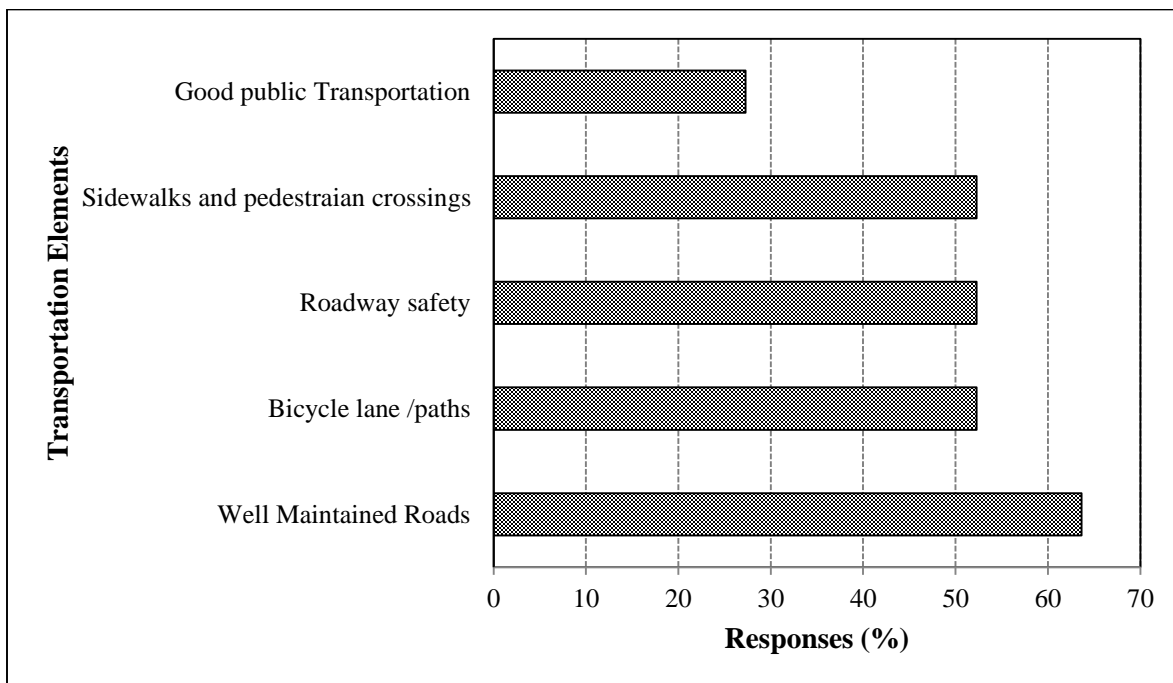
Figure 5.12 Most Important Elements from Transportation Perspective

Question 4. For what purpose do you use the public transportation services?

The main purposes of using public transportation are getting to and from work, medical services, shopping, getting to and from school, and others (hunting, fishing, and camping). Table 5.4 shows the list of purposes of using public transportation on WRIR according to the response provided by residents. About 41% of residents use public transportation for getting to and from work, which shows that accessibility is an important aspect in making a place more livable.

Table 5.4 Purpose of Using Public Transportation

Purpose of Using Public Transportation	Number of Response	Percent (%)
Getting to and from work	18	40.9
Medical Service	15	34.1
Shopping	9	20.5
Getting to and from school	7	15.9
Others: Hunting, fishing, camping	6	13.6

Question 5. How do you rate the safety of the roads on the reservation?

The safety of roads is another important aspect in analyzing livability. In a response related to safety of roads on WRIR, 50$ of respondents recorded that road safety is average.

Question 6. How is the provision of safety for children as they walk and bicycle to school in your community?

Walking is an important part of the culture on the WRIR. In a response about provision of safety for pedestrians, 40% of residents said that the safety for walking and bicycling to school is below average and 39% said that safety for walking is poor. Figure 5.13 shows the detail about the safety of roads on WRIR.
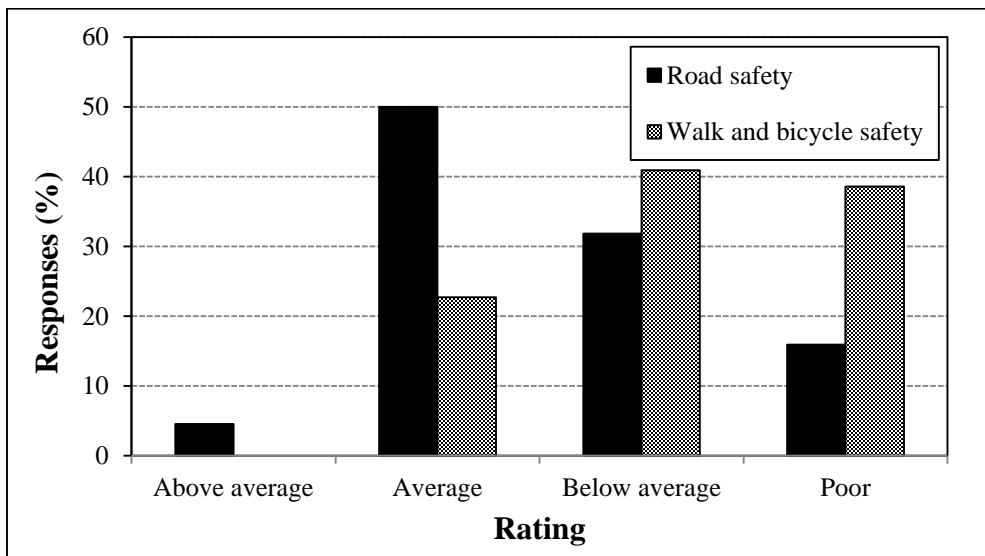
Figure 5.13 Safety of Roads

Questions 7. What are the facilities provided to the elderly and disabled people?

