

Cannon Beach Case Study Report

Lead Agencies:



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**Oregon Natural Hazards Workgroup –
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Executive Summary

The events of the 2004 Sumatra earthquake and tsunami as well as Hurricane Katrina in 2005 have proven that most communities are ill-prepared to undertake the long-term post-disaster recovery and reconstruction efforts necessary to bring a community back to normal following a catastrophic event. The importance of this issue to coastal communities in the Pacific Northwest is heightened due to its location along the Cascadia Subduction Zone where the Juan de Fuca plate meets the North American plate. Earthquakes generated along this 800 mile fault have far more widespread effects than other types of quakes in the region and have the potential to result in catastrophic impacts on coastal communities due to the generation of local tsunamis.

Recognizing the importance of these issues, the Oregon Natural Hazards Workgroup at the University of Oregon's Community Service Center, Cascadia Regional Earthquake Workgroup, the US Geological Survey, and Oregon Emergency Management partnered in an effort to better prepare coastal communities in the Cascadia Region for the short-term recovery and long-term reconstruction efforts communities may face as a result of a catastrophic Cascadia Subduction Zone event.

This effort involved the partners listed above in a variety of ways and resulted in the development of four distinct products. The project was broken into three main phases, which included:

- **Phase 1** – Develop a process for conducting a community post-disaster recovery planning forum and implement a pilot project that would result in the identification and prioritization of a community's long-term recovery issues, while developing potential solutions.
- **Phase 2** – Documentation of the lessons learned from developing and implementing the community post-disaster recovery planning forum in the pilot community.
- **Phase 3** – Creation of a Community Post-Disaster Recovery Planning Forum Manual for Cascadia Regional communities to document their own post-disaster long-term recovery issues and start the local planning process.

Each of the three phases is described in more detail below.

Phase 1 – The Process & Pilot Project

The City of Cannon Beach, the Oregon Natural Hazards Workgroup (ONHW) at the University of Oregon, the United States Geological Survey (USGS) and the Cascadia Regional Earthquake Workgroup (CREW) developed and implemented a Community Post-Disaster Recovery Forum designed to (1) gather public input on disaster recovery

issues and (2) develop potential recommendations to address those issues. The City of Cannon Beach served as a pilot community for the implementation of the post-disaster recovery planning process. The intent of this phase was to develop and implement a process that could be replicated in other coastal communities located along the Cascadia Subduction Zone. The intent of the pilot project in Cannon Beach was not to produce a plan, but to identify strategic activities the community could engage in to better prepare for the recovery issues they may face.

Phase One includes two main products – a community post-disaster recovery planning forum report and a case study report, each of which are described in more detail below.

Post-Disaster Recovery Planning Process Report

The purpose of this report is to describe the process used to conduct a community post-disaster recovery planning forum aimed at addressing a catastrophic disaster event. The report highlights methods used to implement and document the forum process in Cannon beach and findings from a post-forum participant evaluation. This document is intended to serve as the basis for the development of the Forum Manual and Lessons Learned reports described in Phases Two and Three. This report is complete as of June 30, 2006. The report is organized into the following sections:

- Section 1: Introduction – This section highlights the importance of and recommended steps involved in post-disaster recovery planning.
- Section 2: Methodology – This section describes the methods used to implement the community post-disaster recovery planning forum and includes the tasks performed prior to the forum, during the forum and after the forum.
- Section 3: Post-Forum Evaluation – This section summarizes the key findings from forum participant interviews conducted following the forum.
- Appendix A :Forum Materials – This appendix includes the forum agenda and handouts utilized during the forum.
- Appendix B: Participatory Process – This appendix includes a detailed summary on participatory process research.
- Appendix C: Post-Forum Evaluation Transcripts – This appendix includes the verbatim responses to the forum participant evaluation conducted via telephone following the forum.

Cannon Beach Case Study Report

The purpose of this report is to document the community post-disaster recovery planning forum outcomes in Cannon Beach as a case study.

This report can be used by the City to guide the implementation of long-term post-disaster recovery planning activities. Additionally, the city can use the report as a foundation to develop a local mitigation plan to meet the requirements set forth in the Disaster Mitigation Act 2000. The Case Study is also an important resource for the development of the Forum Manual and Lessons Learned Report as described in Phases Two and Three. This report is complete as of June 30, 2006. This report contains recovery planning-related research, information, and findings specific to Cannon Beach and includes the following sections:

- Section 1: Community Profile – This section describes Cannon Beach in terms of geography, population, economy, land and development and critical facilities and infrastructure.
- Section 2: Existing Policy Framework for Post-Disaster Recovery – This section documents plans and policies that already exist within Cannon Beach that could be utilized to implement post-disaster recovery planning-related activities.
- Section 3: Forum Outcomes – This section documents the issues and priorities that Cannon Beach forum participants identified during the planning process.
- Section 4: Post-Disaster Recovery Framework and Recommendations – This section provides an overview of how Cannon Beach can organize to plan for long-term post-disaster recovery and also outlines specific activities that can be implemented locally.
- Appendix A-D: Individually Identified and Prioritized Issues – This section lists all of the individual issues identified by forum participants for each of the four themes – population, economy, critical facilities and infrastructure, and land and development.

Phase 2 – Lessons Learned Manuscript

Based on the experiences in Cannon Beach and both reports from Phase One, the ONHW and the USGS will develop a lessons learned report that will identify where the forum methodology worked well and where it needs improvement. The lessons learned manuscript will also identify next steps aimed at improving the community post-disaster recovery planning forum methodology so that it may be implemented in other communities in the future. Development of the manuscript will begin in early summer 2006 and is expected to be complete in the fall.

Phase 3 – Post-Disaster Recovery Planning Manual

Based on the experiences in Cannon Beach and both reports from Phase One, the ONHW, CREW, and USGS will develop a community post-disaster recovery planning forum manual that can be used to develop

and implement community post-disaster recovery planning forums in other communities facing catastrophic disaster threats. Development of the manual will begin in early summer 2006 and is expected to be complete in the early 2007. The manual will be organized according to the following ten steps:

1. Garner Political Will
2. Invite Participants
3. Data Collection
4. Pre-Forum Logistics
5. Forum Facilitation – Day 1: Issue Identification
6. Summary of Issues
7. Forum Facilitation – Day 2: Strategy Development
8. Summarize Key Findings
9. Develop Recommendations
10. Develop Work Plans

Cannon Beach Case Study: Post-Disaster Recovery Planning Forum

The City of Cannon Beach, the Oregon Natural Hazards Workgroup (ONHW) at the University of Oregon, the United States Geological Survey (USGS), and the Cascadia Regional Earthquake Workgroup (CREW) hosted a Post-Disaster Recovery Forum designed to (1) gather public input on disaster recovery issues and (2) develop potential recommendations to address those issues. The Cannon Beach forum served as a pilot project aimed at developing a post-disaster recovery planning process that could be replicated in other coastal communities located along the Cascadia Subduction Zone. The intent of this pilot project in Cannon Beach was not to produce a plan, but to identify strategic activities the community could engage in to better prepare for the recovery issues they might face.

The purpose of this report is to document the post-disaster recovery planning forum process in Cannon Beach as a case study. This report contains recovery planning related research, information, and findings specific to Cannon Beach and includes the following sections:

- Section 1: Community Profile – This section describes Cannon Beach in terms of geography, population, economy, land and development, and critical facilities and infrastructure.
- Section 2: Existing Policy Framework for Post-Disaster Recovery – This section documents plans and policies that already exist within Cannon Beach that could be utilized to implement post-disaster recovery planning-related activities.
- Section 3: Forum Outcomes – This section documents the issues and priorities that Cannon Beach forum participants identified during the planning process.
- Section 4: Post-Disaster Recovery Framework and Recommendations – This section provides an overview of how Cannon Beach can organize planning for long-term post-disaster recovery and also outlines specific activities that can be implemented locally.
- Appendix A-D: Individually Identified and Prioritized Issues – This section lists all of the individual issues identified by forum participants for each of the four themes – population, economy, critical facilities and infrastructure, and land and development.

Section 1: Community Profile

This section describes Cannon Beach in terms of its geography, population, economy, land and development and critical facilities and infrastructure. A community's population, economy, development trends, and facilities and infrastructure all play a role in the impact that natural disasters have and how communities plan for reducing risk and recovering from a disaster. Considering these characteristics during the planning process is crucial in the identification of appropriate strategies for post-disaster recovery.

Geography

The City of Cannon Beach is located in Clatsop County, Oregon. The Columbia River and the state of Washington border Clatsop County to the north. The Pacific Ocean is located to the west and Columbia and Tillamook Counties are located to the east and south, respectively. The county seat is Astoria, Oregon, which is 25 miles north of Cannon Beach. The City of Cannon Beach is the second largest city in Clatsop County. The urban growth boundary contains 1.4 square miles (890 acres). Two main water features, the Pacific Ocean and Ecola Creek, are major assets for the community. Ecola Creek and the surrounding watershed provide drinking water for the city, and the Pacific Ocean draws tourists.

Population

According to the US Census, the population of Cannon Beach in 1990 was 1,221 people. Since 1990, the population of Cannon Beach has increased by 30% to 1,600 residents. The Population Research Center at Portland State University (PSU) estimates the 2004 population at 1,650. According to PSU estimates, the Cannon Beach population is expected to grow by 296 people, or 18% between 2005 and 2025.

Of the 1,600 inhabitants of Cannon Beach, 46% are males and 54% are femalesⁱ. The median age of residents is 44. Approximately 17% of the population is under the age of 18 and 15% is over the age of 65.

While natural hazards do not discriminate, the impacts -- in terms of loss and the ability to recover -- vary greatly, depending on certain demographic characteristics. According to Peggy Stahl of the FEMA Preparedness, Training and Exercise Directorate, 80% of the disaster burden falls on the public. Women, children, minorities and the poor bear a disproportionate amount of this burden.

The 2000 Census reported that 12% of Cannon Beach's residents were living below the poverty line. In Cannon Beach, 8% of households are

female-headed and 2% live below the poverty line. Eighty-five percent of residents in Cannon Beach are white, 11% are Hispanic or Latino, and less than 5% are African American, Asian, American Indian, Alaska Native or other racesⁱⁱ.

