CHAPTER 8

TRANSPORTATION SECURITY

Transportation security is an integral part of regional planning. In broad terms, transportation security refers to the ability of a transportation system—including physical structures, transit, and road networks—to physically hold up and enable safe movement of the population during emergencies, disasters, and other threats. For example, during a flood, will bridges remain intact and will the system be adequate to handle an emergency evacuation?

Federal requirements state that long-range transportation plans should include "...emergency relief and disaster preparedness plans and strategies and policies that support homeland security (as appropriate) and safeguard the personal security of all motorized and non-motorized users."

CIM 2040 specifically addresses security in goal 1.2: *Improve safety and security for all transportation modes and users*. Several CIM 2040 objectives and tasks also indirectly address security. A complete listing of all CIM 2040 goals, objectives, tasks, performance measures, and lead agencies can be found online.

This chapter addresses transportation security as it relates to roadway networks and facilities, and to transit networks and facilities.

Note: A glossary of terms is available at **www.compassidaho.org/comm/glossary.htm**. Acronyms in this document are defined in Appendix B.

Roadway Networks and Facilities

Security assessments of roadway networks focus primarily on major routes, including state-owned highways. Regionally, Interstate 84 is of chief importance, as it serves as the main transportation route for the trucking industry in the northwestern US. In addition to I-84 and the remaining state highway network, there are nearly 3,000 centerline miles of road and 400 bridges; these are owned by local agencies, including highway districts and cities.

The major roadways serving urban areas in Ada and Canyon Counties tend to be well-maintained with adequate capacity for efficient evacuation.

Threats to Roadway Networks and Facilities

Six potential threats related to the Treasure Valley roadway networks have been evaluated by county emergency management agencies: floods, dam failure, snow, fires, earthquakes, and landslides. This section of the plan will address floods and dam failure, which pose the more serious concerns for transportation and evacuation.

Floods

Historically, flooding along the Boise River has been associated with heavy snowpack and early thaws. To a large degree, serious floods have been negated by construction of dams along the Boise River to the east of the region. However, very long-term climate forecasts indicate a possibility of earlier snowmelts and more winter precipitation in the form of rain. This pattern could affect the timing and volume of dam releases to balance flood control with retention for agricultural and recreational purposes.[1]

Nearly 30,000 homes (64,000 residents) are within the 500-year flood zone, and 10,200 of these homes (approximately 24,000 residents) are within the 100-year flood zone. About half of these homes and residents are in the flood zone along the Boise River.

Figure 8.1 shows the major roadway system in relation to the 100- and 500-year flood zones. It also depicts bridges in relation to the flood zones. There are 133 bridges 20 feet or longer within the 500-year flood zone. Of these, 27 cross the Boise River and are built to accommodate 100-year flood events. The main threat to these bridges during a flood is the pile-up of debris against their upstream sides, which can put added stress on the structures and cause even more flooding upstream.

1 *Climate Change Impact Assessment for Surface Transportation in the Pacific Northwest and Alaska*, Washington State Department of Transportation, January 2012, 4-6. www.wsdot.wa.gov/research/reports/fullreports/772.1.pdf.