In a question about facilities provided to the elderly and disabled people, more than 50% of residents reported there are health facilities/nursing homes, and 25% reported public transportation. Twenty-five percent of residents surveyed responded that there are no such facilities provided to the elderly and disabled.

Question 8. Which of the following best describes your current job condition?

The response showed that about 50% of the residents surveyed were employed. Figure 5.14 shows the current employment status on WRIR. About 18% responded as unemployed and looking for work. This was followed by homemaker (16%), in poor health or with disability (9.1%), and retired due to age (6.8%).
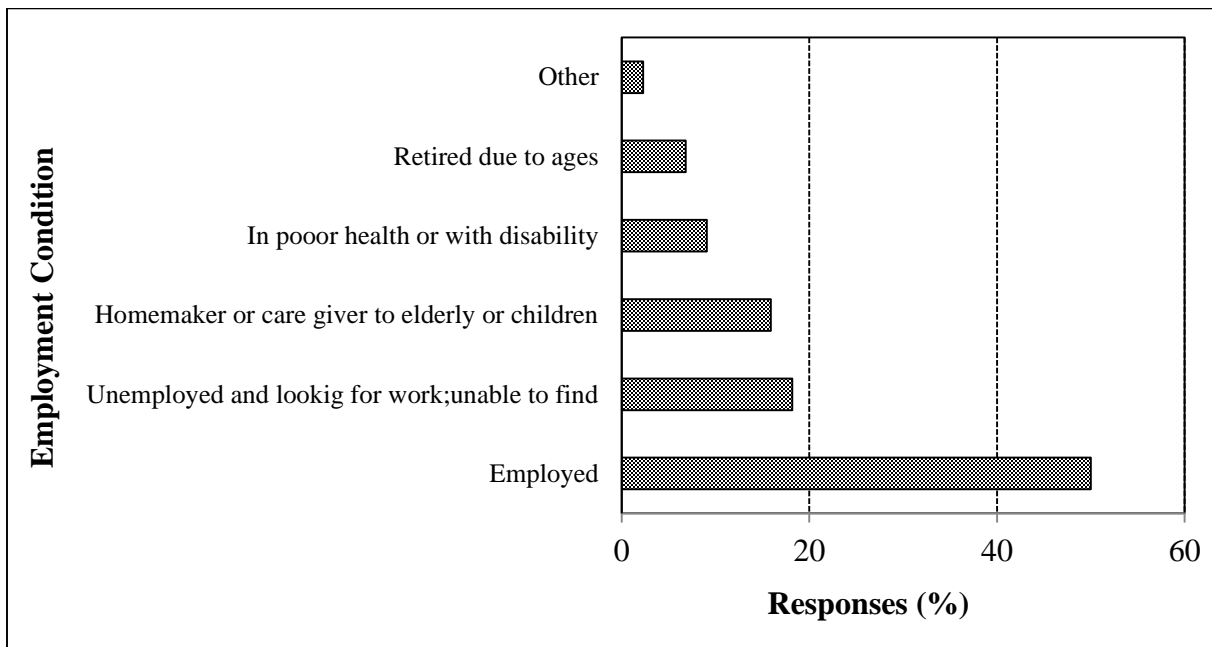
Figure 5.14 Current Employment Condition

Question 9. If not employed, what is the cause for not having access to it?

The survey also provided different reasons behind residents inability to get jobs. Most of the respondents (75%) were female, who reported that household work (stay home to take care of family) is the main reason behind not getting jobs. Figure 5.15 shows residents' response on reasons for unemployment. It shows that 11.4% indicated transportation, and 9.1% indicated job training as significant reasons of not working.
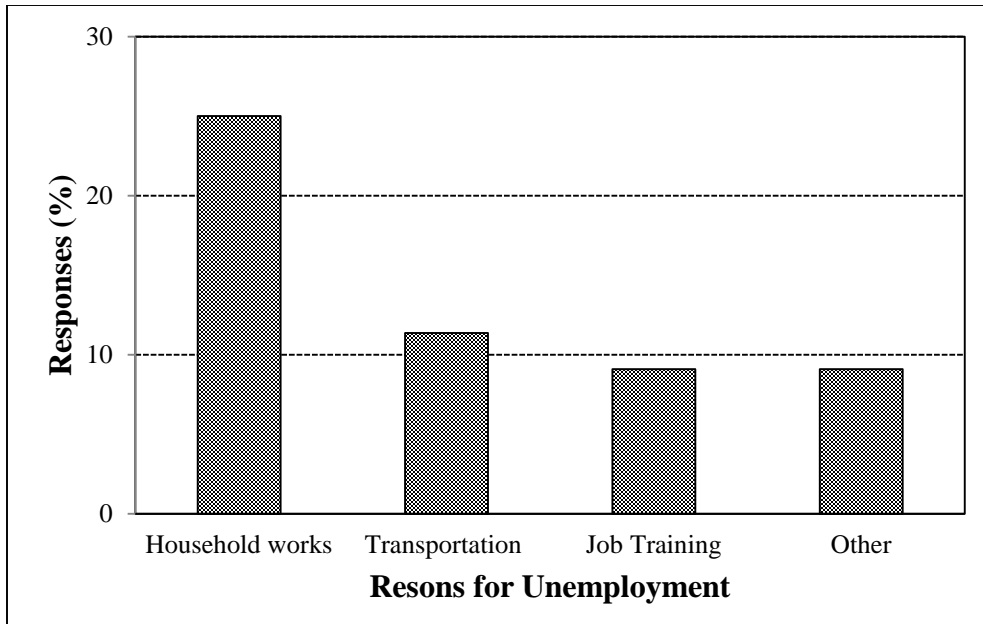
Figure 5.15 Reasons for Unemployment

Question 10. What are the facilities provided to the elderly and disabled people?