Economy

Although Cannon Beach's permanent population is small (1,650), more than 400,000 tourists visit per year. The three top employers in Cannon Beach are specifically involved in the hospitality service industryⁱⁱⁱ. The economic characteristics of Cannon Beach demonstrate the city's dependence on tourism. According to the 2000 U.S. Census, the three industries with the biggest presence in Cannon Beach are:

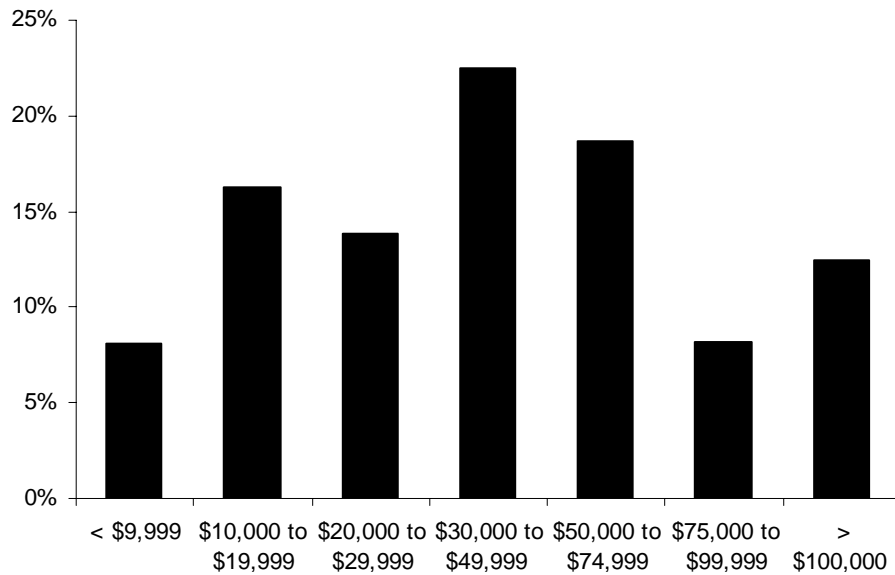
- Arts, entertainment, recreation, accommodation and food services;
- Retail trade; and
- Educational, health, and social service.

The three highest occupational categories in Cannon Beach are management, professional, and related occupations (30%), service occupations (28%); and sales and office occupations (27%)^{iv}.

Research has shown that no business, small or large, is immune to the impacts of a natural hazard event. Dan Alesch's research shows that small businesses are critical to the economy and their closure is a loss for the entire community. "Small businesses do contribute more than employment and new jobs to the economy... They provide the entrepreneurial spirit that drives innovation and change..."^v Research being conducted by the United States Geological Survey (USGS) indicates that 80% of Cannon Beach businesses are in the tsunami inundation zone^{vi}. A catastrophic Cascadia Subduction Zone event would directly impact the service sector of the economy. The ripple effect of business closures would impact not only tourists, but residents as well.

Impacts of a disaster event should also be considered in terms of their effect on individual income. Median household income in 1999 was \$39,271. Cannon Beach's 1999 median household income was higher than that of Clatsop County (\$36,301), however it was slightly lower than state (\$40,916) and national (\$41,994) averages. Figure 3.1 illustrates 1999 household incomes for the City of Cannon Beach. The majority of citizens have median household incomes between \$20,000 and \$74,999, (US Census, 2000).

Figure 3.1: Median Household Incomes, Cannon Beach, 2000



Source: 2000 U.S. Census

Forty-four percent of employees in Cannon Beach travel for more than 10 minutes to get to work. Given the city's size, it can be assumed that people who are traveling for more than 10 minutes are most likely commuting to another jurisdiction.

Land and Development

The City of Cannon Beach occupies an area of 1.4 square miles along the Pacific Coast. A central business district contains retail shops, restaurants, and other commercial buildings. Hotels, resorts, and vacation rentals line the beach. Currently, the City has over 1,660 housing units. Of these housing units, 43% are occupied year round, while 57% are vacant. The Cannon Beach vacancy rate is due to the large number of housing units that are used as seasonal vacation rentals and/or second homes. Over 90% of the vacant houses are in this category^{vii}

Table 3.1 illustrates the different types of housing structures found in Cannon Beach. Seventy-nine percent of structures are 1-unit detached structures. Fifteen percent of the structures are higher occupancy units containing 2 or more units.

Table 3.1 Structure Type, Cannon Beach, 2000

Units in Structure	Number	Percent
1-unit Detached	1,313	79.1%
1-unit Attached	72	4.3%
2 units	98	5.9%
3 or 4 units	62	3.7%
5 to 9 units	51	3.1%
10 to 19 units	12	0.7%
20 or more	32	1.9%
Moblie home	18	1.1%
Boat, RV, van etc.	2	0.1%

Source: 2000, US Census

Much of the commercial related land use in Cannon Beach is concentrated in the downtown area. This area is in close proximity to the beach and, according to existing data, most of it is located within the 379 Tsunami Inundation Zone. The 379 Tsunami Line is based on Senate Bill 379 and Oregon Revised Statutes 455.446 and 455.447. The purpose of these pieces of legislation was to map areas of possible tsunami inundation and limit the construction of critical and essential facilities in the Tsunami Inundation Zone^{viii}.

Currently there are 288 single-family lots within the city limits. Within the UGB there are 127 lots available, resulting in 415 potential lots available for construction.

The severity of damage from a natural disaster depends upon the types of land use and the patterns of development in a community. Land use decisions should incorporate concerns about natural disasters and long-range planning for natural disaster mitigation, in order to assist the community during the recovery phase. For example, principles can be established now to guide redevelopment in a post-disaster situation. By planning beforehand, the recovery process can be expedited and redevelopment can be systematic rather than random.

Critical Facilities and Infrastructure

Critical facilities and infrastructure are vital to the continued delivery of key governmental and private services as well as recovery efforts. The loss of these services significantly impacts the public's ability to recover from a disaster event. These critical facilities include, but are not limited to:

- 911 call centers;
- Emergency operations centers;
- Police and fire stations;
- Public works facilities;
- Hospitals;

- Bridges and roads; and
- Shelters.

Facilities that may cause secondary impacts if damaged, contaminated, or destroyed, such as hazardous material storage sites, are also considered critical facilities. The main critical facilities and infrastructure in Cannon Beach are summarized below.

Emergency services will play a large role in both the immediate response and long-term recovery in Cannon Beach. The Cannon Beach Fire Department has two main stations, the Cannon Beach Station and the Arch Cape Station.

The major highway that services the City of Cannon Beach is U.S. Highway 101, which connects Cannon Beach with Astoria and Washington to the north and Newport and California to the south. Approximately four miles north of Cannon Beach there is access to State Highway 26, the main east-west route between the Pacific coast and Portland.

Currently, the City of Cannon Beach owns its drinking water system and waste management facilities. Pacific Power Company supplies electricity to the City, and Northwest Natural Gas provides the natural gas service. Other utilities include telephone services, provided by Qwest, and data lines, provided by Charter Communications.

The Providence North Coast Clinic is located in downtown Cannon Beach. This facility offers a limited range of medical services. The closest hospital is located in Seaside, 11 miles north of Cannon Beach. Columbia Memorial Hospital is located 24 miles to the north in Astoria. These facilities should be involved in planning for recovery to ensure that the long-term medical needs of Cannon Beach citizens are met in a post-disaster situation.

Conclusion

The size of Cannon Beach and the community's dependence on tourism as an economic engine pose unique challenges as the City seeks to plan for long-term post-disaster recovery. The portions of the population with special needs, such as disabled, elderly, low-income, and children, are important factors in the effective delivery of services in the post-disaster environment. The small size of Cannon Beach makes transportation linkages to outside communities and quick reinstallation of necessary services, such as water, sewer, and communication, especially important.

ⁱ 2000 United States Census. www.census.gov Accessed June 6, 2006

ⁱⁱ Idb.

iii Oregon Economic and Community Development Department. www.oregon.gov/ECDD/index.shtml Accessed June 6,2006

iv 2000 United States Census. www.census.gov Accessed June 6, 2006

v Alesch, Daniel J. et al. “Organizations at Risk: What Happens When Small Businesses and Not-for-Profits Encounter Natural Disasters” The Public Entity Risk Institute. October 2001

vi Wood, N., in preparation, Variations in community vulnerability to tsunami hazards on the Oregon coast, U.S. Geological Survey research project 9861-B5C, unpublished data.

vii Ibid.

viii National Oceanic and Atmospheric Administration, Coastal Services Center

Section 2:

Existing Policy Framework for Post-Disaster Recovery

This section provides an overview of Cannon Beach’s governmental structure and existing plans, policies, and programs that already do or could assist the community in addressing post-disaster recovery issues. Understanding the structure of the governing system and linking existing plans, policies and programs with post-disaster recovery helps identify existing resources that can be used to develop and implement post-disaster recovery planning.

Government Structure

Government structure plays a critical role in how post-disaster strategies get integrated into existing plans, policies and programs. The City of Cannon Beach’s governmental structure is outlined in the City Charter, which defines the city’s privileges and purposes. Cannon Beach’s Charter was issued in 1957 and was revised and approved in 1984.

The City of Cannon Beach has a Council/Mayor form of government. The Mayor and four Councilors are elected through a city-wide vote. Both the Mayor and Councilors serve four-year terms. The Council holds regular meetings to deliberate on and make decisions about issues facing the City. The Mayor presides over these meetings and is able to vote on all issues before the Council. Decisions are made through a simple majority voting process. Once elected and in office, the Council appoints a City Manager, City Attorney, and Municipal Judge. The City Manager is the administrative head of the city government, and oversees each department within the city. The city attorney represents the city in litigation and in legal matters. The Municipal Judge upholds federal, state and local laws in municipal court. These officers may be removed through a majority vote of the incumbent Councilors.

The Mayor and City Council have the power to approve, support and grant resources for post-disaster recovery efforts. Once support is garnered from the City Council, post-disaster strategies can be implemented through existing programs and departments. These activities can be overseen by the City Manager and upheld by the Municipal Judge.

The City has five main departments, each of which is briefly described below.ⁱ

Administration - The Administration Department of City Hall is responsible for all the City's general governmental functions: financial planning and budgeting; accounts receivable, payable, and payroll; building maintenance; public contracts; meeting agendas and minutes; legislation; records retention; community services; personnel; and information technology planning and implementation.

Building - The Building Department issues structural, plumbing and mechanical permits and acts as an agent for Clatsop County in issuing electrical permits. Permits can be purchased at the Building Department.