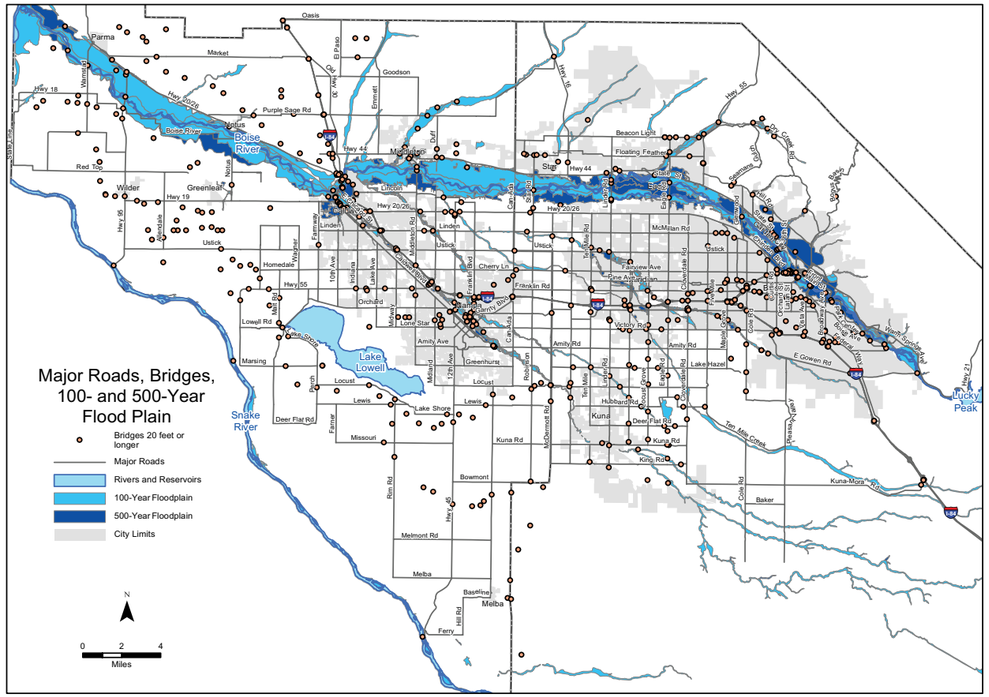

Figure 8.1. Major roads and bridges and the 100- and 500-year flood zones[2]

Drainage from the foothills along the north end of the valley is another source of concern. Over the past 50 years, development has encroached on the foothills' drainage and outflow areas, placing more homes in the path of flooding. Foothills floods are more localized events and not a major evacuation issue.

The Snake River is remote from most development and transportation corridors within the planning area. However, significant crossings in Ada and Canyon Counties include State Highway 45, State Highway 55, US 95, and US 20/26.

Dam Failure

The Idaho Department of Water Resources (IDWR) and the US Bureau of Reclamation administer dam safety throughout the state. IDWR inspects each dam at least 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.

2 www.compassidaho.org/documents/prodserv/CIM2040/Maps/MajorRoads_flood_8_1[Converted].pdf

Lucky Peak, Arrowrock, and Anderson Ranch Dams, all located upstream from Boise on the Boise River (Figure 8.2), are classified as "high risk," or Category 1, by IDWR. While Boise is in closest proximity to these dams, the cities of Garden City, Eagle, Star, Middleton, Caldwell, Notus, and Parma are also located downstream of these dams and subject to flooding in the case of dam failure.

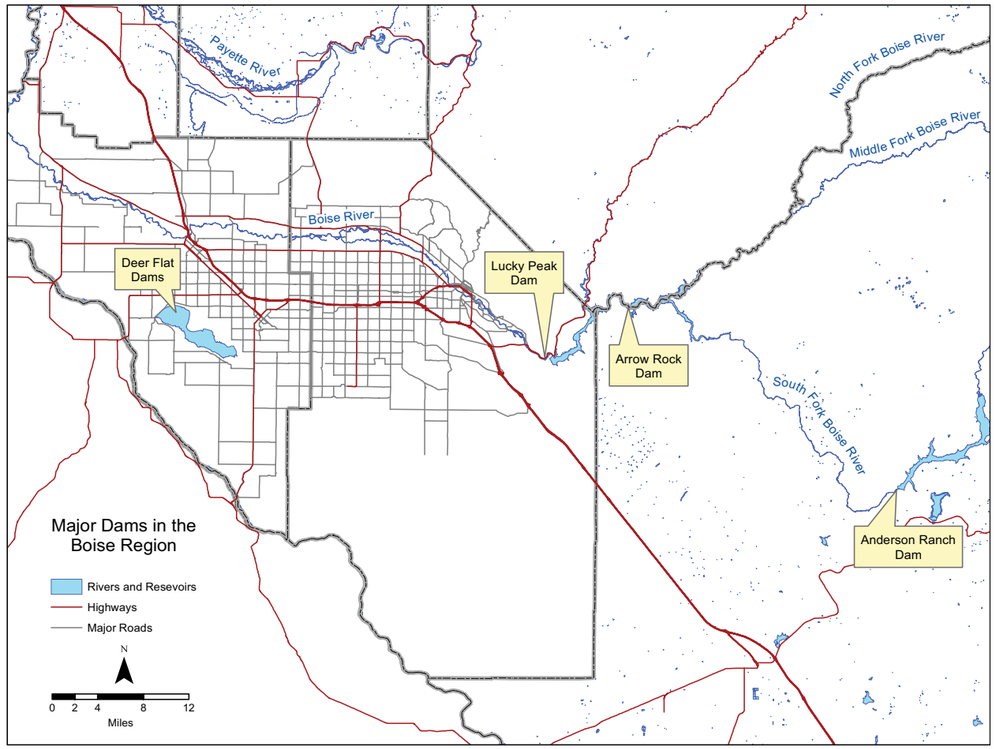

Figure 8.2. High-risk dams in the region[3]

A recent evaluation by the Ada City-County Emergency Management program depicted a possible dam failure resulting in a flood flow of as much as 34,000 cubic feet per minute (cfm). This contrasts with "normal" flood stages, when flows exceed 7,000 cfm.