In a question regarding whether residents are aware of services available for elderly and disabled people, more than 51% are aware of health facilities/nursing home, 30% are aware of public transportation, and 25% responded that there they are not aware of such facilities provided or service available for elderly and disabled. Figure 5.16 shows the different services available for elderly and disabled on WRIR.
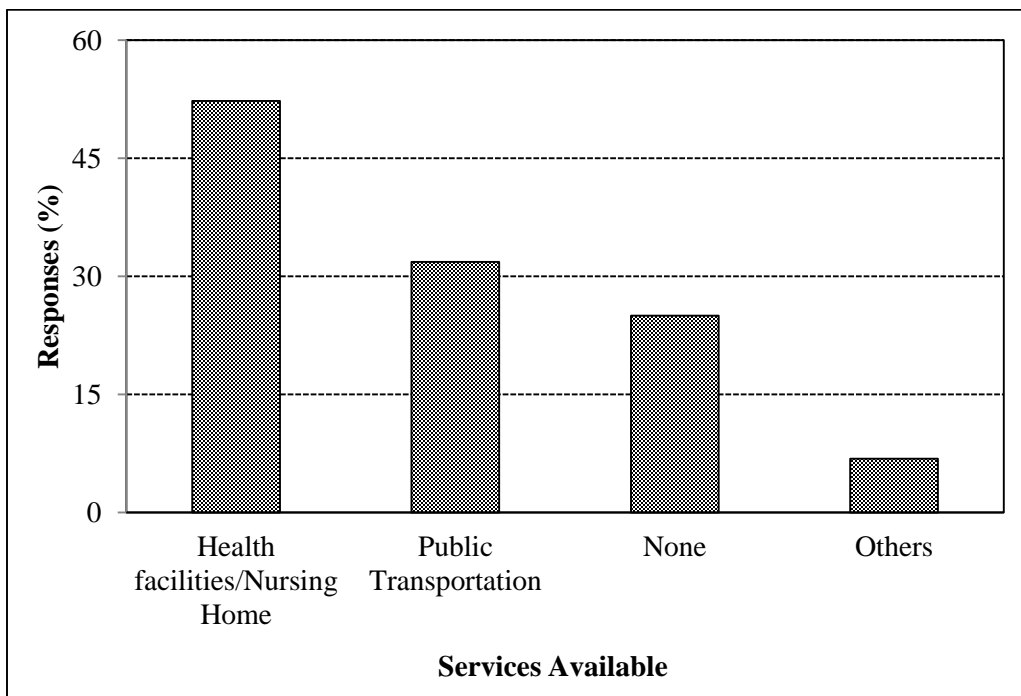
Figure 5.16 Services Available for Elderly and Disabled

The demographic data collected were tribal affiliation, age group distribution, and sex of respondents. About 75% of the respondents were female and more than 72% of respondents were in the age group 30-65. Figure 5.17 provides demographics of the responses.
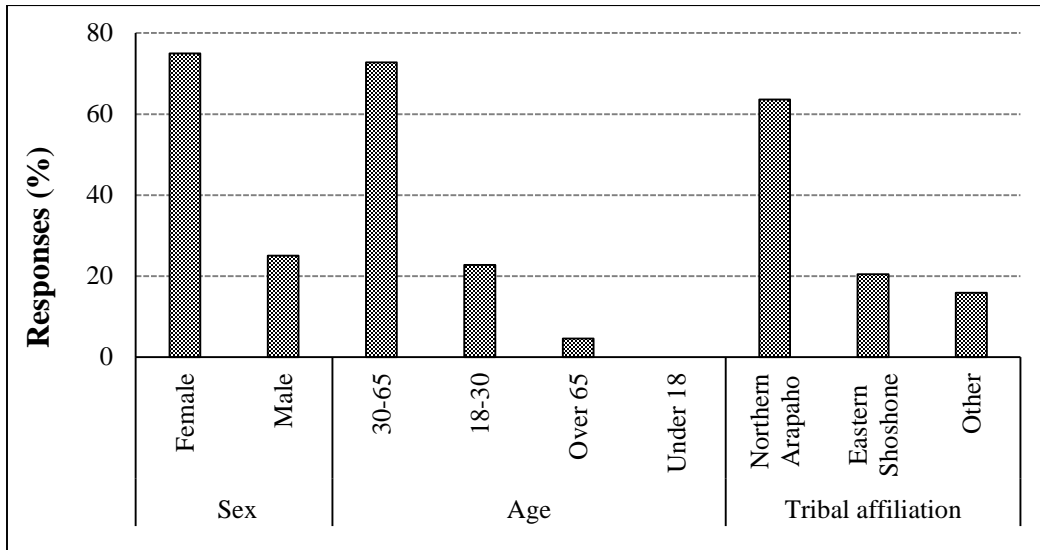
Figure 5.17 Demographics

5.3   Summary of Results

The literature review, analysis of demographics and transportation infrastructure facilities, resident surveys, stakeholder surveys, and WINDS III survey provided information for analyzing elements that would help to define livability in general and in relation to transportation. Metrics such as transportation, roadways and safety, quality of life were used to measure the livability. The results of the resident and stakeholder surveys and the WINDS III survey are discussed and analyzed in this section.