Planning - The Planning Department prepares short-term and long-term recommendations for land use in compliance with City and State policies, and implements adopted development goals and visions for the community. Planning Department Staff support the Planning Commission and the Design Review Board, provide land use and planning assistance to residents and property owners, and coordinate with other departments on related issues.

Public Works - The Public Works Department plans, organizes, integrates and directs the programs and maintenance functions of the City's water treatment and distribution system, roads and streets, wastewater treatment plant and wastewater collection system, stormwater, and parks and community services, to ensure the safe and ongoing operations of the City's utility systems and services and overall infrastructure. It is the goal of the Public Works Department to accomplish its purpose and objectives in such a manner that the citizens of Cannon Beach and professional peers view the department as a model for providing the highest quality of customer service. Staff in the public works department perform some of the most visible and important functions in City government. The Public Works Department is charged with protecting the longevity of all City facilities, streets, roads, drainage networks, water quality and related natural resource systems, wastewater collection and treatment facilities, recycling, parks, and transit facilities.

Public Safety - The Public Safety Department is dedicated to providing services which improve quality of life by protecting life and property, maintaining order, and reducing crime and disorder through education and prevention.

Existing Plans and Policies

This section examines Cannon Beach's existing plans and policies which could be utilized to address long-term post-disaster recovery planning in the future. Plans and policies already in existence have the support of local residents, businesses and decision makers. Many land use, comprehensive and strategic plans get updated regularly, and can adapt easily to changing conditions and needsⁱⁱ. Implementing the post-

disaster recovery strategies through existing plans, policies, and programs maximizes the city's limited resources.

Local decision-makers can use the existing local plans, policies and programs in their efforts to design and implement strategies that will prepare the City of Cannon Beach for post-disaster recovery. The tables below display existing local plans, policies, and programs in Cannon Beach and their relation to post-disaster recovery.

The tables used to describe each of the plans, policies, and programs are organized and described using the following headings:

Name: The formal name of the plan or policy being reviewed

Date of Last Revision: The last point in time that the plan or policy was updated

Author/Owner: The entity that developed, maintains, and has authority to change the plan or policy in question

Description: A brief overview of the role that the plan or policy plays in the operations and governance of the local community

Relation to Post-Disaster Recovery: These statements outline how the plan or policy relates to post-disaster recovery efforts and how the plan or policy can be augmented to address post-disaster recovery issues.

Table 4.1. Existing Plans and Policies

Name	Date of Last Revision	Author/Owner	Description	Relation to Post-Disaster Recovery
CITY PLANS AND POLICIES				
Cannon Beach Comprehensive Plan	Nov-04	City of Cannon Beach	This document will guide decisions that are made regarding the development of Cannon Beach. The Comprehensive Plan includes policies, recommendations, and guidelines for: urban growth, housing, the economy, transportation, hazard policies, energy, open space, public works, and design.	<ul style="list-style-type: none"> - The policies in the Comprehensive Plan can shape the way that the city plans for urban growth and can include mitigation and post-disaster recovery considerations. - These policies can help shape the economic base of Cannon Beach to facilitate stronger recovery.
City of Cannon Beach, Capital Improvement Plan (CIP)	FY 2005-2006	City of Cannon Beach	This plan identifies and sets priorities for all major capital assets to be acquired, replaced, constructed, or rehabilitated by the City. The CIP also identifies funding to support the projects. The most recent CIP includes ten projects totaling \$9.1 million in cost. These projects are primarily in the Public Works and Public Safety Departments.	<ul style="list-style-type: none"> - This plan can be used to improve and maintain infrastructure that may be impacted by a disaster event. - Potential projects can identified early and incorporated into the plan for the upcoming fiscal year.
Parking and Traffic Management Plan	12/1/2005 Updated Annually	City of Cannon Beach	This plan addresses specific issues concerning parking and traffic issues in Cannon Beach.	<ul style="list-style-type: none"> - Considerations regarding mass evacuations can be considered and incorporated into this plan. - Long-term resilience of transportation infrastructure should consider the likelihood of a disaster event.
Cannon Beach Municipal Code	Jan-05	City of Cannon Beach	The Code covers such things as fees, zoning, construction, traffic laws, utility guidelines, and taxes. It also dictates powers held by governing bodies. It provides a framework for regulation on many issues.	<ul style="list-style-type: none"> - The Code lays out specific guidelines that the City can follow when affected by a disaster event and can be amended to include additional guidelines.
Cannon Beach Municipal Code: Chapter 17, Zoning Ordinance of Cannon Beach, Oregon	Jan-05	City of Cannon Beach	Chapter 17 is the Zoning Ordinance for the City of Cannon Beach. The zoning ordinance chapter sets up and encourages standards for development throughout the city.	<ul style="list-style-type: none"> - Specific ordinances can be adopted to address post-disaster recovery int future development throughout in the city.
Ecola Creek Management Plan	Proposed Adoption Jun-06	City of Cannon Beach	Cannon Beach owns the 220-acre Ecola Creek Forest Reserve. The City's largest source of drinking water exists here, along with its water treatment facility. This plan lays out strategies for the protection of the City's drinking water source.	<ul style="list-style-type: none"> - This large reserve of open space impacts the future development of Cannon Beach.
Cannon Beach Emergency Management Plan	Jan-06	City of Cannon Beach	This document is an inventory of the different procedures that the public agencies in Cannon Beach will follow in a disaster event. The primary focus of this document is the immediate response during the 72 hours following a disaster event.	<ul style="list-style-type: none"> - The focus of this plan is on immediate emergency response. - This plan can provide a solid foundation for expanding disaster planning to include long-term recovery strategies.
City of Cannon Beach Residential Building Permit and Zoning Information	May-05	City of Cannon Beach Planning Department	This manual is designed to provide individuals with information about building permit and zoning requirements	<ul style="list-style-type: none"> - This manual could be amended to include information about reducing risk through structural and non-structural methods

Source: ONHW, 2006

Existing Community Programs

There are a variety of social and community organizations throughout Cannon Beach that provide services to targeted populations, including the elderly, children, businesses, and low-income populations. These organizations may be able to serve as external partners in implementing post-disaster recovery activities within the community. Table 4.2 documents existing community programs and uses the following headings as descriptions:

Name and Contact Information: The formal name of the organization and telephone number

Description: A brief overview of the organization’s purpose and activities

Service Area: The general area where the organization functions

Populations Served: The portion of the population that is served by the organization

Involvement in Post-Disaster Recovery Planning: A list of post-disaster recovery planning activities that fit the nature and purpose of the organization

Table 4.2. Existing Community Programs

Name and Contact Information	Description	Service Area	Populations Served						Involvement in Post-Disaster Recovery
			Businesses	Children	Disabled	Elders	Families	Low Income	
Altrusa International: North Oregon Coast Chapter	Participates in a wide range of volunteer activities	North Oregon Coast		✓	✓	✓	✓	✓	<ul style="list-style-type: none"> • Information dissemination • Coordinate volunteers • Distribute materials
American Legion Post #168	Directs programs for veterans	Cannon Beach			✓	✓			<ul style="list-style-type: none"> • Educational efforts • Services to elderly and disabled • Participate in planning efforts
Cannon Beach Children’s Center	Provides educational programs for children in Cannon Beach	Cannon Beach		✓			✓		<ul style="list-style-type: none"> • Education and outreach • Information dissemination
Chamber of Commerce	Organizes and provides a forum for local businesses	Cannon Beach	✓						<ul style="list-style-type: none"> • Establish networks for coordinated recovery • Participate in planning efforts
Clatsop Animal Assistance	Works in partnership with the Clatsop County animal shelter	Clatsop County							<ul style="list-style-type: none"> • Animal management
Clatsop Community College	Provides high quality learning opportunities for individuals in Clatsop County	Clatsop County	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> • Participate in planning efforts
Clatsop County Extension	Offers educational services and programs	Clatsop County	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> • Education and outreach • Information dissemination • Participate in planning efforts
Life Saving Program	Provides lifeguard coverage for the main beach areas.	Cannon Beach		✓	✓	✓	✓		<ul style="list-style-type: none"> • Education and outreach • Information dissemination
Seaside School District (#10)	Administers Cannon Beach Elementary School	Cannon Beach, Gearhart, Seaside, and Vicinity		✓			✓		<ul style="list-style-type: none"> • Education and outreach • Information dissemination • Participate in planning efforts
Small Business Development Center	Provides services to small businesses	Clatsop County	✓						<ul style="list-style-type: none"> • Education and outreach • Information dissemination • Participate in planning efforts

ⁱ City of Cannon Beach. 2006. City website: www.ci.cannon-beach.or.us. Accessed 13 June 2006.

ⁱⁱ Burby, Raymond J., ed.1998. *Cooperating with Nature: Confronting Natural Hazards with Land-use Planning for Sustainable Communities*.

Section 3: Forum Outcomes

This section provides an overview of the issues identified and prioritized by forum participants. The participants were asked to identify and prioritize post-disaster recovery issues. Following the forum, ONHW analyzed the identified and prioritized issues in an effort to identify key findings. A listing of all issues identified across disaster phases is available in Appendix D. The findings are organized into two main portions. The first presents the issues by theme (population, economy, critical facilities and infrastructure, and land and development). Secondly, the section concludes with some overall key findings.

Findings by Theme

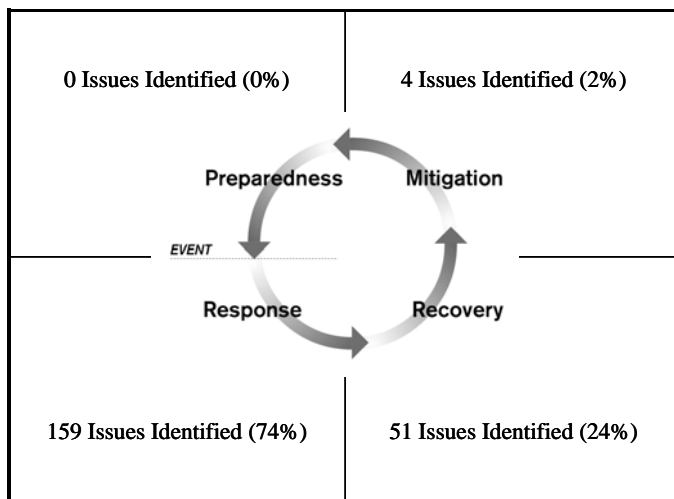
This section is organized by the four themes: population, economy, critical facilities and infrastructure, and land and development. Under each theme, the following information is provided:

1. A breakdown of individual identified issues by disaster phase; and
2. Key findings for both identified and prioritized issues.

