Livability and Transportation Safety on Indian Reservations

Wisconsin Tribal Transportation Conference

November 4, 2015

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Overview

• Objective
• Background
• Tribal Challenges
• Tribal Opportunities
• WRIR Roadway Safety Program and Livability Program
• Conclusions
Objectives

• Explore the concept of livability in the context of Tribal Lands
• Identify livability needs of Tribal communities
• Introduce a methodology for Tribes to develop their own livability programs that fits their specific needs
• Present Wind River Safety Program and Livability Program
Livability is a fairly new concept
No exact definition
Key Elements
  – Transportation
  – Community (Culture)
  – Quality of life
The priorities of the community define the livability of that community

Livability

- U.S. DOT Secretary Ray LaHood defined 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.”
A livable community is expected to survive at its defined quality of life through self-supporting strategies that will sustain for future generations.
Interagency Partnership for Sustained Communities

- Formed in 2009
- To improve access to affordable housing
- Increase transportation options
- Lower transportation costs
- Protect the environment
Livability Principles

• 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
Urban Livability Programs

- Smart Growth
- Complete Streets
- Lifelong Communities
- Safe Routes to School
- Context Sensitive Solutions & Design
- New Urbanism
- Transit-Oriented Development
Rural Livability

• Low density
• Varying needs
• Protection of natural resources, environment & scenic resources
• Geographical challenges
• Lack of transportation choices
• Lack of resources
Tribal Challenges

• Similar challenges as rural
• Sovereignty & Jurisdiction
• Traffic Safety
• Geographical challenges
• Transportation Needs
Livability on Indian Reservations

- Cross jurisdictional issues
- Lack of adequate, safe pedestrian and bicycle facilities
- Protection of natural resources, environment & scenic resources
- Preservation of culture
Tribal Opportunities

• Existing Initiatives
  – Regional planning
  – Rural Transit
  – Pedestrian Safety
  – Roadway Safety
Pine Ridge Indian Reservation
Regional Plan for Sustainable Development

• Focus: Community building & preservation, economic development
• No planning office & limited resources
• Collaboration with several agencies
• Grants from HUD
• Incorporate youth involvement
• Now nationally known model for other Tribes
Menominee Regional Public Transit

- Partnerships:
  - College of Menominee Nation
  - Local schools
  - Veteran’s services
  - Menominee County Human Services

- Help residents meet transportation need

- Preserve natural resources
WRIR Pedestrian & Walkway Long Range Transportation Plan

• No pedestrian facilities connecting schools, residents, and services
• Rural highways used by pedestrian
• Identifies most hazardous locations
• Identifies specific solutions & proposed pathway expansions & improvements
WRIR Roadway Safety Improvement Program (IRRSP)

- 5-step methodology to identify high risk crash locations
- WYDOT funded 3 low-cost safety improvement projects
- Developed strategic highway safety plan
- Methodology implemented in Northern Plains region
Wind River Indian Reservation

- 2.2 Million Acres
- 36,000 Community
  - Northern Arapaho
  - Eastern Shoshone
- 1,228 miles IRR
  - 175 miles paved
- 432 miles County
- 235 miles State
WRIR IRRSP

Background

• Fatal crashes leading cause of death among Native Americans
• Need for improved Tribal traffic safety
• Rural nature of roadways
WRIR IRRSP

Challenges

• Lack of and Incomplete Crash Data
• Limited Resources and Expertise
• Collaboration and Coordination
5 Step Process

1. Crash Data Analysis
2. Level I Field Evaluation
3. Combined Ranking
4. Level II Field Evaluation
5. Benefit Cost Analysis
WRIR Applied Methodology

WRIR Safety Evaluation

- IRR Roads
  - System Wide Improvements
- County Roads
  - Five Step Process
## County Roads