As a response to ranking their community as a better place to live, 56.8% of residents think that WRIR is average, whereas 42.9% of the stakeholders ranked their community an average place to live. In both the survey analyses from residents and stakeholders, the WRIR community is ranked average as livable. Figure 5.18 shows the comparison in responses provided by residents and stakeholders to rank community as a good place to live.
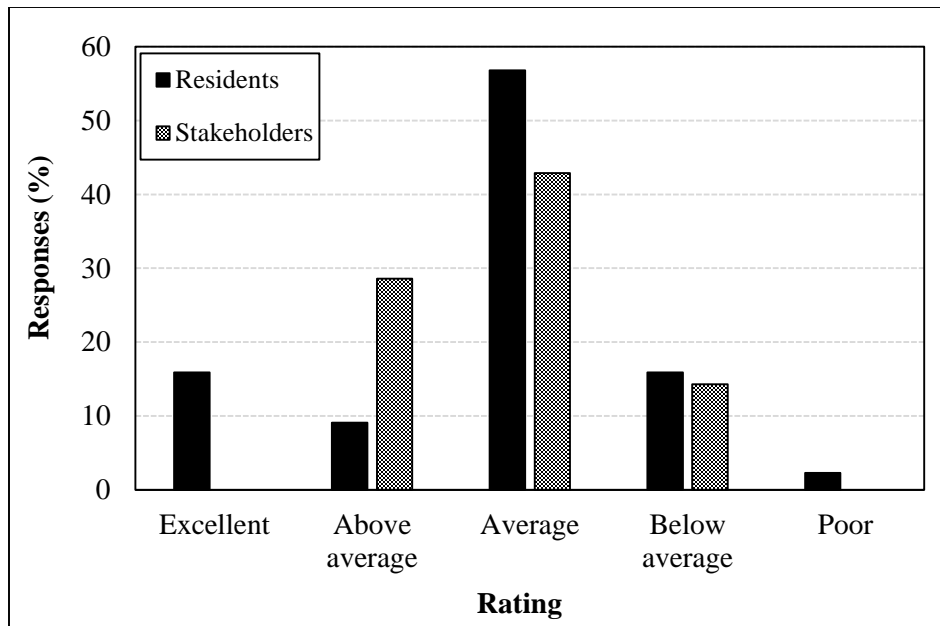
Figure 5.18 Stakeholder and Residents Response: Rank Community as a Good Place to Live

When asked about livability in general, transportation issues came up in the comments, but the most important elements that the WRIR residents think impacts livability are recreational/youth center, public safety, well planned community, job training, access to hunting and fishing, and public utilities. The common element is public safety, and indeed it is an important element while analyzing the livability of any community. When asked about the most challenging aspect on WRIR, lack of job opportunities is the most challenging aspect according to the stakeholder survey. This can be strengthened from the resident survey also, 38.6% of survey respondents stated that job training is an important element in making a community good place to live. The important elements from a transportation perspective, well-maintained roads and bicycle lane/path, were top priorities on both surveys. The main purpose of using public transportation is getting to and from work at 71.4% for stakeholders. Nearly 41% of residents use public transportation for getting to and from work. About 50% of residents think that safety of roads on WRIR is average whereas 71.4% of stakeholders considered safety of roads average. According to the survey responses, 40.9% of residents noted that the safety for walking and bicycling is below average followed by 38.6% as poor and 22.7% as average. Similarly, 57.1% of stakeholders think that the safety for walking and bicycle is below average and 14.3% as poor.

In the response about types of safety provisions that will help to make roads and highways on WRIR safer, respondents prioritized educational/awareness campaigns (100%) as most essential, followed by bike lane/paths (71.4) and wide and well-maintained roads (57.1%). The current job condition was another question on the survey. Response showed that about 50% of the residents surveyed were employed and the rest are unemployed and looking for a job. This figure is somewhat similar with that of percentage employed from WINDS III survey. The reasons given for unemployment were household works, transportation, job training, and others. Out of total residents surveyed, about 75% were female respondents of age group 30-65 (72.7%). They are engaged in child care, caretaker to elderly and disabled, and other household activities. WINDS III also showed that residents were unable to find work due to lack of transportation facilities. Out of 25% male respondents, only two-thirds were employed. Also, 52.3% of respondents are aware of health facilities/nursing home services that are available for elderly and disabled. Other than that, 31.8% were aware of public transportation whereas 25% of respondents hadn't noticed any such services provided to elderly or disabled. Similarly, in the stakeholder survey 42.9% of respondents agreed that health facilities/nursing home facilities were provided for elderly

and disabled as well as public transportation (28.6%). The stakeholder survey showed alcoholism and substance use as major social issues, and infrastructure for business as a major economic issue, should be addressed in a livability program.

5.4   Analysis of Results

The results obtained from the US Census, transportation statistics, WINDS III survey, and the livability surveys were analyzed. From the US Census data, it is clear that Indian reservations are not highly-populated and population density is considerably less than the United States average. AI/AN lack better transportation facilities, such as good roads, adequate public transportation, well maintained sidewalks and pedestrian crossings.

The livability survey developed for stakeholders and residents provided more detailed information. From the analysis, there are commonalities across the different data sources. Keeping a well-maintained roadway system and public safety were of high priority found in the results of both the surveys analyzed. Bicycle lane/path, and safety while walking and bicycling have a high priority. Table 5.5 provides a summary of the major themes identified through analysis of the surveys, based on the higher percentage of responses.

Table 5.5 Summary of Findings

Livability Elements	Residents Feedback	Stakeholder Feedback
Rank Community	Average	Average
Elements important to make your community a good place to live	Recreational /Youth center	Housing facilities
Elements important from transportation perspective	Well Maintained Roads	Well Maintained Roads
Purpose of using public transportation	Getting to and from work	Getting to and from work
Safety of Roads	Average	Average
Safety for walk and bicycle to school	Below average	Below average

In general, the WINDS III report provides comprehensive information about the community, but only the information related to livability issues were pulled from the survey and analyzed in this thesis. Issues related to households, employment status, transportation facilities, and roadways and safety were discussed; and were helpful in defining livability issues on WRIR. Employment status could be greatly improved on the WRIR. Various sources of job training are available on WRIR and few people know about the Winds Job Corps. WRIR also has some transportation-related issues. Access and transportation is a problem for getting to medical care, not being involved in after-school activities, being unable to find jobs inside the reservation, and traveling off reservation to employment. A high proportion of households have one or two vehicles per household. Most residents use public transportation for getting to and from work and for medical services. Snow removal, speeding, animal hazards, drinking and driving are concerns related to roadway safety on the WRIR. Information from the WINDS III survey helped to compare elements related to the livability issue on WRIR.