Another security issue is that key transportation administrative and/or maintenance facilities are located in or near the 500-year floodplain, including ACHD's headquarters, maintenance yard, and traffic operations center; ITD headquarters; and offices of the Federal Highway Administration, Local Highway Technical Assistance Council, Notus Parma Highway District, and Treasure Valley Transit (TVT). Recovery after a major flood could be hampered by loss of equipment and records.

3 www.compassidaho.org/documents/prodserv/CIM2040/Maps/MajorDams_8_2.pdf

Transit Networks and Facilities

In the CIM 2040 region, the main public transportation providers are VRT, TVT, and Commuteride. The first two provide fixed-route and special transit bus services within Ada and Canyon Counties, and Commuteride operates a vanpool mostly in Ada County. VRT maintains a fleet of 63 vehicles based in two facilities, one in south Boise and the other in north Nampa. TVT has 16 vehicles based out of its facility in northwest Nampa. Commuteride has 104 vans.

There are no fixed-guideway (i.e., rail) services in the region.

Threats to Transit Networks and Facilities

Security assessments of transit services and facilities consider two main factors:

- threats to transit passengers and facilities
- disruption to services in the event of a natural or human-caused catastrophe

Threats to Transit Passengers and Facilities

Transportation organizations work to enhance the safety of the current transportation system and build security measures into future projects. For example, the design of the transit center being built in downtown Boise may incorporate visual surveillance and communications technology, and space for a police substation.[4]

COMPASS examined security in its September 2009 publication, *Technology in Mobility Management*. The report addressed several security-related technologies that can increase the safety of the valley's public transit system, including:

- global positioning system (GPS) tracking to allow automated vehicle location. While principally a benefit in providing real-time information to transit dispatchers and transit customers, knowing the exact location of a transit vehicle in an emergency is critical. (Implemented on buses at the time of this plan.)
- radio systems, enabling voice and data communication in the event of an emergency or on-board threat. (Implemented on buses at the time of this plan.)

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

- emergency/panic button(s) and remote surveillance.
- surveillance via on-board cameras. (Implemented on buses at the time of this plan.)
- surveillance via cameras along routes and at park-and-ride locations.

Part of the updated ITS plan reflects how electronic communications have been deployed in the Treasure Valley to increase coordination between agencies, dispatch, and emergency services. The ITS plan is discussed in more detail in Chapter 6, and the full report is available online.

Disruption to Services

In an emergency, the CIM 2040 region's surface bus system would experience far less disruption than systems in bigger cities, where populations depend on rail transit corridors comprising tunnels, bridges, and main stations. The downtown Boise transit center (currently under construction), 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. However, transit routes cross several bridges; the absence of even a single bridge would disrupt transit services, causing detours and delays.

Evacuation Services

Transportation facilities are critical for evacuations of both auto users and non-auto users (populations unable to drive in the event of an evacuation).

Auto Users in Evacuations

While bridges may be compromised in the event of a flood, they provide routes for evacuation in the event of a natural or human-caused disaster. As Figure 8.1 indicates, even a major 500-year flood would affect a fairly small area of the region and leave most evacuation routes intact, though damage to bridges would impact vehicular travel and transit services, as described above.

The transportation system provides multiple routes for evacuation in the event of other, more localized disasters such as wildfires, landslides, or hazardous material spills. Landslides and wildfires are of primary concern in the foothills area.

Non-Auto Users in Evacuations

In 2005, Hurricane Katrina devastated the Gulf Coast, killing almost 730 people in New Orleans alone. Nearly 72% of the city's fatalities were age 60 or older, although that age group represented only 15% of the city's population.[5] One major reason for this disparity was the failure to consider the needs of people who could not drive or lacked access to a vehicle. This included the elderly, people with disabilities, and people in nursing care facilities. These vulnerable populations must be considered when developing evacuation plans.

In Ada and Canyon Counties, about 64,000 residents live within the 500-year flood zone.[6] Of these, 7,600 residents are 65 years and older. American Community Survey (ACS) 2011 data indicates that 38% of this age group—about 2,900 people—has a disability. According to ACS statistics, of the 58,000 persons *under* age 65 in the 500-year flood zone, approximately 4,600 have a disability. However, not all of these individuals are transit-dependent. Although there are no statistics available, many of these vulnerable residents are able to drive or have someone in their household who can drive.