Population

Utilizing the issue identification worksheet, Forum participants identified 214 population-related issues.. Figure 5.1 illustrates all individual identified issues and the corresponding phase in the disaster cycle.

Figure 5.1: Individual Identified Population Issues for all Phases of the Disaster Cycle



Source: ONHW, 2006

Participants then identified their top issue from their worksheet and wrote it on a card which was placed on the wall. The majority of top population issues identified were related to:

- Evacuation and Rescue;
- Communication Systems; and
- Shelters/Temporary Housing.

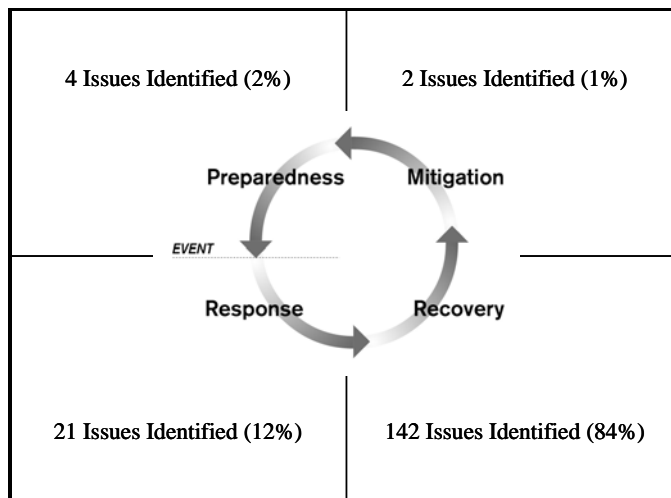
Once the top issues were identified, participants were asked to prioritize them through a simple voting process. Participants could only vote for one issue across all four themes. The ranking of prioritized population-related issues was as follows:

1. Transportation, including bridge and highway access;
2. Addressing the needs of visiting tourists; and
3. Post-disaster communication.

Economy

Forum participants identified 169 economy-related issues. Figure 5.2 illustrates all individual identified issues and the corresponding phases of the disaster cycle.

Figure 5.2: Individual Identified Economic Issues for all Phases of the Disaster Cycle



Source: ONHW, 2006

Participants then identified the top issue on their worksheet and wrote it on a card, which was placed on the wall. The majority of top economic issues identified were related to:

- Impacts to local businesses;

- Business relocation; and
- Impacts on the local workforce.

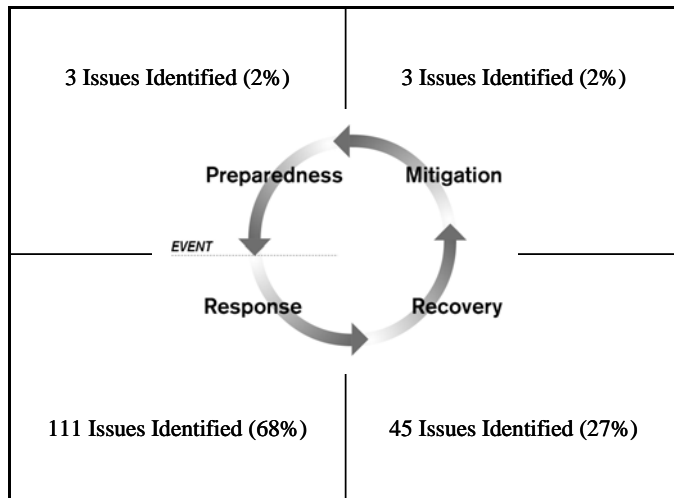
Once the top issues were identified, participants were asked to prioritize them through a simple voting process. Participants could only vote for one issue across all four themes. The ranking of prioritized population-related issues was as follows:

1. Restoration of landlines and wireless communication systems.¹

Critical Facilities and Infrastructure

Forum participants identified 162 critical facilities and infrastructure-related issues utilizing the issue identification worksheet. Figure 5.3 illustrates all individual identified issues and the corresponding phases of the disaster cycle.

Figure 5.3: Individual Identified Critical Facilities and Infrastructure Issues for all Phases of the Disaster Cycle



Source: ONHW, 2006

Participants then identified the top issue on their worksheet and wrote it on a card, which was placed on the wall. The majority of critical facilities and infrastructure issues identified were related to:

- Restoration of utilities;
- Restoration of transportation networks; and
- Access to medical services.

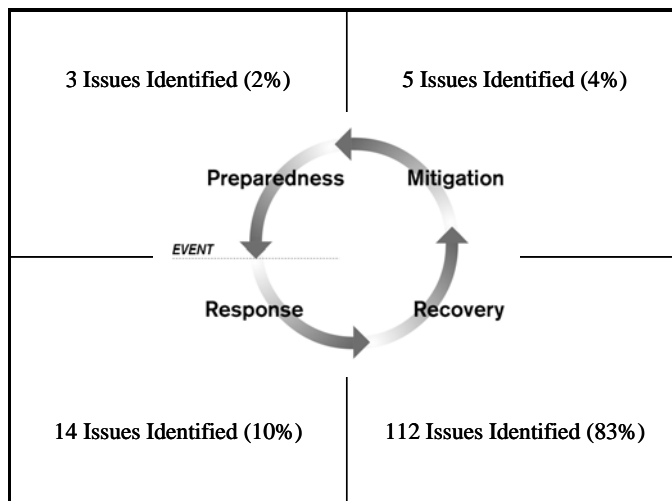
Once the top issues were identified, participants were asked to prioritize the top issues on the wall using a simple voting process. Participants could only vote for one issue across all four themes. The ranking of prioritized critical facilities and infrastructure-related issues was as follows:

1. Transportation access and availability;
2. Restoration of utilities, especially waste water treatment facilities; and
3. Restoration of communication systems.

Land and Development

Utilizing the issue identification worksheet, Forum participants identified 134 critical facilities and infrastructure-related issues.. Figure 5.4 illustrates all individual identified issues and the corresponding phases of the disaster cycle.

Figure 5.4: Individual Identified Land and Development Issues for all Phases of the Disaster Cycle



Source: ONHW, 2006

Participants then identified the top issue on their worksheet and wrote it on a card, which was placed on the wall. The majority of top land and development issues identified were related to:

- Relocation of business district;
- Zoning and land use; and
- Temporary housing.

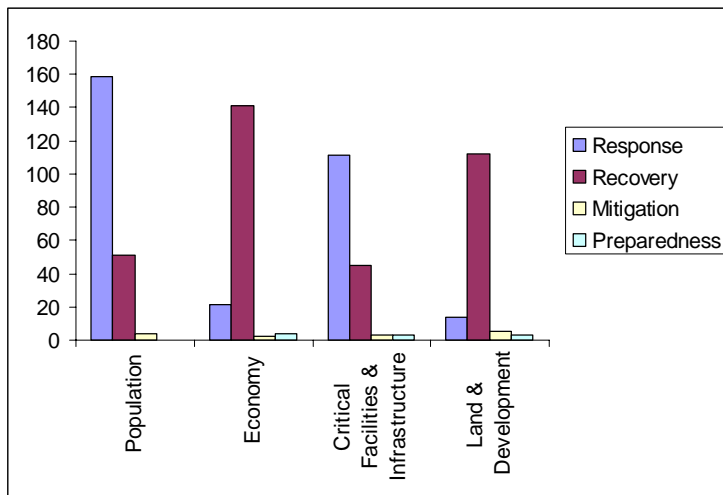
Once the top issues were identified, participants were asked to prioritize the top issues on the wall using a simple voting process. Participants could only vote for one issue across all four themes. The ranking of prioritized land and development related issues was as follows:

1. Relocation of essential facilities out of the inundation zone; and
2. Role of zoning in post-disaster recovery and reconstruction.

Overall Findings

Forum participants identified a total of 679 individual issues using the thematic worksheets. These issues cut across all four disaster themes. Figure 5.2 illustrates how these issues are spread out across the disaster phases and issue themes. The majority of issues specific to recovery fell into the economy and land and development theme. The majority of response issues fell into the critical facilities and infrastructure and population themes.

Figure 5.2 Total Individual Issues Identified by Disaster Phase and Theme



Source: ONHW, 2006

The following overall findings are supported by all of the four issue themes. There were two main overarching findings that cut across the themes – restoration of critical infrastructure and the vulnerability of the local economy. These two issues were identified through the issues analysis conducted by ONHW following the forum.

Restoration of Critical Infrastructure

The number one issue identified during the forum was that without critical infrastructure the City's population, economy and land could not recover. Participants indicated that without properly functioning water and wastewater systems, communication networks, transportation corridors, and utilities, the entire community would be crippled. Restoration of utilities and infrastructure is required in order for the residents, businesses, and local government to recover from a catastrophic Cascadia Subduction Zone event. The critical facilities and infrastructure, land and development, economic, and population groups all prioritized restoration of infrastructure as a major issue.

The recovery of Cannon Beach's critical facilities and infrastructure will dictate the recovery of the entire Cannon Beach community. Without potable water, electricity, communication networks, functioning

wastewater systems; Cannon Beach's residents and economy will struggle to achieve long-term recovery. Participants also indicated that residents will need the means to support themselves, including: access to potable water, shelter, sewer facilities, communication lines and electricity.

Vulnerability of the Local Economy

Another key finding was the restoration of Cannon Beach's economic base. Currently, Cannon Beach's economy is focused primarily on tourism. The loss of this economic base would cause a ripple effect throughout the entire community. In the event of a catastrophic event, Cannon Beach's businesses, hotels, bed and breakfasts, and shops would likely be closed for extended periods of time. The risk of devastation is even greater because 80% of the downtown business area is located in the Tsunami Inundation Zoneⁱⁱ. These closures would directly affect employees, who may be out of work and may lack the economic resources to support their families. In some cases these employees could be forced to leave Cannon Beach and reside in other areas where they can find work. For long-term recovery and to retain the local workforce, local employment opportunities must remain available.

The loss of income would not only affect residents and businesses but the government would also feel the impact. Participants in the economic group indicated that revenue losses would be felt community-wide, mainly from lost tax revenue and declines in property values.