Predominant issues impacting livability are employment condition, accessibility, job trainings, transportation issues, and road condition and safety. Table 5.6 shows the categorized summary of livability elements from the WINDS III survey.

Table 5.6 Livability Elements from WINDS III Survey

Livability Elements	Issues
Housing and Household services	• Most individuals are homeowners, • Availability of tribal housing offered by BIA and tribe itself
Employment	• Unemployment is a problem • Unable to find work, retired due to age, in poor health /with disability, homemaker, caregiver to elderly or children, working seasonally and student are some reasons behind not getting a job • Few have received job training • Few know about Wind River job corps center
Health Issues	• Most people rely on Indian Health Service
Transportation Issues	• Access is a problem • Students are unable to be involve in after school activities, residents have problems getting medical care due to "access," transportation is needed to find jobs • More than 90 percent households have either one or two dependable vehicles • Few people depend on shuttle bus getting to and from work, shopping, school, recreational activities • Need of public transportation is important
Road Condition and safety	• Condition of road is generally good • Snow removal, speeding, drinking and driving, and animal control are roadway safety-related issues, • Awareness of seatbelt use

5.5 Developing a Livability Program

The final step in the methodology is development of the livability program based on the analysis. The summary of livability issues obtained from different information sources has helped to formulate a definition for the WRIR. Key issues on the WRIR include transportation, well maintained roads, safe pedestrians and walkways facilities, job facilities, access to recreational activities, hunting, fishing, camping, health care, youth/recreation and public safety, educational awareness etc. From this, livability can be defined for WRIR as:

> *"The community must have well maintained roads with pedestrian/bicycle facilities that provide good access to jobs, health care, recreational activities, and hunting and fishing. Public safety is integral to all these characteristics of a viable, livable tribal community. Youth are a priority, and advancement of community development should provide programs and facilities to enrich their lives."*

This definition is based on information obtained from different data sources. The review and feedback from tribes will help to strengthen those identified issues for defining a broad concept of livability. The concept should focus on the community having well-maintained roads with safe pedestrian/bicycle facilities that benefit people by providing quick access to services such as jobs, health care, and recreational and outdoor activities.

Existing plans and programs should be included as part of the livability program. They include:
- A regional transit service
- Strategic highway safety plan
- Pedestrian long range plan

The WRIR strategic highway safety plan addresses many of these issues related to livability, including adopted plans for a roadway safety improvement program and a long range pedestrian access plan. Both of these programs are powerful tools toward implementing a livability program on the WRIR. Communities will further benefit by improvement to public transportation, public safety, bicycle lane/paths, and more employment opportunities. Needed programs depend on necessity of the community. The tribal government should address the most important and prevailing programs based on interest and necessity.

Another key issue for residents on the WRIR is job availability. Job availability is low on the reservation, making residents rely on employment off the reservation. Job training also is important. These issues, along with access to health care facilities, warrant the need for public transportation facilities that will give residents opportunities to pursue better quality of life choices.

The analysis showed importance of public transportation on the WRIR. A current public transit service runs from Lander to Ethete, however, the transit is inconvenient and does not cover the entire reservation. Most people have to walk four to five miles to get to a stop. Therefore, ridership is low and sometimes runs vacant. Programs to increase the ridership could be helpful. If this service were to be expanded, the issue of how to sustain it would require further study.

The next step in implementation of a livability program for WRIR is to present findings to the Tribal leadership for feedback. Leaders can identify ongoing reservation activities or programs that may already be addressing some of these concerns. Incorporating community engagement and proposal review on the proposed livability programs or projects should follow, as sustainability of such programs or projects is important. Strategies could then be developed to continue existing programs and determine viability of new programs in the present condition.

5.6   Summary

This section describes implementation of a three-step methodology on WRIR. The livability surveys, census data, and needs determination survey (WINDS III) were used for information collection. Next, analysis of the information obtained helped develop a common theme on livability. By incorporating all trends obtained from analysis of the information, a definition of livability for the WRIR was proposed. The definition of livability on WRIR focuses on a community having well-maintained roads with safe pedestrian/bicycle facilities, which benefit people by providing quick access to services such as jobs, health care, recreational and outdoor activities, and preserving culture and sovereignty.

6.   CONCLUSIONS AND RECOMMENDATIONS

6.1   Conclusions

Different definitions and concepts exist regarding livability. Definitions vary from one community to another, whether it is urban, rural, or tribal. Most literature and programs are designed for urban areas. To achieve the livability goals, different livability programs such as smart growth, context sensitive solution, complete streets, new urbanism, and transit oriented development, emerged as tools to implement livability and develop sustainable communities. The concept of livability is different depending on type of community, but they all have a consistent theme of improved quality of life, transportation options, and environmental protection. Livability is composed of different elements that vary from one community to the next.

This research developed a methodology to assist Tribes in developing a livability program for their reservations. It consists of data collection, analysis, and development of the program based on analysis. The types of data that must be collected to define livability include a needs determination surveys (WINDS III), census data, and livability surveys. WINDS III contains questions related to transportation, roadway and safety, social and economic, and other miscellaneous issues, which typically are included in a livability study. The livability surveys identified priorities for Tribal members that will provide support in defining livability on Indian Reservations in the context of transportation, quality of life, and economic development.

The methodology was implemented on the WRIR. The WINDS III and the additional two surveys—stakeholder and resident surveys, assisted in developing common themes important to the community, from a livability perspective. It helped stakeholders better understand the issues concerning their people and community, such as problems related to transportation, community and quality of life. A survey questionnaire was distributed, which contained questions related to social, environmental, and transportation issues.

