CHAPTER 9

MAKING TRANSPORTATION SECURE

Need for Consideration

Transportation security is a requirement under the 2005 Safe, Accountable, Flexible, and Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU). Planning processes are encouraged "….to the extent practicable" to be coordinated with security initiatives undertaken by the state, transit operators, and localities. Long-range transportation plans should include a security element that incorporates or summarizes the priorities, goals, or projects set forth in other transit safety and security planning and review processes, plans, and program.[1]

There are two broad areas to be addressed in transportation security:

- Roadway networks and facilities.
- Transit networks and facilities.

Roadway Networks and Facilities

Interstate 84 provides primary access to and from the Treasure Valley. I-84 is a main transportation route for the trucking industry in the northwestern U.S. It also provides a connection from the Treasure Valley eastward to Salt Lake City and beyond. State Highway 44 and U.S. 20/26 are east-west routes connecting I-84 in Canyon County to downtown Boise in Ada County. State Highways 16 and 55 provide access to Ada County from the north while State Highways 21 and 69 are gateways to the east and south, respectively. Major Ada County roadways tend to be relatively level and well-maintained with adequate width.

Several highways intersect Canyon County including U.S. 95 and 20/26; State Highways 44, 45, 55, and 19. U.S. 20/26 is the major access road for the communities of Parma and Notus. U.S. 95, along with State Highways 55 and 19, provide the main connections to Greenleaf and Wilder, while Melba is served by State Highway 45.

Six potential threats related to the Treasure Valley roadway networks have been identified: snow, fires, dams, earthquakes, landslides, and floods.

[1] SAFETEA-LU (§306(a) & (h) and 322(h))

Snow

Southwest Idaho is prone to occasional extreme cold temperatures and severe snow storms. Winter storms can slicken roads and reduce visibility, causing transportation accidents. Blowing snow can form large drifts and block important transportation links. Techniques such as installing snow fencing and maintaining snow removal equipment can help ensure movement of traffic along major corridors such as I-84.

Fires

Wildland fires can impede or prevent traffic flow throughout the transportation infrastructure. Large fuel accumulations occur adjacently to some rights-of-way, particularly in the Boise Foothills. Roadway and railway corridors can be cleared of wildland fuels by employing methods such as mowing, spraying, grazing, and harvesting. ITD contracts for mowing transportation links throughout the six-county region. However, the timing and frequency of mowing along the I-84 corridor have been insufficient to minimize the risk of fire hazards. ITD is currently working with the Bureau of Land Management to explore ways to create a firebreak along I-84 from Boise to Glenns Ferry.

Dams

The Idaho Department of Water Resources (IDWR) is charged with administering dam safety throughout the state for dams not under the jurisdiction of the U.S. Bureau of Reclamation.[2] They regulate impoundment structures 10 feet tall and higher or those storing more than 50 acre feet of water. IDWR inspects each dam at a minimum of once every two years. Every dam inspected is given a risk classification to grade potential downstream losses and damages that could occur from dam failure during typical flow conditions. Black's Creek, Lucky Peak, Arrowrock, and Anderson Ranch dams are all classified as "high risk" by IDWR. Ninety-one of the 567 dams inspected by IDWR are currently listed as high risk.

Earthquakes

Idaho is ranked fifth in the nation for potential earthquake hazards behind California, Nevada, Utah, and Alaska (Figure 9-1). Ground movement during an earthquake can collapse buildings and bridges, blocking travel corridors. The increased congestion could prevent timely emergency response. Ada County is bordered by two fault zones that show evidence of activity during the current geologic time period.

However, most structures in the region were constructed without regard for seismic hazards. Historical records, dating back to 1872, show that Boise has not experienced any damaging earthquakes.

[2] The following dams relevant to this plan are under the Bureau of Reclamation: Anderson Ranch, Arrowrock, Boise River Diversion, Deer Flat, and Hubbard.

Downtown Boise can expect some older multistory buildings to suffer damage or collapse in the event of a moderate earthquake.[3] The structural elements in historic buildings can be reinforced to decrease the potential hazard they pose during an earthquake. All of the cities within Ada County have adopted the International Building Code. In 2002 the International Building Code incorporated the 1991 Uniform Building Code, which sets construction standards for different areas in the nation based on potential seismic activity. Enforcement of proper land-use and development policies can also reduce the hazards associated with earthquakes.