Conclusion

Restoration of the Cannon Beach economy is dependent on the restoration of infrastructure. In order to rebuild the economy, businesses must have access to electricity, water, and communication networks and they must also have access to a workforce. Because of Cannon Beach's location, recovery will be dependent on the identification and dedication of temporary sites for businesses. These issues, as well as the others highlighted in this section, serve as the foundation for the recommendations proposed in the following section.

ⁱ Only one economy issue was prioritized by participants during the voting process.

ⁱⁱ Wood, N., in preparation, Variations in community vulnerability to tsunami hazards on the Oregon coast, U.S. Geological Survey research project 9861-B5C, unpublished data.

Section 4:

Post-Disaster Recovery Framework and Recommendations

The purpose of this section is to present the proposed framework and recommended actions that can be implemented to address post-disaster recovery planning in Cannon Beach. The following framework and recommendations do not constitute a post-disaster recovery plan, but they do outline the initial steps the City can take towards addressing catastrophic, long-term post-disaster recovery based on national research and forum findings.

Post-Disaster Recovery Framework

In order to effectively and efficiently oversee and plan for catastrophic, long-term post-disaster recovery with the City's limited resources, the following framework has been proposed. The framework outlines a coordinating body to oversee the implementation of five post-disaster recovery work plans focused on:

- Oversight-related activities;
- Critical Facilities and Infrastructure-related activities;
- Land and development related-activities;
- Economy-related activities; and
- Population-related activities.

Figure 4.1 illustrates the relationship between the City Council, the organizing body, and the individual work plans. The work plans are listed in order of importance based upon the community forum outcomes, lessons learned by other communities, and research findings.

Integrated Emergency Management Model

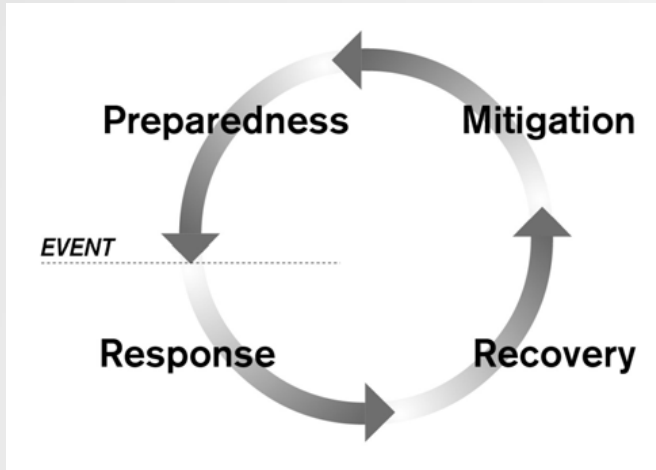
Oversight and Planning Structure for Recovery



City Council

Disaster Resilience Committee

Disaster Cycle



The Disaster Resilience Committee (DRC) is charged with overseeing local plan and policy development and implementation for all hazards and all phases of the disaster cycle. To accomplish this the committee operates off defined work plans established by local needs assessments for each phase of the disaster cycle. Each work plan sets forth recommended actions aimed at assisting the community in establishing pre and post-disaster plans, policies and procedures aimed at making the community more disaster resilient. The committee serves to increase communication, coordination, and collaboration between all levels of government and both public and private partners. The committee is comprised of a diverse group of community representatives.

Work plan can be implemented through the DRC or sub-committees

DRC Proposed Actions:

- 1.1 Establish disaster resilience committee
- 1.2 Post-disaster recovery ordinance
- 1.3 Establish communication strategy
- 1.4 Develop funding matrix
- 1.5 Coordinate outreach/education programs

Critical Infrastructure & Facilities Recovery Work Plan

- 2.1 Utility Restoration Study
- 2.2 Post-disaster transportation strategies
- 2.3 Seismic Needs Assessment
- 2.4 Critical Facility Relocation / Retrofit

Land & Development Recovery Work Plan

- 3.1 Buildable lands inventory
- 3.2 Establish Debris Management Plan

Economy Recovery Work Plan

- 4.1 Business continuity plans
- 4.2 Prepare local/regional contractors list
- 4.3 Develop continuity of operations plan

Population Recovery Work Plan

- 5.1 Housing Plan
- 5.2 Citizen networks

FEEDBACK LINE



Table 4.1, on the following page, and the text below are from the American Planning Association's Planning for Post-Disaster Recovery and Reconstruction report and can be used in general terms to identify when certain post-disaster recovery planning tasks may occur. It is important to note that different parts of a community or region may enter more advanced periods earlier than others. Nonetheless, this table may help to give some sense of workflow for communities implementing post-disaster recovery activities.

Note: Unshaded boxes with comments are intended to define limited amounts of preparatory work, or, in the case of mutual aid agreements, simply to indicate a need to make operational agreements worked out during the pre-disaster period.

Table 4.1. Timeline for Post-Disaster Plan Elements

FUNCTION	PREDISASTER	EMERGENCY PERIOD	SHORT-TERM RECOVERY	LONG-TERM RECONSTRUCTION
ORGANIZATION AND AUTHORITY				
Select recovery task force				
Empower recovery task force				
Designate lead agency				
Operations policy				
Set up accounting systems for disaster assistance				
Coordinate with emergency manager				
Public participation and hearings				
REHABILITATIVE				
Temporary housing	Identify Sites			
Refuse disposal	Identify Sites			
Damage assessment	Train teams, set MOUs			
Restore utility services				
Establish reconstruction priorities				
Reoccupancy permits	Set policies			
Emergency demolition	Set policies			
Emergency permitting	Set policies			
LAND USE				
Identify new lessons from damage assessments	Review case studies			
Compliance of rebuilding with regulations from new lessons				
Replanning of stricken areas	Identify nonconforming uses, pre-FIRM bldgs.			
Identify sites for emergency operations				
Reexamine street patterns	Plan			
Feasibility of emergency evacuation plans	Identify shelters, road capacity, vulnerability			
Historic preservation	Identify vulnerable structures			
Implement building moratoria	Adopt policies			
Reevaluate and update plan				
REGIONAL COORDINATION				
Coordinate with relief agencies	Predisaster planning			
Temporary housing	Identify sites			
Financial assistance channels	Prepare inventory			
Transportation	Plan			
Emergency legislation				
Media contact	Predisaster education			
Mutual aid agreements		Put into effect		

Source: American Planning Association. 1998. Planning for Post-Disaster Recovery and Reconstruction. Planning Advisory Service Report Number 483/484. Page 93.

Recommendations

The sections that follow present specific recommendations on actions that Cannon Beach should undertake to achieve disaster resilience. Many of these activities cross multiple phases of the disaster cycle and involve a wide range of interests. The information gathered at the forum allowed the recommendations in this section to be tailored to the local context of Cannon Beach. The combination of place-specific data with background research into disaster planning theory and case studies on post-disaster recovery successes and failures forms the rationale for all the suggested actions in this section. These actions were designed to meet multiple community objectives and cross a broad range of interests.

Each of the following work plans contains 2 – 5 specific actions. For each action, the following information has been provided: title, rationale and ideas for implementation. The **rationale** section contains a series of points that form the justification for undertaking that particular action. Broad rationale for the actions is based on findings from the forum and post-forum interviews and key documents in the field of post-disaster recovery planning. The major documents referenced include:

- Alesch, Daniel J. et al. 2001. “Organizations at Risk: What Happens When Small Businesses and Not-for-Profits Encounter Natural Disasters,” The Public Entity Risk Institute.
- American Planning Association. 1998. *Planning for Post-Disaster Recovery and Reconstruction*. Planning Advisory Service Report Number 483/484
- Department of Land Conservation and Development, Oregon’s Statewide Planning Goals and Guidelines, Goal 7: Areas Subject to Natural Hazards (2002)
- Federal Emergency Management Agency Disaster Mitigation Act of 2000
- Florida Division of Emergency Management. 2002. Internet Library – Continuity of Operations Plans. http://floridadisaster.org/internet_library.htm Accessed on 21 June 2006.
- National Public Radio. 2006. “Gulf Coast Firms Question Government Contracts.” <http://www.npr.org/templates/story/story.php?storyId=5382000> Accessed on 21 June 2006.
- Natural Hazards Research and Applications Information Center. 2002. “Building Back Better: Creating a Sustainable Community After Disaster” *Natural Hazards Informer*.

- Natural Hazard Research and Application Information Center. 2001. *Holistic Disaster Recovery: Ideas for Building Local Sustainability After a Natural Disaster*. Fairfax, VA: Public Entity Risk Institute.
- Oregon Senate Bills 2,3,4, and 5
- Oregon Revised Statutes 455.446 and 455.447
- Wilson, Richard. 1991. *The Loma Prieta Quake: What One City Learned*. Washington, DC: International Association of City Managers.
- Wood, N., in preparation, *Variations in community vulnerability to tsunami hazards on the Oregon coast*, U.S. Geological Survey research project 9861-B5C, unpublished data.

The recommended actions are summarized on the following page in Table 4.2.

Table 4.2: City of Cannon Beach Recommendation Summary

Oversight related activities	
Action 1.1	Establish a Disaster Resilience Committee (DRC)
Action 1.2	Develop a Cannon Beach Post-Disaster Recovery Ordinance
Action 1.3	Establish comprehensive disaster communications strategies to address both the response and long-term recovery needs of Cannon Beach citizens and government
Action 1.4	Develop a funding matrix that provides a list of potential funding mechanisms for disaster recovery and mitigation activities
Action 1.5	Coordinate outreach and education programs related to disaster response, recovery, preparedness, and mitigation planning
Critical facilities & infrastructure related activities	
Action 2.1	Conduct a study to determine priorities for utility restoration post-disaster
Action 2.2	Develop post-disaster strategies for restoring local transportation networks
Action 2.3	Assist the Department of Geology and Mineral Industries develop and enhance Cannon Beach’s seismic needs assessment of critical emergency response buildings and public schools
Action 2.4	Develop a proposal to relocate or retrofit important buildings that are critical to post-disaster recovery efforts
Land and development related activities	
Action 3.1	Complete a Buildable Lands Inventory that takes the tsunami inundation zone into account.
Action 3.2	Establish a debris management plan
Economy related activities	
Action 4.1	Assist businesses in developing business continuity plans
Action 4.2	Create a list of qualified, local and regional contractors to perform recovery work post-disaster
Action 4.3	Prepare a City Continuity of Operations Plan (COOP) for the City of Cannon Beach
Population related activities	
Action 5.1	Create a post-disaster housing plan that includes a vacant home database
Action 5.2	Increase communication and outreach through citizen-to-citizen networks that address post-disaster isolation and mental health of elderly, sick, and handicapped populations

Disaster Resilience Committee Recommendations

The following recommendations are broad actions that cut across all four of the issue themes – population, economy, critical facilities and infrastructure and land and development.