<table>
<thead>
<tr>
<th>Road</th>
<th>Benefit</th>
<th>Cost</th>
<th>B/C Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eight Mile Road</td>
<td>$2,962,691</td>
<td>$7,417</td>
<td>399.5</td>
</tr>
<tr>
<td>Riverview Road</td>
<td>$7,155,772</td>
<td>$44,360</td>
<td>161.3</td>
</tr>
<tr>
<td>Ethete Road</td>
<td>$2,657,358</td>
<td>$27,017</td>
<td>98.4</td>
</tr>
<tr>
<td>North Fork Road</td>
<td>$3,585,894</td>
<td>$36,863</td>
<td>97.3</td>
</tr>
<tr>
<td>Trout Creek Road</td>
<td>$2,421,742</td>
<td>$30,900</td>
<td>78.4</td>
</tr>
<tr>
<td>Burma Road</td>
<td>$1,262,850</td>
<td>$16,640</td>
<td>75.9</td>
</tr>
<tr>
<td>South Fork Road</td>
<td>$1,117,816</td>
<td>$31,600</td>
<td>35.4</td>
</tr>
<tr>
<td>Pingetzer Road</td>
<td>$145,392</td>
<td>$7,750</td>
<td>18.8</td>
</tr>
<tr>
<td>Hutchinson Road</td>
<td>$57,600</td>
<td>$3,400</td>
<td>16.9</td>
</tr>
<tr>
<td>Kinnear Spur Road</td>
<td>$130,447</td>
<td>$8,100</td>
<td>16.1</td>
</tr>
<tr>
<td>Cliff Road</td>
<td>$14,281</td>
<td>$5,600</td>
<td>2.6</td>
</tr>
<tr>
<td>Peterson Road</td>
<td>$29,137</td>
<td>$14,600</td>
<td>2.0</td>
</tr>
</tbody>
</table>
IRR Roads

• No crash locations
• Crash trends evaluated
  – Fixed objects highest first harmful event
  – Most crashes run-off-the-road
• 16 IRR roads underwent similar Level I & II evaluation
• Identified System-Wide Improvements
### IRR Roads

#### Projects Funded by WYDOT

<table>
<thead>
<tr>
<th>System-Wide Improvements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>Cost</td>
</tr>
<tr>
<td>Signs</td>
<td>$140,114</td>
</tr>
<tr>
<td>Pavement Marking</td>
<td>$125,539</td>
</tr>
<tr>
<td>Guard Rail</td>
<td>$14,815</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$280,468</strong></td>
</tr>
</tbody>
</table>
WRIR

- Adjustments made based on WRIR feedback
- System-wide projects funded by WYDOT for IRR roads
- Fremont County funding county road improvements
WRIR

- WRIR consultant developing GIS inventory of IRR roads
- WYDOT and Tribal law enforcement improving crash reporting
- WRIR developed strategic plan
- WRIR received TTP Safety Funds for education, EMS, and engineering
WRIR

WYDOT Report
FHWA-WY-13/07F

WRIR Livability Program

• 3-Step methodology
• Identify the specific needs & concerns of the Tribes
• Encourages community involvement
• Livability defined by the Tribes
• Incorporates existing plans and programs
• Can be implemented nationwide
Methodology

1. Data Collection

2. Analysis

3. Develop Program
Data Collection

- WINDS III Survey – Census Data
- Livability Surveys
  - Stakeholder
  - Residents
WINDS III Survey

Employment

<table>
<thead>
<tr>
<th>Job Status</th>
<th>Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployed and unable to find work</td>
<td></td>
</tr>
<tr>
<td>Received job training</td>
<td></td>
</tr>
<tr>
<td>Found job related to training</td>
<td></td>
</tr>
<tr>
<td>Presently in job related to training</td>
<td></td>
</tr>
</tbody>
</table>

N. Arapaho | E. Shoshone
## WINDS III Survey

### Transportation

<table>
<thead>
<tr>
<th>Transportation Issues</th>
<th>N. Arapaho (%)</th>
<th>E. Shoshone (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transportation:</strong> Reason for not involving after school activities</td>
<td>5.5</td>
<td>8.8</td>
</tr>
<tr>
<td><strong>Access:</strong> Problem getting medical care</td>
<td>23.1</td>
<td>21.3</td>
</tr>
<tr>
<td><strong>Transportation:</strong> Facility to find a job</td>
<td>77</td>
<td>55.6</td>
</tr>
<tr>
<td><strong>Access:</strong> To get off reservation job</td>
<td>18</td>
<td>11.8</td>
</tr>
</tbody>
</table>
WINDS III Survey

Dependable Vehicles

Number of Vehicles

Response (%)