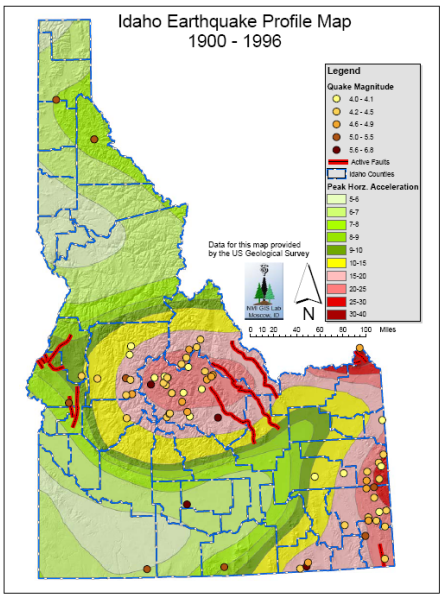

Figure 9-1: Idaho Earthquake Profile (AHMP1 - p. 132)

Landslides

Large scale landslides in Ada and Canyon Counties are unlikely due to the relative flatness of the region. However, steep terrain in the Boise Foothills puts this area at high risk for landslides (Figure 9-2). Population growth and planned communities in the Boise Foothills increases the risk of transportation routes being blocked due to soil slides. Residents or county representatives living in landslide prone areas should develop evacuation plans for travel routes. Communities should establish landslide and bank failure locations for use in transportation planning. Proper land-use planning is one of the most effective and economical tools available to avoid hazards caused by landslides. Land-use zoning districts should discourage or restrict development in steep, unstable areas.

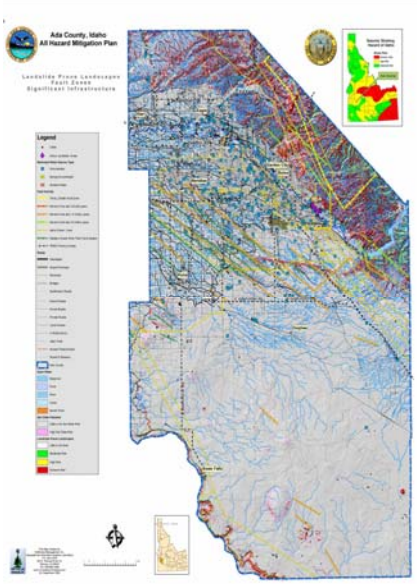

Figure 9-2: Landslide Prone Landscapes of Ada County (AHMP1 - p.124)

Floods

The Federal Emergency Management Agency identified 319 general miles of road within Ada County flood zones. They also identified 11 miles of primary and secondary access roads in flood zones along with 6.1 miles of railroad tracks. There are 19 motor vehicle bridges crossing the Boise River in Ada County and most have been built to accommodate 100-year flood events. The majority of primary access routes into the Treasure Valley are bordered by moderately sloping or flat rangelands. However, a 100-year flood event would affect a large portion of downtown Boise as well as many roads and bridges.

[3] *Ada County, Idaho All Hazards Mitigation Plan*. Volume 1. p. 135. 2006.

A detour around I-184 through downtown Boise would be problematic in the event of a flood due to the high volume of traffic in and around the area. Alternate routes would be available, although additional time would be required to reach emergency locations. Ada and Canyon Counties could engineer mechanical processes to clean debris from the Boise River at critical river crossings.

General Findings

There are two general themes in the documents reviewed:[4]

- Transportation facilities are subject to damage or destruction from flooding or earthquake threats. The principal transportation facilities threatened would be bridges crossing the Boise and/or Snake Rivers due to debris piling up on the upstream side of the structures.
- Transportation facilities are critical elements in evacuations. These can be broken into two elements:
  - Roadways – Used for general evacuations in the event of flooding or fires.
  - Transit – Used for populations unable to drive in the event of an evacuation. Security plans specifically note the need to involve Valley Regional Transit and other owners of buses, especially those with lift equipment.

The following map (Figure 9-3) depicts the 100-year flood zones in Ada and Canyon Counties. While the multiple bridge crossings represent a potential high risk to structures in the event of a flood, they also provide multiple routes for evacuation in the event of a natural or man-made disaster.