Action 1.1 Establish a Disaster Resilience Committee (DRC)

Rationale:

Forum Outcomes

- During post-forum interviews, forum participants indicated that “there needs to be a committee created to aid in producing a more specific list of opportunities and constraints.”
- The existing EPREP Committee is focused on immediate response and preparedness. There is currently no formal group looking at recovery issues.

Research Rationale

- “An interdisciplinary reconstruction planning task force is the best way to guide the process of constructing a plan.”ⁱ
- Coordinated planning allows communities to access resources that are unavailable to communities without coordinated planning efforts, such as support for Local Mitigation Plans, as described in the Disaster Mitigation Act of 2000.

Ideas for Implementation:

- Augment the EPREP Committee by expanding its scope to address long-term post-disaster recovery and its membership to include:
 - A public works employee;
 - A property manager;
 - A transportation expert;
 - An environmental advocate;
 - A representative with legal expertise;
 - A utility company representative;
 - A Chamber of Commerce representative;
 - An economic development expert;
 - A building safety official; and
 - A Solid waste official.ⁱⁱ
- Once membership is established, obtain formal recognition from the Council for the DRC through ordinance and inclusion in the City’s budget.
- Allocate staff time to coordinate the DRC and begin holding regular meetings.

- Review the recommended actions that resulted from the Cannon Beach Post-Disaster Recovery Planning forum. Establish a specific work plan and timeline to address these items. Identify additional disaster planning opportunities.
- The mission and overarching goal of the DRC should be to coordinate all disaster planning activities in Cannon Beach and work to establish clear direction on how all sectors of the community will prepare for, respond to, and recover from a disaster.

Action 1.2 Develop a Cannon Beach Post-Disaster Recovery Ordinance

Rationale:

Forum Outcomes

- Forum participants indicated that “streamlining the land use review process” and “ensuring that building codes and land use regulations are followed post-disaster” were important issues for post-disaster recovery.
- Many forum participants, especially those in the Land and Development group, mentioned the need for clarity and certainty in the way that Cannon Beach will operate in a post-disaster situation.
- Potentially, much of Cannon Beach will need to be rebuilt when a Cascadia Subduction event occurs. It is imperative that codes/regulations be followed at this time, despite the strain on resources.
- Cannon Beach does not have an existing ordinance related to disaster recovery and redevelopment in the Municipal Code.

Research Rationale

- Ordinances will help to define and give legal authority to take necessary actions in a post-disaster environment.ⁱⁱⁱ
- There will be a surge in building permits post-disaster. This can cause a backlog of applications resulting in “...poor oversight in the permitting process, inadequate and hurried inspections, and public disgruntlement at the slow pace of recovery.”^{iv}

Ideas for Implementation:

NOTE: These elements originated in the American Planning Association’s *Planning for Post-Disaster Recovery and Reconstruction*

- Designate staff positions that will form a Recovery Management Team that will be enacted in a post-disaster situation.
- The structure of the ordinance can be adjusted, but the main elements should include:
 1. Authority of the City to establish post-disaster policies

2. Purpose of the ordinance
 3. Definitions of relevant terms
 4. Recovery Management Team
 - An interdepartmental organization that coordinates local jurisdiction, planning, and implementation of disaster recovery activities
 - Designate Chair, Vice-Chair, Legal Counsel, and members from various departments
 - This Management Team should operate in cooperation with, but separate from, the Emergency Operations Team.
 - Team should be established prior to a disaster in order to become familiar with and train for their roles.
 5. Temporary Regulations (See Action 3.1)
 - Establish duration of temporary regulations
 - Examples: Temporary Building Moratorium, Special Permitting Procedures, Nonconformance, Temporary Housing, and/or Debris Management.
- Establish a one-stop field office in a safe location where staff can provide information related to repair, rebuilding, business reopening, industrial procedures, and housing occupancy.^v
 - Ordinance should include priorities for local contractors when available (Action 4.2).
 - Review these additional tools and their applicability in Cannon Beach:
 - *Development moratorium* This can help the City determine appropriate redevelopment actions in a stricken area prior to permits being issued.
 - *Temporary Repair Permits* This can help separate temporary repairs from those that will need long-term solutions.
 - *Demolition Regulations* This policy can be put in place before a disaster occurs to determine the demolition process, specifically when it comes to those buildings that are significant to the community.
 - *Zoning for Temporary Housing* Temporary housing should be located in areas where it can be accessed by services. This should be updated as land uses change and be coordinated with utility restoration priorities.

Action 1.3 Establish comprehensive disaster communications strategies to address both the response and long-term recovery needs of Cannon Beach citizens and government

Rationale:

Forum Outcomes

- Response and recovery efforts after a disaster require an active and effective communication network.

Research Rationale

- Investing time and effort in creating an effective communication system for natural disasters requires active interaction between many different organizations.^{vi} This is achieved through effective, operating communication channels pre- and post-disaster.
- Once a communication system is formed for different levels of transferring messages during an emergency, public education for residents and visitors should be provided so that the community can use system.

Ideas for Implementation:

- Compile all existing disaster communications plans and procedures into one comprehensive document and include recovery communications procedures addressing such topics as:
 - contact with potential contractors;
 - announcing re-inhabitation signals;
 - maintaining contact with residents at temporary housing locations; and
 - establishing lines of communication with state and federal assistance organizations.
- Coordinate with local and national radio stations to create procedures for maintaining communication links to areas outside of the community.
- Participants from the Cannon Beach post-disaster recovery forum discussed creating bulletin boards in a central location as a main messaging center.
- Form different channels of communication that could be used by police, fire, and ambulance services. Examples include low-tech solutions that will still be operational in a disaster situation, such as bulletin boards, as identified by forum participants.
- Designate a site outside the inundation zone with a structurally sound building as a communications center.
- Create an information sheet to be included in Action 1.5, which will educate the residents and visitors on what the communication center is used for and how they can use it in emergencies.

Action 1.4 Develop a funding matrix that provides a list of potential funding mechanisms for disaster recovery and mitigation activities

Rationale:

Forum Outcomes

- Stakeholders at the Cannon Beach Post-Disaster Recovery Planning Forum identified funding as a major barrier to action implementation.

Research Rationale

- “Resources that may not be available on a routine basis for certain improvements may become available from various disaster relief sources, particularly where careful planning has allowed the community to identify certain needs in advance, saving critical time in the aftermath of a disaster.”^{vii}
- If a community has a plan, control over recovery issues remains local.^{viii}

Ideas for Implementation:

- The DRC should request assistance from staff to research additional sources of funding. Staff should prepare a comprehensive matrix of funding options. Potential tools include:
 - Community Development Block Grants;
 - Relocation Assistance;
 - Special taxing and assessment districts;
 - Tax Increment Financing;
 - Impact Fees;
 - Differential taxation;
 - Urban renewal or redevelopment funds; and
 - Public mortgage lending subsidies.^{ix}
- The DRC should be briefed on the existing structure and resources available for funding disaster activities.
- The DRC should consider what funds to pursue through grant applications and through the enactment of other financial tools.
- After consideration of all funding mechanisms, the DRC should match disaster planning activities to potential sources and suggest the implementation of financial tools at the local level.

Action 1.5 Coordinate outreach and education programs related to disaster response, recovery, preparedness, and mitigation planning

Rationale:

Forum Outcomes

- Coordinated outreach and education efforts will ensure consistency and clarity.

Research Rationale

- The Disaster Mitigation Act of 2000 establishes standards for Local Mitigation Plans that include public involvement and public comment, coordinated workshops and trainings, and local capacity development.
- “Many activities that local government may not be able to mandate for private property owners may nonetheless be worth encouraging through means like public education campaigns and financial or other incentives.”^x

Ideas for Implementation:

- Inventory existing educational materials and programs in Cannon Beach and determine gaps in existing disaster education efforts. Review examples of materials and programs in other communities.
- Develop consistent format and message to use in disaster education efforts.
- Launch coordinated public education campaign about all phases of disaster planning, what citizens should do in a disaster situation, communication systems, and how the public can be involved in developing disaster planning strategies.

Critical Facilities and Infrastructure Recommendations

The following set of recommendations focuses on issues related to critical facilities and infrastructure.

Action 2.1 Conduct a study to determine priorities for post-disaster utility restoration

Rationale:

Forum Outcomes

- Participants in the forum identified restoration of critical utilities, i.e. water, sewer, and electricity, as a priority.

Research Rationale

- Protecting utilities from damage can minimize the economic and social disruption caused by natural disasters.^{xi}
- Restoring utility services is an essential prerequisite for beginning other recovery efforts (i.e. economic recovery, hospital services, and public facilities) to put a community back online.^{xii}
- The demand for utilities immediately after the disaster includes clean drinking water and proper sanitation. The restoration of utilities will guide recovery efforts.

Ideas for implementation:

- Address and outline priorities for utility restoration, including the establishment of infrastructure reconstruction procedures and the designation of private organizations that could be accountable for restoring specific utilities.
- Incorporate findings and recommendations into the city's Capital Improvement Plan.

Action 2.2 Develop post-disaster strategies for restoring local transportation networks

Rationale:

Forum Outcomes

- Participants identified transportation as an important issue related to the economy, medical and health industries, and movement of food and household products
- Cannon Beach's location on Highway 101 and its reliance on neighboring jurisdictions for certain essential services (i.e. hospitals) make transportation a critical issue.

Research Rationale

- "The condition of bridges and streets is a very important component of post-disaster data assessment.^{xiii} A list of actions

related to bridge and street protection can be used to mitigate problems today.

- Damaged transportation systems may delay the arrival of goods, services, and resources vital to response and recovery efforts.