Metrics, such as transportation, roadways and safety, quality of life, were used to measure livability. Analysis of responses from the WINDS III survey, stakeholder surveys, and resident surveys found many commonalities regarding livability. The residents and stakeholders found WRIR an average place to live. Many factors, including as youth/recreational centers and public safety, are important elements on WRIR. Apart from this, and from a transportation perspective, well-maintained roads and bicycle and pedestrian lane/paths are important. Availability of job facilities is important in making the community a better place to live, but many people are unemployed due to lack of proper job training, access and education. Safety of the highways and roads also is an important aspect of livability. Tribal communities consider safety improvement and public awareness essential to addressing this issue. Public transportation is critical. Few people have access to public transportation for getting to and from work and for medical services. Public transportation and health facilities are provided for the elderly and disabled, but are not necessarily adequate.

Key issues from these surveys helped to formulate a definition for the WRIR and include transportation, health care, recreation and public safety. This thesis defines livability for WRIR as:
> *"The community having well-maintained roads with pedestrian/bicycle facilities that provide good access to jobs, health care, recreational activities, and hunting and fishing. Public safety is integral to all these characteristics of a viable, livable tribal community. Youth are a priority, and advancement of community development should provide programs and facilities to enrich their lives."*

The proposed definition of livability focuses on a community having well-maintained roads with safe pedestrian/bicycle facilities that benefit people by providing quick access to services, such as jobs, health care, and recreational and outdoor activities, and preserving culture and sovereignty.

To make tribal lands more livable, the elements that are important to them should be incorporated during the planning and design phase of any program related to livability. Existing programs need improvement to further benefit the community. Programs already in place should be reviewed and proper attention given so outcomes can achieve the community's livability goals. Engagement of the community and its review on proposed livability programs or projects also is an important aspect while developing livability themes.

Conclusions from this research can be summarized as following:
- Most literature and programs are designed for urban areas and limited information is available for rural and tribal communities.
- A three-step methodology was developed to assist Tribes in developing a livability program and projects for their reservations.
- Methodology was implemented on WRIR. The key issues important to the community were analyzed from different sources of information. A definition for the WRIR was formulated. The definition focuses on a community having well-maintained roads with safe pedestrian/bicycle facilities that benefit people by providing quick access to services such as jobs, health care, recreational and outdoor activities, and preserving culture and sovereignty.
- Identified themes, if incorporated during the planning and design phase of any program related to livability, will further benefit the community.
- Engagement of the community and their review on the proposed livability programs or projects is an important aspect while developing a livability program.

6.2   Recommendations

The WRIR should utilize the livability program defined in this study, which also includes existing programs and projects currently in place on the reservation. The implementation of livability projects and programs must include elements such as access and mobility, youth awareness and motivation, and job opportunities and training. Coordination and collaboration is important to the success of a practical livability program. Engaging the community to inform them about different issues that are prevailing on WRIR is another step on implementation. Feedback and review will help to incorporate the present issues from a community perspective.

The next step beyond this is to implement methodology on other Indian reservations across the United States. This will facilitate application of livability principles to projects and programs with sustainable strategies. It is important to coordinate with other states, tribal governments, and TTAP and LTAP centers when implementing the three-step methodology. Commonalities from a broader implementation will allow comparisons and analysis of different important issues of livability on Indian reservations. A broad concept of livability can be developed for Native Americans throughout the United States and can help guide tribes in making decisions to better allocate resources, not only for transportation, but also for economic development, and improved quality of life.

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APPENDIX A: STAKEHOLDER SURVEY

Category: Livability

1. How do you rank your community as a good place to live?

   ☐ Poor ☐ Below Average ☐ Average ☐ Above Average ☐ Excellent

2. Which of the following elements do you consider important to make your community a good place to live? (Please choose your top three)

   ☐ Housing facilities   ☐ Transportation infrastructures

   ☐ Public Safety   ☐ Access to services (healthcare, jobs, shopping, and schools)

   ☐ Public Utilities (water, sewer)   ☐ More restaurants and shopping on Reservation

   ☐ Industry/Business Development   ☐ Recreation/Youth Center

   ☐ Tourism   ☐ Access to hunting and fishing

   ☐ Others:Specify_____

   _____

3. What might be the challenges on the Wind River Indian Reservation to making it a better place to live?

   ☐ Lack of law enforcement   ☐ Lack of proper planning

   ☐ Lack of emergency services   ☐ Lack of Transportation Options

   ☐ Lack of Job opportunities   ☐ Effective management of Federal and other funding

   ☐ Others:Specify_____

   _____

4. Do you think recreation opportunities such as parks, trails, and public spaces and business centers makes a community a better place to live?

   ☐ Yes   ☐ No

Category: Transportation

5. Which of the following elements do you consider important to make your community a good place to live from a transportation perspective?

    ☐Well maintained roads   ☐Good public transportation

    ☐Sidewalks and pedestrian crossings   ☐Bicycle lanes/paths

    ☐Roadway safety

    ☐Others:Specify_____

    _____

6. Rate the availability of transportation facilities such as well-maintained roads, good public transportation, sidewalks and pedestrian crossings, bicycle lanes in your community.

