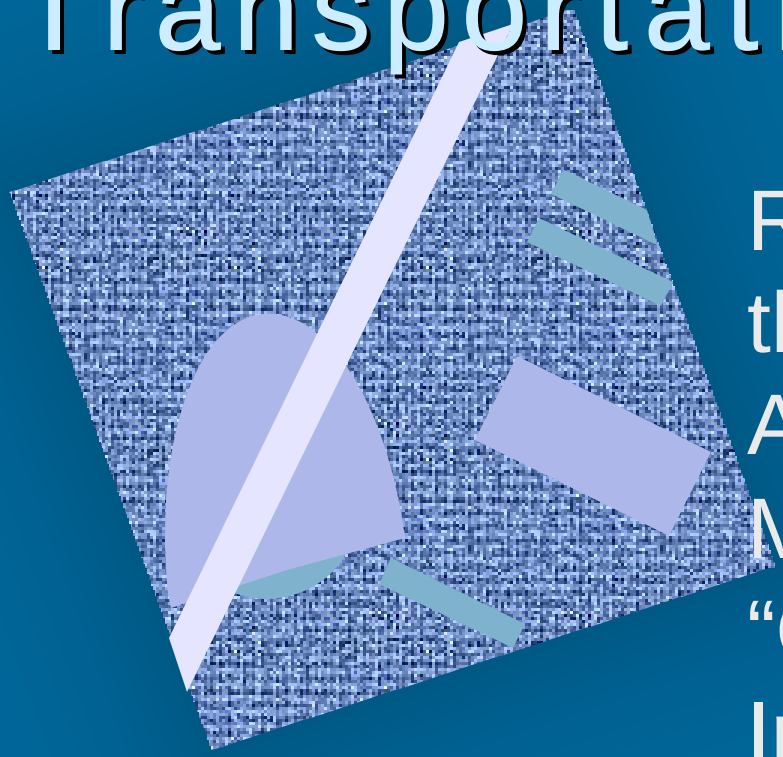
Advanced Rural Transportation Systems



Rural Challenges and the Application of Advanced Technology Must Be a "Community" Investment

Overview of Presentation

Modules

①Introduction

②Technology Focus Areas and User Needs

③Crash Prevention & Security

④Emergency Services

⑤Traffic Management

Overview of Presentation

Modules (Cont.)

⑥Transit & Mobility

⑦Operations & Maintenance

⑧Travel & Tourism

⑨Surface Transportation Weather

⑩Benefits of Advanced Technologies, How to Get Involved & Funding Opportunities

Module Format

- User Needs
- Stakeholders
- Applicable Technologies
- Projects
- Resources

I-5
220TH ST SW

I-405
SR 169

Rural Situations

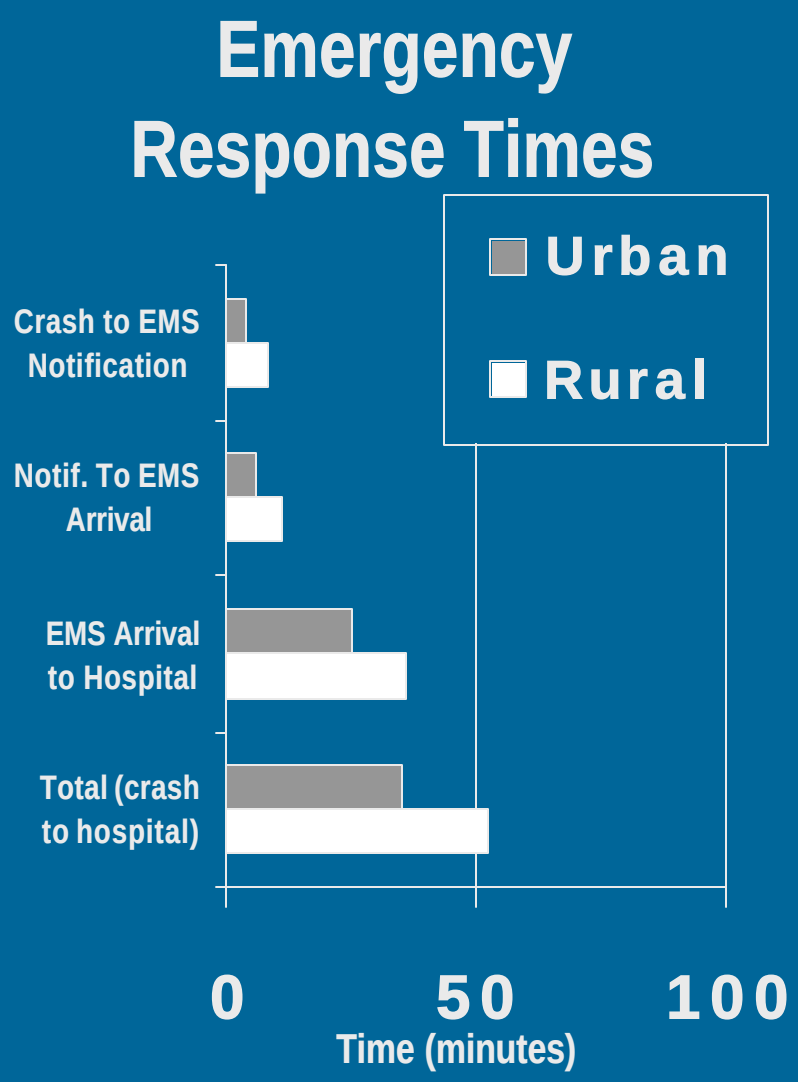
- Challenging geography, weather events, and road conditions
- A sparse telecom infrastructure
- Limited public transportation
- NOT one size fits all