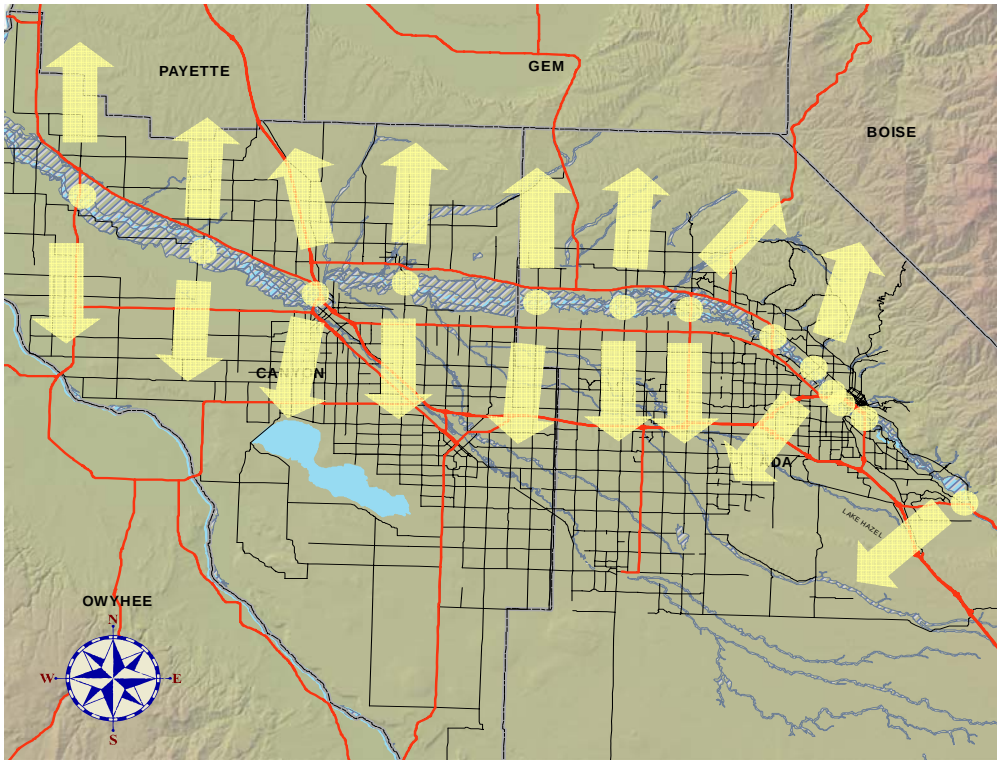

Figure 9-3: 100-Year Flood Zones – Yellow Arrows Depict Evacuation Paths

[4] For a list of documents reviewed in this process, please refer to Appendix D, Transportation Related References from Security Plans.

Note that the major flood risk represented by the Boise River still allows a very high degree of access north and south for residents on either side. There is a slight risk of a more catastrophic flood event should one or more the three major Boise River dams upstream from the urban area fail:

- Lucky Peak. Completed in 1955 with a capacity of 306,000 acre feet at elevation 3,060 feet[5]
- Arrowrock. Completed in 1915 with a capacity of 272,200 acre feet at elevation 3,216 feet.[6]
- Anderson Ranch. Completed in 1950 with a capacity of 413,100 acre feet at elevation 4,196 feet.

While not above the major urban areas, the three Deer Flat dams are also in the planning area. These dams comprise the Lake Lowell system and were completed in 1908 with a capacity of 173,100 acre feet at elevation 2,539 feet.

The transportation system, with its extensive grid, also provides multiple routes for evacuation in the event of other, more localized disasters such as wildfires or hazardous material spills. Landslides and wildfires are of primary concern in the foothills area north of the developed portion of the region. Should more growth occur in these areas, some attention should be given to evacuation routes.

Future Actions

The identification of critical bridges in the region using the criteria identified in the *National Needs Assessment for Ensuring Transportation Infrastructure Security* [7]will be a project in collaboration with state and local agencies. The criteria for critical bridges include:

- Casualty Risk – Number of users exposed as reflected in:
  - The main span size of the bridge, that is, over 50m/165 feet, and
  - Traffic over 40,000 average daily traffic (ADT).
- Economic Disruption – Disruption of the national economy as indicated by:
  - Bridges located on the Interstate Highway System plus the Department of Defense-defined Strategic Highway Network (STRAHNET),
  - Traffic over 40,000 average daily traffic,
  - Main span length over 50 meters/165 feet,
  - Double deck bridges, and
  - Nearest detour distance more than 5 km/3 miles for bridges with less than 60,000 average daily traffic.
- Military Support Function:
  - Bridges on STRAHNET and/or on the Military Traffic Management Command (MTMC)-defined "Power Projection Routes" serving forts within 400 miles of port, and
  - Main span over 50m/165 feet.

[5] Source of Lucky Peak dam data is the US Army Corps of Engineers at http://www.nww.usace.army.mil/corpsoutdoors/siteMenu.asp?lake_id=107

[6] Source of Arrowrock and Anderson Ranch dam data is the US Bureau of Reclamation at http://www.usbr.gov/projects/Project.jsp?proj_Name=Boise Project

[7] *National Needs Assessment for Ensuring Transportation Infrastructure Security.* American Association of State Highway and Transportation Officials. October 2002.

- Emergency Relief Function:
  - Bridges in 78 major metropolitan areas, and
  - On upper level system, i.e., freeways, expressways, and principal arterials.
- National Recognition:
  - Bridges with symbolic importance.
- Collateral Damage Exposure:
  - Bridges carrying other utilities, e.g., pipelines and major power and communications lines.