Ideas for implementation:

- Review and update roads projects in the Capital Improvement Plan to reflect potential post-disaster recovery issues.
- Identify transportation requirements and document possible funding sources for capital improvements in the funding matrix mentioned in Action 1.4.
- Coordinate with the Oregon Department of Transportation and Federal Highway Administration on the restoration of state and federal highways essential to Cannon Beach's recovery efforts.

Action 2.3 Assist the Department of Geology and Mineral Industries in developing and enhancing Cannon Beach's seismic needs assessment of critical emergency response buildings and public schools

Rationale:

- Senate Bills 2 -- 5 address the issue of statewide seismic needs assessment of critical emergency response buildings and public schools through Rapid Visual Screening evaluations developed by the Federal Emergency Management Agency.
- "Senate Bill 2 directs the Oregon Department of Geology and Mineral Industries (DOGAMI) to assess earthquake safety of schools, colleges, police and fire stations and hospitals statewide."
- Assessing structural vulnerability before a disaster occurs can assist communities to : (1) plan where essential services might be able to be housed post-disaster and (2) plan for redevelopment of structures and uses outside areas of extreme vulnerability.

Ideas for implementation:

- Create a database of all the buildings in the tsunami inundation zone.
- Enhance the DOGAMI database by adding facilities beyond those required under Senate Bill 2, such as publicly owned non-emergency buildings or business districts.
- Use Rapid Visual Screening (See FEMA Document 154, March 2002, <http://www.fema.gov/plan/prevent/earthquake/pdf/fema-154.pdf>) to inventory the conditions of all the buildings within the

Tsunami Inundation Zone. Enter building status and condition into a GIS database to visually project data on the map.

- The Disaster Resilience Committee should develop next steps after all the buildings are analyzed. This includes capital improvement projects for important buildings, in order to mitigate damage. Action 2.4 also addresses actions to mitigate damages to important buildings.

Action 2.4 Develop a proposal to relocate or retrofit important buildings that are critical to post-disaster recovery efforts

Rationale:

- Construction of certain facilities and structures within the Tsunami Inundation Zone is prohibited by ORS 455.446.
- ORS 455.447 regulates vulnerable building retrofit. A proposal to reinforce buildings so they can withstand an earthquake or tsunami can reduce vulnerability risks.
- Retrofitting of vital infrastructure, such as schools and community buildings, provides important improvements that reduce hazard exposure and the cost and time associated with recovery.^{xiv}

Ideas for implementation:

- Identify and prioritize buildings in Cannon Beach that are critical to post-disaster recovery efforts, including drinking water treatment facility, wastewater treatment plant, police and fire departments, community buildings, schools, hospitals and clinics, emergency shelters, and emergency communication centers.
- Use information gathered in Action 3.1 to suggest potential areas for location of critical buildings.
- Participate in development of and adoption of Clatsop County's Natural Hazard Mitigation Plan to gain eligibility to seek federal Pre-Disaster Mitigation funding for critical facility relocation or retrofit.
- Collaborate with public and private organizations to provide assistance in the relocation or retrofit of specific buildings.

Land and Development Recommendations

The following set of recommendations focuses on issues related to land and development.

Action 3.1 Complete a Buildable Lands Inventory that takes the Tsunami Inundation Zone into account.

Rationale:

Forum Outcomes

- Forum participants identified that “partnering with adjacent land owners to relocate temporary housing and critical facilities” and “initiating a dialogue or partnership with adjacent landowners” were important issues for post-disaster recovery.
- USGS predicts that the central business district could experience substantial damage due to subsidence.

Research Rationale

- Goal 7 of the Oregon Land Use Planning System requires that local comprehensive plans address natural hazards and “protect people and property from natural disasters.” “Local governments are required to adopt comprehensive plans (inventories, policies, and implementing measures) to reduce risk to people and property from natural hazards.”^{xv}
- While the façade of Cannon Beach might be rebuilt quickly, “...often, social, political, and economic relationships and capability do not.”^{xvi} What defined Cannon Beach prior to the disaster will not define it afterwards. Consider taking steps to address this in the redevelopment process.
- Communities that are able to re-establish housing and an economic base quickly have a higher chance of long-term success. City economies depend on businesses for sources of employment and tax revenue.^{xvii}

Ideas for Implementation:

- Review zoning ordinances and determine if new zoning will be required for commercial development following a disaster event.
- Consult the Department of Consumer and Business Services (DCBS), Building Code Division to obtain guidance and training on building code development for tsunami-prone areas.
- Use tax lot records to review property ownership and use in areas outside the inundation zone and create a database of the properties and their potential use.
- Hold a public meeting with interested landowners to gather input on locations for future development.
- Document desired Comprehensive Plan changes related to disaster planning and incorporate as Cannon Beach reviews its Comprehensive Plan.

- Hold a design charette to locate and design post-disaster redevelopment and to achieve the following:
 - Educate and raise awareness of how land is currently used and how much land is available in the Urban Growth Boundary.
 - Understand stakeholder opinions through public participatory practices.

Action 3.2 Establish a debris management plan.

Rationale:

Forum Outcomes

- Eighty percent of Cannon Beach’s development is located in the inundation zone. It is likely that many buildings will be destroyed, creating a large amount of debris.

Research Rationale

- “Debris clearance is often traffic clearance as well, to the extent that roadways are blocked by felled trees or flood muck and thus impede other recovery functions.”^{xviii}
- “Ensuring the smooth function of this service also speeds the clearance of debris-ridden sites so that properties may be repaired and rebuilt, and enhances the prospects for economic recovery by eliminating potential eyesores.”^{xix}
- Debris management needs to be determined prior to a hazard to ensure a coordinated response.
- Often times, debris management is one of the largest local expenditures following a disaster. Having a plan ahead of time may assist the community in curbing excess spending post-disaster.

Ideas for Implementation:

- The DRC should designate the public works or sanitation department as the local lead in coordinating post-disaster debris removal
- Explore the possibility of developing a contract with solid waste disposal companies to manage debris in the event of a disaster and create a database of volunteers with vehicles able to haul refuse.
- Determine how much the landfill can support, update this estimate biannually, and identify other tracts of land that can be used for refuse disposal. .
- Identify potential ways to recycle, reuse, or refuse.

Economy Recommendations

The following set of recommendations focuses on issues related to the economy.

Action 4.1 Assist businesses in developing business continuity plans

Rationale:

Forum Outcomes

- Participants at the Cannon Beach Forum identified business recovery planning as a suggested next step to pursue.

Research Rationale

- Business continuity plans assist businesses in determining appropriate insurance coverage, review lease stipulations, mitigate against potential risks, and plan for future recovery efforts.^{xx}
- Research has shown that most small businesses are unable to recover after a disaster. The majority of Cannon Beach businesses are within the Tsunami Inundation Zone. It is clear that most businesses will face significant damage in the event of a disaster.^{xxi}
- Business continuity plans allow businesses and their employees to be better prepared for a disaster. Having plans in place may reduce the impact on the business, allowing employees to continue to work or get back to work faster.

Ideas for Implementation:

- Organize business continuity planning workshops. The City could provide space and other resources to facilitate the implementation of the workshops.
- Perform outreach to capture the participation of most businesses. Workshop information and business continuity planning resources should be posted on the City's website.
- Research successful business continuity plans to assist in the facilitation of business continuity planning workshops.
- The DRC should work with the Chamber of Commerce to assist local businesses. Additional assistance could be gained from the Small Business Administration and the Small Business Development Center at Clatsop Community College.
- Partner with the Chamber of Commerce to perform an informal survey to obtain the number of businesses with continuity plans. These numbers should be used as a benchmark to monitor progress on the number of additional continuity plans developed.

Action 4.2 Create a list of qualified local and regional contractors to perform recovery work post-disaster

Rationale:

Forum Outcomes

- Participants at the Cannon Beach Forum identified the loss of local jobs after a disaster as an important issue.

Research Rationale

- Historically, local contractors are not awarded post-disaster contracts. For instance, after Hurricane Katrina FEMA awarded no-bid contracts to four large national firms.^{xxii} (National Public Radio, 2006). If contracts had been awarded to local firms, businesses would have been able to provide local jobs and revenue would have stayed in the community.
- Keeping jobs local adds to a community's overall economic sustainability by adding to the local tax base and providing job opportunities to residents.^{xxiii}

Ideas for Implementation:

- Compile a database of contractors located in Cannon Beach and the surrounding area. Provide details on areas of expertise, capacity, and amount of experience. The database should be updated annually.
- Advertise the opportunity to be included on the list on the City of Cannon Beach's website, in the local newspaper, and other outlets
- Partner with the Chamber of Commerce to advertise and develop the database.

Action 4.3 Prepare a City Continuity of Operations Plan (COOP) for the City of Cannon Beach

Rationale:

Research Rationale

- Continuity of operations is accomplished through the development of plans, comprehensive procedures, and provisions for alternate facilities, personnel, resources, interoperable communications, and vital records/databases. The plan establishes policy and guidance to ensure the execution of the organization's most essential functions in any event which requires the relocation of selected personnel and functions to an alternate facility.^{xxiv}
- Research has shown that staff turnover is likely to occur after a disaster. Veteran staff is critical after a disaster.
 1. Preventing turnover is also important so that existing personnel do not have to take on extra responsibilities during an already stressful time.

2. Continuity planning can help lessen turnover by ensuring competitive salaries and benefits and by reducing the amount of stress staff will have to endure.^{xxv}

Ideas for Implementation:

- Research and review completed continuity of operations plans to provide a foundation of expected content and issues to review.
- The DRC, in partnership with City staff, should guide the development of the continuity of operations plan.
- The Coop should ensure shelter housing for critical staff and family members such as city officials, public works employees, emergency response, and others.
- Assess and prioritize critical positions and resources vital to the continuance of important city functions.
- Train Recovery Management Team (Action 1.2) in the implementation of the City's Continuity of Operations Plan.
- Incorporate COOP into the existing Emergency Operations Plan.

Population Recommendations

The following set of recommendations focuses on issues related to the population.

Action 5.1 Create a post-disaster housing plan that includes a vacant home database

Rationale:

Forum Outcomes

- The Cannon Beach Community Profile indicated that approximately 43% of the housing stock is occupied during the year and 57% is used for seasonal, recreational, and occasional use.
- Cannon Beach forum participants identified housing as a priority issue.