Context

- Limited services between communities
- 78.5% of mileage traveled is rural
- 39.4% of vehicle miles traveled is in rural areas
- 68.4% of crash fatalities occur on rural highways

Source: FHWA Highway Statistics, 1998, Rural Versus Urban Highway Statistics

Crashes


Emergency Response Times
Urban
Rural
Crash to EMS Notification
Notif. To EMS Arrival
EMS Arrival to Hospital
Total (crash to hospital)
0
50
100
Time (minutes)

Emergency Response

In Urban and Rural United States

- Nearly 20,000 people die each year before receiving hospital care
- Another 22,000 people die after reaching the hospital too late to be saved

Source: http://www.nhtsa.dot.gov/cars/problems/studies/acns/champion.htm

Communications/Power

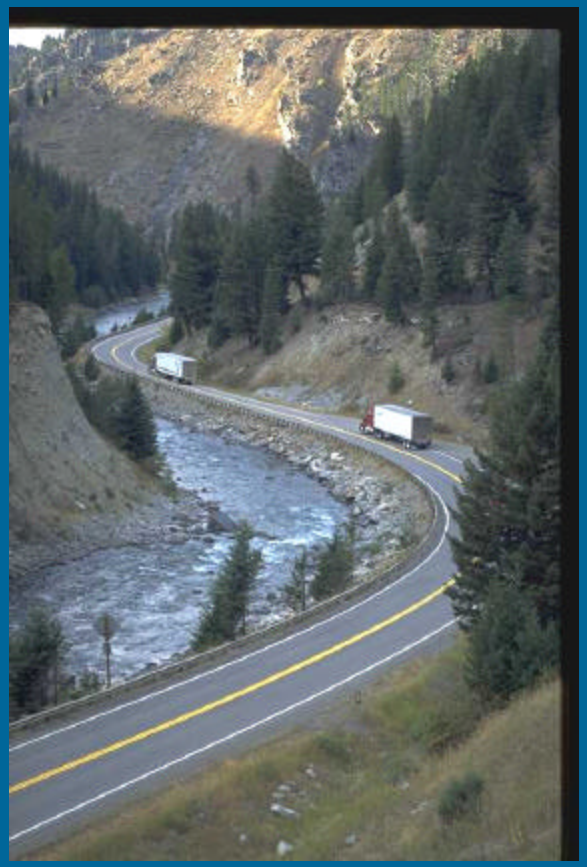
- Limited cellular communication coverage
- Limited power availability
- Limited E911 service
- Response services potentially volunteer

Weather

- 7,000 fatalities annually
- 450,000 persons injured
- $2 billion spent on snow and ice control

Source: Road Weather Road Show Presentation Paper

Commercial Vehicle Traffic



In 1998:

- 420,000 large trucks were involved in crashes
- 5,302 people died in crashes involving heavy trucks
- 13% of all traffic fatalities reported involved heavy trucks

Source: International Road Dynamics Inc

Commercial Vehicle Rollovers

- 10,000 per year
- 80 deaths
- 3,000 injuries
- Physical damage
- Property loss
- Traffic delays
- Environmental damage

Source: International Road Dynamics Inc

Maintenance

- City and County Responsibility -- 95% unpaved & 55% paved roads
- 95% of rural residents depend on personal vehicles
- Most rural lanes are less than 10 ft in width
- Limited budget and resources

Source: ARTS Strategic Plan

Animal Conflicts

- ~726,000 animal/vehicle crashes each year
- PDO estimates ~$2000/vehicle, $1.0 billion each year

Source: Conover, M.R. Wildlife Society Bulletin, 1997

High Recreational Traffic

- Major Route Congestion
- Seasonal Demand
- High Crash Locations
- Limited Visitor Information
- Limited Transit Alternatives
- Limited Infrastructure/Funding
- High Parking Demand/Turn-over

Transit

- 38% of the rural population has no access to public transportation
- 28% have little access
- 45% of rural elderly have no vehicle
- 57% of rural poor have no vehicle
- 1 in 14 households are without a private vehicle

Source: TCRP A - 21, 1999

Economic Viability

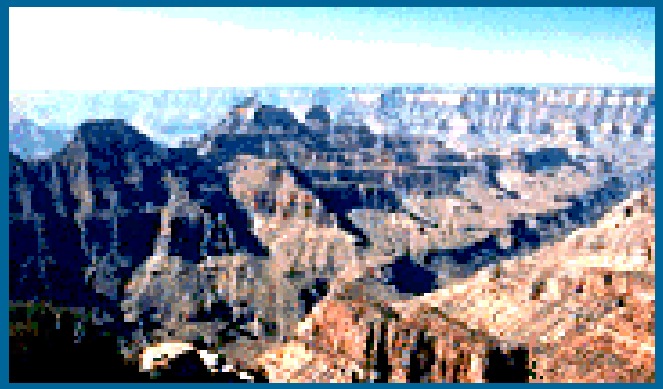
- 1998 Travel expenditures -- $515.2 billion, resulting in 7.6 million jobs
- Domestic travel -- 1.3 billion person trips in 1998
- In 1998, an estimated 46.4 million international visitors spent $91.3 billion on travel in or to the U.S.

Source: Travel Industry Association of America

State Statistics

1998 Traveler Spending, in billions

- California - $62.6
- Florida - $48.1
- New York - $31.3
- Texas - $27.6
- Illinois - $18.4
- Nevada - $17.6
- Hawaii - $14.0
- New Jersey - $13.2
- Pennsylvania - $13.1
- Georgia - $12.05



Source: Travel Industry Association of America

Stakeholders

Who are they?