Transit Networks and Facilities

Transit issues germane to security fall into three broad categories:

- Threats to transit passengers and facilities.
- Disruption to services in the event of a natural or human-caused catastrophe.
- Provision of evacuation services, especially for low-income persons and persons with disabilities.

Threats to Transit Passengers and Facilities

There have been many well publicized attacks involving public transportation over the past decade. The terrorist attacks on the World Trade Center in New York City (2001), the Madrid train bombing (2004), and the London Underground and bus bombings (2005) were some of the better known events. In New York City, the subway system was not the primary target, but transit services were disrupted by the collapse of the towers.

While the Ada and Canyon region is much smaller and its transit services much less in terms of magnitude, concern about security is still legitimate. By 2011 or 2012 a major transit center will be under construction in downtown Boise. Design of the structure (a concept of the transit center is shown in Figure 9-4) may incorporate visual surveillance technology, communications, and space for a police substation. A final decision as to the security components of the transit center has yet to be made.[8]

Figure 9-4: Transit Center Concept

The issue of security is part of a COMPASS publication issued in September 2009, *Technology in Mobility Management.*[9] Specific security related features discussed in this report include:

[8] Consideration of surveillance technology was part of the multimodal preliminary design concepts conducted by URS under contract to Valley Regional Transit during 2008 and 2009.

[9] *Technology in Mobility Management: Coordinating and Improving Services in Southwest Idaho.* COMPASS. September 2009. Found on-line at http://compassidaho.org/documents/prodserv/reports/TechonolyReportFINAL_Sep2009.pdf.

- Global positioning system (GPS) tracking on buses to allow automated vehicle location. Automated vehicle location allows transit dispatchers to know the exact locations of all vehicles. While principally a benefit in providing real-time information to transit dispatcher and transit customers, knowing the exact location of a bus in an emergency is critical. (Implemented at time of this plan.)
- Radio system on buses, voice, and data capabilities. (Implemented at time of this plan.)
- Emergency/panic button and remote surveillance.
- Surveillance – on board cameras. (Implemented at time of this plan.)
- Surveillance – wayside/at park-and-rides.
- Consideration of transit participation in the Interagency Regional Operations Center (IROC). IROC is a concept of collocating and/or coordinating emergency services, traffic operations, and transit operations to improve response to emergencies, routine traffic congestion, and other issues. No decision has been made as to participation in the IROC concept, and the matter is on hold.

COMPASS commissioned an update to the Intelligent Transportation System architecture plan to include the communications systems between vehicles, dispatch, and emergency services (see Chapter 7 for more information on Intelligent Transportation Systems).

Disruption to Services

The type of disruption experienced by New York City or Madrid is less of an issue in the surface bus system that exists in the region today. The absence of a rail transit corridor, complete with tunnels, bridges, and main stations reduces the problems that would arise out of natural or human-caused event. The transit center described above, while concentrating vehicles at a specific location, is not essential to the provision of service. In the event of an incident, buses could use other streets for transferring passengers.

Although MPOs have a strong history of influencing regional transportation operations, they face challenges in bridging regional coordination between emergency response and transportation stakeholders. MPOs may want to be involved, but they sometimes lack the authority to lead emergency response efforts. Often a clear policy role beyond transportation planning and improvement does not exist.

Ensuring Workforce Mobility In Emergencies

There are several bridges over which transit routes operate. As noted above, the absence of a single bridge would in most cases require a detour and some delay.

Provision of Evacuation Services

A major element often overlooked in evacuation plans is the need to evacuate large numbers of people who lack a car or cannot drive. In some cases, persons may be unable to be transported in vehicles without some lift or ramp to access the vehicle.

There are some areas in which it may be appropriate for COMPASS to participate. The following strategies were taken from a recent report, *Ensuring Workforce Mobility in Emergencies,* by ICF International. [10]

- Working with local agencies to collect regional geographic data in a common format and offer a regional repository of synthesized geographic data for emergency planning, training, and response.
- Inventory public and private transit-related resources to share, such as vehicles available for use, staging areas, and technology.

Both of these are underway at COMPASS through the joint Mobility Management projects that are collecting information on locations of persons with disabilities (nursing homes, group homes, training centers, etc.) and transportation services. COMPASS is also working with state and local agencies to compile consistent geographical information system (GIS) data such as streets, bridges (including weight restrictions), schools, hospitals, etc.

See Appendix D, Transportation Related References from Security Plans, for additional information related to security issues in transportation.

[10] *Ensuring Workforce Mobility in Emergencies*. ICF International. 2010. Found on-line at http://www.icfi.com/docs/workforce-mobility-emergencies.pdf.