- N. Arapaho
- E. Shoshone

- No vehicle
- 1 Vehicle
- 2 Vehicle
- Having 3 or more
### WINDS III Survey

#### Transportation

<table>
<thead>
<tr>
<th>Purpose for Using Shuttle Bus</th>
<th>N. Arapaho (%)</th>
<th>E. Shoshone (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shopping</td>
<td>11.4</td>
<td>14.3</td>
</tr>
<tr>
<td>Pre-school or head start</td>
<td>8.6</td>
<td>21.4</td>
</tr>
<tr>
<td>Medical service</td>
<td>28.6</td>
<td>14.3</td>
</tr>
<tr>
<td>Getting to and from work</td>
<td>45.7</td>
<td>14.3</td>
</tr>
<tr>
<td>Seeing friends and family</td>
<td>5.7</td>
<td>21.4</td>
</tr>
<tr>
<td>Getting to senior center</td>
<td>5.7</td>
<td>14.3</td>
</tr>
</tbody>
</table>
WINDS III Survey

Roadway Safety

- Drinking and Driving
- Animal hazard
- Speeding
- Snow Removal

Responses Agreed (%)

<table>
<thead>
<tr>
<th>Safety Issues</th>
<th>E.Shoshone</th>
<th>N. Arapaho</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinking and Driving</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Snow Removal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Stakeholder Survey

• WYT²/LTAP Conducted meeting on WRIR
• SADOT organized meeting
• Stakeholders provided feedback and suggestions on what they think about livability on the WRIR
Stakeholders

- Shoshone Arapaho Department of Transportation (SADOT)
- SADOT 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 Relation
- WYT²/LTAP
Stakeholder Survey

Six Categories included 33 questions

- Community
- Transportation
- Roadway and safety
- Social and economic
- Environment
- Stakeholder feedback
How do you rank your community as a good place to live?
Stakeholder Survey

Which elements do you consider important to make your community a good place to live?
What might be the challenges on the Wind River Indian Reservation to making it a better place to live?

<table>
<thead>
<tr>
<th>Challenges on WRIR</th>
<th>Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of job opportunities</td>
<td>71.4</td>
</tr>
<tr>
<td>Effective management of Federal and other Funding</td>
<td>57.1</td>
</tr>
<tr>
<td>Lack of Emergency service</td>
<td>42.9</td>
</tr>
<tr>
<td>Lack of proper planning</td>
<td>42.9</td>
</tr>
<tr>
<td>Lack of law enforcement</td>
<td>14.3</td>
</tr>
<tr>
<td>Lack of transportation options</td>
<td>14.3</td>
</tr>
</tbody>
</table>
Stakeholder Survey

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

For what purpose do you use public transportation?

- Getting to and from work: 75%
- Medical Service: 50%
- Shopping: 40%
- Getting to and from school: 20%
- Others: 10%
Stakeholder Survey

How do you rate the condition of the highways and local roads on the Wind River Indian Reservation?

How do you rate the condition of the highways and local roads on the Wind River Indian Reservation?
In your opinion which of the following factor most affects the safety of these roads?

- No Shoulders
- Sharp curves
- No sidewalks
- No sight distance
What type of safety provisions would help to make the roads in your community safer?

- Street lights
- Pedestrian lane for walking
- Wide and well maintained roads
- Bike Lane/Paths
- Educational/awareness campaigns

Responses (%)

[Diagram showing responses]
Stakeholder Feedback

• Important elements discussed
  – Health care and facilities for access
  – Education and awareness programs
  – Animal control
  – Poor road condition
  – Access to fishing and hunting
  – Job training
Residents Survey

- Survey contained 14 questions
- Questions related to society, roadway conditions, transportation, and safety issues
- Distributed at the Wind River Summer Safety Fair organized by TRiP
- 44 responses collected
Residents Survey

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

<table>
<thead>
<tr>
<th>Rating</th>
<th>Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>10</td>
</tr>
<tr>
<td>Above average</td>
<td>5</td>
</tr>
<tr>
<td>Average</td>
<td>55</td>
</tr>
<tr>
<td>Below average</td>
<td>15</td>
</tr>
<tr>
<td>Poor</td>
<td>0</td>
</tr>
</tbody>
</table>

How do you rate your community as a good place to live?
## Residents Survey

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

*Important that make your community a good place to live*
Residents Survey

Which elements do you consider important to make your community a good place to live from a transportation perspective?
Residents Survey

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

For what purpose do you use the public transportation?
Residents Survey

How do you rate the safety of the roads on the reservation?
Residents Survey

What is the reason for unemployment?