    ☐Poor   ☐Below Average   ☐Average   ☐Above Average   ☐Excellent

7. What type of facilities would you like to be added in order to improve transportation options in your community?

    ☐Well maintained roads   ☐Public transportation

    ☐Sidewalks and pedestrian crossings   ☐Bicycle lanes/paths

    ☐Others:Specify_____

    _____

8. What mode of transportation do you usually depend upon?

    ☐Walking   ☐Bicycle   ☐Public Transportation   ☐Car

    ☐Others:Specify_____

    _____

9. How important is local public transportation in making your community a good place to live?

    ☐Not Important   ☐Somewhat Important   ☐Neither Unimportant or important

    ☐Important   ☐Very Important

10. For what purpose you use the public transportation services?

    ☐Shopping   ☐ Medical services   ☐ Getting to and from work

    ☐ Getting to and from School   ☐ Others

11. Do you consider this available public transportation facility adequate?

☐ Yes   ☐ No

12. Is access to affordable air service important to your community?

☐ Not Important   ☐ Somewhat Important   ☐ Neither Unimportant or Important

☐ Important   ☐ Very Important

Category: Roadway and Safety

13. How do you rate the condition of the main highways on the Wind River Indian Reservation?

☐ Poor   ☐ Below Average   ☐ Average   ☐ Above Average   ☐ Excellent

14. How do you rate the condition of the local roads on the Wind River Indian Reservation?

☐ Poor   ☐ Below Average   ☐ Average   ☐ Above Average   ☐ Excellent

15. How important is the condition of the roads in making your community a good place to live?

☐ Not Important   ☐ Somewhat Important   ☐ Neither Unimportant or Important

☐ Important   ☐ Very Important

16. Which type of road is most widely available in your community?

☐ Paved surface   ☐ Gravel   ☐ Earthen roads

☐ Others:Specify_____

_____

17. How do you rate the safety of the highways/local roads on the reservation?

☐ Poor   ☐ Below Average   ☐ Average   ☐ Above Average   ☐ Excellent

18. In your opinion which of the following factor most affect the safety of these roads?

☐ No Shoulders   ☐ No Sidewalks   ☐ Poor sight distance   ☐ Sharp Curves

☐ Others:Specify_____

_____

19. How is the provision of safety for children as they walk and bicycle to school in your community?

☐ Poor   ☐ Below Average   ☐ Average   ☐ Above Average   ☐ Excellent

20. What type of safety provisions would help to make the roads in your community safer?

☐Bike lane/Paths   ☐Pedestrians lane for walking

☐Traffic signals   ☐Street Lights

☐Wide and well maintained road   ☐Educational/Awareness campaigns

☐Others:Specify_____

_____

21. How important is pedestrian-friendly infrastructure such as sidewalks and pedestrian crossings in making your community a good place to live?

☐Not Important   ☐Somewhat Important   ☐Neither Unimportant or Important

☐Important   ☐Very Important

22. How is the condition of infrastructure such as sidewalks and pedestrian crossings in making your community a good place to live?

☐Poor   ☐Below Average   ☐Average   ☐Above Average   ☐Excellent

Category: Social and Economic issues

23. What are the major social issues that should be addressed in a livability program?

☐Alcoholism and substance use   ☐Early marriage and early pregnancy

☐Mental health/Depression   ☐Suicide

☐Others:Specify_____

_____

24. What types of facilities are provided to the elderly and disabled people?

☐None   ☐Health facilities/Nursing Home   ☐Public Transportation

☐Others:Specify_____

_____

25. What major economic issues should be addressed in a livability program?

☐Lack of jobs ☐Job Corp Opportunities

☐Infrastructure for businesses (roads, sewer, water)

☐Availability of financing for self-employment activities

☐Others:Specify_____

_____

26. How important would an incubator for small business be for your community?

☐Not Important ☐Somewhat Important ☐Neither Unimportant or important

☐Important ☐Very Important

27. From which media do you get/provide information about the development activities in your community?

☐Public meetings and public hearings ☐Local Newspaper

☐Internet ☐Radio

☐Others:Specify_____

_____

28. Do you think residents would get more involved in the development of your community if there was better media communications of upcoming projects?

☐Yes ☐ No

Category: Environmental issues

29. What are the major environmental issues in tribal community?

☐Deforestation ☐Depletion of natural resources ☐Air pollution

☐Water Quality ☐Flooding ☐Drought

☐Others:Specify_____

_____

30. Is it important to preserve the environment while developing the transportation infrastructures?

☐Not Important ☐Somewhat Important ☐Neither Unimportant or Important

☐Important ☐Very Important

Category: Stakeholders

31. From an organization perspective, what do you believe are the basic tenets of livability for tribal communities?

   ……
   ……
   …………………………………………………………………………………………

32. Please list any livability related programs you are aware for tribal communities.

   ……
   ……
   …………………………………………………………………………………………

33. Do you have any other feedback that would be helpful in developing a livability program for Indian reservations?

   ……
   ……
   …………………………………………………………………………………………

APPENDIX B: STAKEHOLDERS FEEDBACK

After the surveys were completed, the stakeholders those who were present on meeting provided individual feedback.

- Fremont County- EMS

– Health care reimbursement changed the way

– Necessity of outcome based medical studies

– Mobile integrated health system

– Rolling clinic is important but is limited in scope

– Can integrate the reservation and county health and work together

– Reduce health related costs as patient don't have to go to hospitals and doctors

– It also reduces the number of patient flow in hospital

– Looking for a grant, currently have only one vehicle

– Need of 24 hour EMS service in Ethete area and looking for land for EMS station and

  planning for staff with native American

- Tribal Liaison

– Provision of internet and fiber optics

– Budget constraints for development of any infrastructure

– The effort of S.A.DOT have taken lead to improve, it had provided better condition roads

  and safe access

– Everyone working for better community, better health quality, better access to work

– Lot of room for development

– UW also focusing in development of reservation by providing technical expertise

– Coordination and collaboration would help reservation focus on how UW can be more

  instrumental

- Health facilities is critical: IHS had only 15million/year which is not sufficient.