Elderly persons and those with disabilities in group homes may need assistance. Idaho Department of Health and Welfare data indicates there are more than 3,100 beds in residential care facilities in Ada and Canyon Counties and, of those, 430 are in or near the 500-year floodplain.

The vast majority of the 430 beds are in Ada County, with more than 300 within Boise and Garden City, sites closest to upstream dams. Some facilities are not along the Boise River but in floodplains at the base of the foothills or along other streams.

Security plans specifically note the need to involve VRT and other owners of buses, especially those with lift equipment, in evacuation planning. Other entities that have vehicles with lift equipment and wheelchair capacity include school districts and private firms providing non-emergency transportation.

The report *Ensuring Workforce Mobility in Emergencies*[7] by ICF International recommends working with local agencies to

- collect regional geographic data in a common format and offer this data in a

5 Profiles of General Demographic Characteristics: 2000 Census of Population and Housing, Louisiana. Washington: US Census Bureau, 2001. Total population of New Orleans in 2000 was 484,674, while the population of people aged 60 and older was 73,311.

6 *Idaho: 2010, Summary Population and Housing Characteristics.* Washington: US Census Bureau, 2012. COMPASS used its geographic information system platform to aggregate census population data and floodplain data from the U.S. Federal Emergency Management Agency.

7 *Ensuring Workforce Mobility in Emergencies*, ICF International, Inc., 2010, accessed June 20, 2013, www.icfi.com/insights/white-papers/2010/ensuring-workforce-mobility-in-emergencies.

repository for emergency planning, training, and response; and

- conduct an inventory of public and private transit-related resources to share, such as vehicles available for use, staging areas, and technology.

Both projects are underway through COMPASS programs that are collecting information on locations of vulnerable populations (nursing homes, group homes, training centers) and transportation services. COMPASS is also working with state and local agencies to compile consistent GIS data on facilities such as streets, bridges (including weight restrictions), schools, and hospitals.

Local Emergency Management Strategies

Strategies included in the *Ada County Hazard Mitigation Plan* or the *Canyon County, Idaho, All Hazards Mitigation Plan* that are relevant to CIM 2040 are listed below, based on type of emergency. Many of these items are addressed indirectly in CIM 2040 through preservation of open space, maintaining existing transportation infrastructure, and land use planning.

Dam Failures

- Map dam failure inundation areas.
- Relocate critical facilities out of dam failure inundation areas.
- Consider open space land use in designated dam failure inundation areas.
- Flood-proof facilities within dam failure inundation areas.
- Develop a continuity of operations plan.

Earthquakes

- Locate critical facilities or functions outside hazard areas where possible.

Floods

- Locate or relocate critical facilities outside of hazard areas.
- Promote open space in identified high-hazard areas by implementing planned unit developments, easements, setbacks, greenways, and sensitive area tracks.
- Adopt land development criteria such as planned unit developments, density transfers, and clustering.
- Acquire vacant land or promote open space in developing watersheds to control increases in runoff.
- Improve infrastructure to make more flood-resistant via a bridge replacement program.
- Provide redundancy for critical functions and infrastructure.
- Implement stormwater management regulations and master planning; adopt a stormwater management master plan.
- Incorporate retrofitting or replacement of critical system elements in capital improvement plans.
- Warehouse critical infrastructure components.
- Develop and adopt a continuity of operations plan.
- Maintain existing data and gather new data needed to define risks and vulnerability.
- Create an inventory of structures, including elevation data, within the floodplain.
- Integrate floodplain management policies into other planning mechanisms within the planning area.
- Consider the probable impacts of climate change on the risks associated with floods.
- Consider the residual risk associated with structural flood control in future land-use decisions.
- Post and publicize evacuation routes.

Security Performance Measures and Targets

As discussed above, CIM 2040 specifically addresses security in goal 1.2: *Improve safety and security for all transportation modes and users*.

COMPASS will track progress toward meeting goal 1.2 by monitoring the following performance measures and advancement toward their specific targets for 2040:[8]

- Bridge conditions (% of bridges not "functionally obsolete")
  - Current: 87%
  - Target: 87%
- Bridge conditions (% of bridges not "structurally deficient")
  - Current: 96%
  - Target: 100%

8 See Chapter 10 for a discussion on the development of CIM 2040 performance measures and targets.

The annual performance monitoring report, with data on progress toward meeting all regional performance measures, as well as reports from past years, are available on the COMPASS Performance Dashboard. The 2014 report will be the first to address these specific performance measures.