Responses (%)

Reasons for Unemployment

0 10 20 30

Household works  Transportation  Job Training  Other
Residents Survey

Demographics for Residents Survey

<table>
<thead>
<tr>
<th>Sex</th>
<th>Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>70</td>
</tr>
<tr>
<td>Male</td>
<td>30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-65</td>
<td>80</td>
</tr>
<tr>
<td>18-30</td>
<td>60</td>
</tr>
<tr>
<td>Over 65</td>
<td>20</td>
</tr>
<tr>
<td>Under 18</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tribal affiliation</th>
<th>Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Arapaho</td>
<td>80</td>
</tr>
<tr>
<td>Eastern Shoshone</td>
<td>60</td>
</tr>
<tr>
<td>Other</td>
<td>20</td>
</tr>
</tbody>
</table>
Analysis

Stakeholders and Residents Rank Community as Good Place to Live

![Bar chart showing responses of residents and stakeholders to the question of whether the community is a good place to live. The chart indicates that the majority of both residents and stakeholders rate the community as above average or excellent.](chart.png)
### Analysis

**Livability Themes from WINDS III Survey**

<table>
<thead>
<tr>
<th>Livability Elements</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>• Unemployment is a problem</td>
</tr>
<tr>
<td></td>
<td>• Very few know about Wind River job corps center</td>
</tr>
<tr>
<td>Transportation Issues</td>
<td>• Access to facilities and services</td>
</tr>
<tr>
<td></td>
<td>• More than 90% households have at least one vehicle</td>
</tr>
<tr>
<td></td>
<td>• Very few people depend on shuttle bus</td>
</tr>
<tr>
<td></td>
<td>• Need of public transportation</td>
</tr>
<tr>
<td>Road Condition and safety</td>
<td>• Condition of road is generally good</td>
</tr>
<tr>
<td></td>
<td>• Snow removal, speeding, drinking and driving, animal control are safety related issues</td>
</tr>
<tr>
<td></td>
<td>• Aware about seatbelt use</td>
</tr>
</tbody>
</table>
## Analysis

### Summary of Findings on Surveys

<table>
<thead>
<tr>
<th>Concept of Livability</th>
<th>Residents</th>
<th>Stakeholder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank Community</td>
<td>Average</td>
<td>Average</td>
</tr>
<tr>
<td>Elements important to make community a good place to live</td>
<td>Recreational /Youth center</td>
<td>Housing facilities</td>
</tr>
<tr>
<td>Elements important from transportation perspective</td>
<td>Well Maintained Roads</td>
<td>Well Maintained Roads</td>
</tr>
<tr>
<td>Purpose of using public transportation</td>
<td>Getting to and from work</td>
<td>Getting to and from work</td>
</tr>
<tr>
<td>Safety of Roads</td>
<td>Average</td>
<td>Average</td>
</tr>
<tr>
<td>Safety for walk and bicycle to school</td>
<td>Below average</td>
<td>Below average</td>
</tr>
</tbody>
</table>
Defining Livability

• Key Issues
  – Transportation (Well maintained roads)
  – Health care facilities
  – Youth/Recreational activities
  – Public safety
Defining Livability

- Other Issues
  - Job availability
  - Job training
  - Public transportation
  - Road safety improvements
  - Pedestrian safety facilities
Definition for WRIR

“The community having well maintained roads with pedestrian/bicycle facilities which provide good access to jobs, health care, recreational activities, and hunting and fishing. Public safety being integral to all these characteristics of a viable, livable tribal community. Youth are a priority in advancement of community development providing programs and facilities to enrich their lives.”
Existing Programs & Plans

• Strategic Highway Safety Plan
• Roadway Safety Improvement Program
• Pedestrian and Walkway Long Range Transportation Plan
• Job Training Program
• Regional Transit
Livability Program Benefits

• Program provided Wind River with comprehensive documentation for TIGER Grant for major roadway safety improvement with pedestrian facilities

• WRIR was successful in obtaining grant for expansion of transit system
Conclusions

- Common themes for all communities include quality of life, transportation & environmental protection
- Tribal communities have unique challenges
- Methodology developed to assist Tribes develop their own program
- Engaging community and coordination necessary for successful program
Acknowledgements

Wyoming Technical Transfer Center
WYT²/LTAP

Shoshone Arapaho Department of Transportation

Northern Plains TTAP
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