- At the end of fiscal year the due to shortage of fund the needy people had to wait until the reimbursement of fund for next fiscal year

- Health is very important to quality of life

  - <u>Community health Centre of Central Wyoming</u>

- Education related to health (diabetes, fast food selection), sex and birth control

- Health care across the geographical area

- Cross jurisdiction issues

- Job training before job opportunity, learning how to maintain job

- Self-esteem: raise and maintain self-esteem of children and people

- Schools with updated technology, computer facilities with internet

- Incentives to support children to college

- Housing is critical

- Green housing with flux of cash from casinos

- Community health service is critical in reservation

- It is covered by insurance in tribe, if a person faces health related problem then one has to come to the place of insurance issue, sometime they have to drive from one state to another to get the health service.

- The health service should be beyond the geographical constraints

- There is no coordination between agencies

- Problem for residents of reservation: very few access so have to call for a ride to go for appointment

  - <u>Northern Arapaho tribal Health program</u>

- Poor road condition on northern part of reservation where few ranchers live

- Better access in more remote areas is important

- The people have to cross the creek and have to walk 4-5 miles to get the ride

- From economic point of view more access to recreational and tourism spots is important but no facilities are provided

- No provision of fishing, hunting and camping which is the part of culture in reservations

- Elder health care-access is problem so need more transportation facilities

- They have senior centers but due to lack of transportation facilities all do not have access to it.

- Ridership problem: some time the bus run empty from Lander to Ft. Washakie

- Bus service is not managed well, they possess very few stops and the bus does not go to Walmart the people have to walk about 5 miles to get a bus ride from Walmart.

- Provision of street lights

- No Animal control

- Walking and bicycle safety a concern because of so many stray and wild dogs

- Law enforcement is also critical in reservation: there is drug problem in reservation

- Need cameras for street lights or insurances

- The media campaigns Cody has helped with are effective and should continue

- Need intercity transit to Casper for shopping

- Low vehicle ownership, people stuck at home, no money to pay someone for gas to get to the appointment

- Need better access for disabled and elderly

- Maybe nurses stations could send text messages to appointees

- WYDOT

  – Transit not used much by Tribes because nobody knows about it and it has limited stops

  – Used a lot by head start

  – They are looking to expand the transit service

  – A program needed to clean and replace signs because of graffiti. Need something environmentally friendly to put on the signs that would cause them to clean easily.

  – Vandalism is a big problem.

  – These are behavioral issues related to drinking and driving

  – Infrastructure of services

  – Pedestrian program should address animal control

- SADOT

  – Need to address social issues with drinking and driving

  – People driving road blocks

  – Tribal members cant transport their health coverage

  – Individuals needing a ride can text the Transit Authority but many don't have capabilities

  – Challenge is ridership numbers

  – Working on innovation to get people

  – Everyone has a Dish but no money for utilities or transportation, its matter of culture, social and behavioral issues

  – Need animal control

  – Viruses is going around so need animal awareness program

  – There needs to be training and coordination between agencies

- For emergency issues (forest fires) emergency management, flooding management need to develop own program

- Fernando Roman works with Reservation emergency management

- In the process of getting cooperative funding

APPENDIX C: TRIBAL RESIDENTS SURVEY

1. How do you rate your community as a good place to live?

   ☐Poor   ☐Below Average   ☐Average   ☐Above Average   ☐Excellent

2. Which of the following elements do you consider important to make your community a good place to live? (Please choose your top three)

   ☐Well planned community   ☐ Transportation infrastructures

   ☐Public Safety   ☐ Public Utilities (water, sewer)

   ☐ Industry/Business Development   ☐ Recreation/Youth Center

   ☐ Tourism   ☐ Access to hunting and fishing

   ☐ More local restaurants and shopping   ☐Job trainings

   ☐Other_____

3. Which of the following elements do you consider important to make your community a good place to live from a transportation perspective?

   ☐Well maintained roads   ☐Good public transportation

   ☐Sidewalks and pedestrian crossings   ☐Bicycle lanes/paths

   ☐Roadway safety   ☐Other_____

4. For what purpose you use the public transportation services?

   ☐Shopping   ☐ Medical services

   ☐Getting to and from work   ☐Getting to and from School

   ☐Others_____

5. How do you rate the safety of the roads on the reservation?

   ☐Poor   ☐Below Average   ☐Average   ☐Above Average   ☐Excellent

6. How is the provision of safety for children as they walk and bicycle to school in your community?

   ☐Poor   ☐Below Average   ☐Average   ☐Above Average   ☐Excellent

7. What are the facilities provided to the elderly and disabled people?

☐Health facilities /Nursing Home   ☐Public Transportation   ☐None

☐Other_____

8. Which of the following best describes your current job condition?

☐Employed   ☐Unemployed and looking for work; unable to find work

☐Retired due to age   ☐In poor health or with disability

☐Homemaker or care giver to elderly or children

9. If not employed, what is the cause for not having access to it?

☐Transportation   ☐Job training

☐Household works (childcare, caregiver to elderly/disabled)

☐Other_____

10. What are the facilities provided to the elderly and disabled people?

☐Health facilities /Nursing Home   ☐Public Transportation   ☐None

☐Other_____

11. Do you have any other feedback that would be helpful in making your community a better place to live?

_____

_____

12. Your sex: ☐Male   ☐Female

13. Your age: ☐Under 18   ☐18-30   ☐30- 65   ☐ Over 65

14. Your tribal affiliation: ☐Eastern Shoshone   ☐Northern Arapaho

☐None   ☐Other _____

Resident survey:

In a question about any other feedback that would be helpful in making your community a better place to live, the respondents provided open ended responses.

– More youth activities recreation

– Safer walkways

– More activities for youth would be nice

– Have places for the elderly and children for activities

– More places, activities for children, teens etc.

– Get rid of alcohol, drugs

– Get the tribal code re-enforced

– We need more jobs and better roads

– More involvement for the youth and elderly to have a place to meet

– Drug/teen pregnancy prevention awareness

– Safer environment for all

– More cop patrol for security

– Less greed, more programs for children of all ages that don't close by 5 PM

– Bicycle paths, public awareness, more transportation options

– Need more police