Research Rationale

- National databases were created after hurricane Katrina that allowed individuals to donate or find shelter. A good example is www.hurricanehousing.org. A similar framework could be used in Cannon Beach.
- Research has shown that post-disaster temporary housing often becomes permanent because regulations about non-conforming uses have not been passed.^{xxvi}

Ideas for Implementation:

- The DRC should identify a coordinating organization and define the data collection process.
- Coordinate database with city and county GIS capabilities.
- Develop educational literature and marketing to be included in Action 1.5.
- Ensure shelter housing for critical staff and family members such as city officials, public works employees, emergency response, and others.
- Work with homeowners' associations to recruit volunteers and partners.

Action 5.2 Increase communication and outreach through citizen-to-citizen networks that address post-disaster isolation and mental health of elderly, sick, and handicapped populations

Rationale:

Forum Outcomes

- Participants identified communication during the forum as a priority for all stages in the disaster cycle.

Research Rationale

- The City of Yachats, Oregon has implemented a successful neighbor-to-neighbor program that provides a system for assisting the elderly, sick, and handicapped populations to evacuate. A window placard was created for individuals who need assistance evacuating. The placard is placed in the window permanently to raise awareness. Additionally, a buddy system is in place to ensure that each person with a placard has an evacuation assistant.

Ideas for Implementation:

- The DRC should solicit organizations and individuals who are willing to coordinate and maintain networks.
- Build partnerships with communities outside of the impacted area.
- Create multiple data storage locations, in both electronic and hard copy, to ensure access to information pre- and post-disaster.
- Integrate the citizen-to-citizen network with the comprehensive city communication system described in Action 1.3.

References

- ⁱ American Planning Association. 1998. Planning for Post-Disaster Recovery and Reconstruction. Planning Advisory Service Report Number 483/484
- ⁱⁱ Ibid.
- ⁱⁱⁱ Ibid.
- ^{iv} Ibid.
- ^v Ibid.
- ^{vi} Wilson, Richard. 1991. The Loma Prieta Quake: What One City Learned. Washington, DC: International Association of City Managers.
- ^{vii} American Planning Association. 1998. Planning for Post-Disaster Recovery and Reconstruction. Planning Advisory Service Report Number 483/484
- ^{viii} Ibid.
- ^{ix} Ibid.
- ^x Ibid.
- ^{xi} Natural Hazard Research and Application Information Center. 2001. Holistic Disaster Recovery: Ideas for Building Local Sustainability After a Natural Disaster. Fairfax, VA: Public Entity Risk Institute.
- ^{xii} American Planning Association. 1998. Planning for Post-Disaster Recovery and Reconstruction. Planning Advisory Service Report Number 483/484
- ^{xiii} Ibid.
- ^{xiv} Ibid.
- ^{xv} Department of Land Conservation and Development, Oregon's Statewide Planning Goals and Guidelines, Goal 7: Areas Subject to Natural Hazards (2002)
- ^{xvi} Alesch, Daniel J. et al. 2001. "Organizations at Risk: What Happens When Small Businesses and Not-for-Profits Encounter Natural Disasters," The Public Entity Risk Institute.
- ^{xvii} Ibid.
- ^{xviii} American Planning Association. 1998. Planning for Post-Disaster Recovery and Reconstruction. Planning Advisory Service Report Number 483/484
- ^{xix} Ibid.

^{xx} Alesch, Daniel J. et al. 2001. "Organizations at Risk: What Happens When Small Businesses and Not-for-Profits Encounter Natural Disasters," The Public Entity Risk Institute.

^{xxi} Wood, N., in preparation, Variations in community vulnerability to tsunami hazards on the Oregon coast, U.S. Geological Survey research project 9861-B5C, unpublished data.

^{xxii} National Public Radio. 2006. "Gulf Coast Firms Question Government Contracts." <http://www.npr.org/templates/story/story.php?storyId=5382000> Accessed on 21 June 2006.

^{xxiii} Natural Hazards Research and Applications Information Center. 2002. "Building Back Better: Creating a Sustainable Community After Disaster" *Natural Hazards Informer*.

^{xxiv} Florida Division of Emergency Management. 2002. Internet Library – Continuity of Operations Plans. http://floridadisaster.org/internet_library.htm Accessed on 21 June 2006.

^{xxv} Wilson, Richard. 1991. The Loma Prieta Quake: What One City Learned. Washington, DC: International Association of City Managers.

^{xxvi} American Planning Association. 1998. Planning for Post-Disaster Recovery and Reconstruction. Planning Advisory Service Report Number 483/484

Appendix A: Population Theme Issue Identification Summary

The following issues were identified during the issue identification process for the population theme.

Appendix A: Individually Identified Issues
Population

Individually Identified Issues - Population	Disaster Phase
How do we get medical assistance to those who need it?	Response
How do we deal with people who don't know how to evacuate?	Response
How do we provide food and water to people?	Response
How do we communicate with people?	Response
How do we deal with disabled people?	Response
Weather dependent- Better the weather less hazard protection and population increase.	Response
Most employees live out of area <u>but</u> close with families and needs/concerns at home.	Response
High non-english population.	Response
Large population at Ecola Park- lack of egress.	Response
Movement of population out of inundation zone minimize need of human suffering/death.	Response
Housing on temp basis till transport out.	Response
Housing of residents until they are able to return home	Response
Visitors densities	Response
At risk population- medial etc.	Response
How will fear disable people in responding and recovering?	Response
Who are the least mobile (elderly, shut-in, disabled) needed most assistance?	Response
How will catastrophic loss and the reality of grief effect people in their ability to respond and recover?	Response
What counseling needs will be present as a result of post-trauma stress, grief, crisis?	Response
How can anger be managed and constructively channeled during recovery?	Response
Who will be present to support, comfort, encourage, and counsel the hurting, grieving, broken, depressed, lonely, critical?	Response
How can spiritual needs of people be met most effectively in the event response and recovery?	Response
School with 120 students and 25 adults- evacuation/post evac survival	Response
How will we provide food/water/shelter?	Response
How will we return children to appropriate guardians? When?	Response
How will we provide for emotional distress/counseling PTSD?	Response
What about staff members who are worried about their own families?	Response
Information and communication- education and initial hours	Response
Centralized emergency Services- food, water, medical.	Response
Cleanup- base damage assessment	Response
Get infrastructure repair started	Response
Regional assistance- too much? Too little?	Response
Adequate transportation	Response
Communications with outside areas	Response
Replacement of equipment	Response
Relief for workers	Response
Evacuation of shut-ins/ disabled people.	Response
Sheltering from elements- weather	Response
Lost or disoriented people - children	Response
People with special medical needs (cancer, dialysis etc)	Response
Pets	Response
Communications	Response

Appendix A: Individually Identified Issues
Population

Individually Identified Issues - Population	Disaster Phase
Assessing health and medical needs of population- dead, walking injured, non-walking injured, worried and well.	Response
Designating fringe sites (PSA's) for affected pop.	Response
Determining and ensuring adequate, qualified staff	Response
Requesting additional resources via MOVs, OR DMAT, SNS, (fed).	Response
Maintaining consistent level of basic health services to meet need of pop (access)	Response
Resuming health services that were deferred during initial response.	Response
Well functioning system for tracking data	Response
Individuals move to higher ground	Response
Individuals take emergency supplies	Response
How do individuals move in time	Response
People trapped in damaged structures in inundation zone	Response
Temporary housing/protection - rain! For disabled people.	Response
In tourist season- temporary shelter for people	Response
First and second night shelter	Response
Rapid evacuation of non-residents and retirees	Response
Evacuation of full time residents, tourists	Response
Housing/food/blankets/tents- weather protection for housing	Response
Evacuation / treatment pf PH/ pharmaceuticals, medical cases	Response
Rescuers access/ delivery of supplies	Response
Telephone employees in areas	Response
Telephone employees available after/during response	Response
Landline and wireless phone will not work	Response
Must wait to restore until power is back	Response
Where would immediate health area facility be?	Response
What is priority place on Hwy100? How long could we be cut off? Big impact	Response
Basic immediate needs of water, food.	Response
Lack of on-site medical care	Response
Rescue/shelter/care elderly population	Response
Population density @ peak time for first response and relief	Response
High percentage of elderly pop in fall time residents	Response
Difference between resident population versus transient population (1600 residents vs. 6-20,000 visitors)	Response
Nearly 1/2 resident pop in inundation zone	Response
Perhaps 1/2 of inundated are "special needs"	Response
Probably most transient (nonresidential) are in inundation	Response
Emergency housing- non casualties	Response
Emergency housing- casualties	Response
Population inventory- individual ids	Response
Mass feeding	Response
Mass medical- triage	Response
Injured/dead/dying people	Response
Sanitation for survivors	Response
Food/water/shelter	Response
Family separation	Response
Tourists	Response
Relocating people to safe zones within a timely manner after quake and prior to tsunami	Response
Appropriate alert and warning for evacuation	Response

Appendix A: Individually Identified Issues
Population

Individually Identified Issues - Population	Disaster Phase
Impact on population with limited mobility and resources	Response
# of injuries and facilities	Response
Time required to restore utilities (electricity, phone)	Response
Family reunification	Response
health concerns	Response
Continuity of government and provision of response and community services	Response
Elderly- Assisted living- Disabled	Response
Hearing Impaired	Response
Non-English speaking	Response
Children vulnerability	Response
Medical issues- prescription meds	Response
Shelter locations	Response
Zones for care	Response
Media interference with 1st responders	Response
Response to , and evacuation of elderly, disabled	Response
Are our 3 shelters adequate?	Response
Traffic management after the event	Response
Removal of dead and critically injured	Response
Housing for strained tourists	Response
How to get needed medications (especially things like insulin, narcotics for chronic severe pain sufferers, anxiety meds, etc.)	Response
Local medical care due to transportation failure	Response
Locating local drinking water	Response
Locating food for local survivors	Response
Clear landing zone to evacuate injured, elderly, and young	Response
Attempt to locate outside communications and make contact with others who could help	Response
Elderly population would need more attention than the younger population.	Response
Retirees, elderly health, mobility issues. How, where, who service provide?	Response
High #'s of low income families reliant on services from public/non-profit. Food? Water Sanitation? Will local non-profits survive?	Response
How to map or represent visitor population?	Response
Where will people with special needs be sheltered during evacuation in following days?	Response
Location for temporary shelters for displaced residents.	Response
Returning children with parents	Response
Elderly/special needs population	Response
Communication strategy for evacuation	Response
Managing transient (tourist) population	Response
Restoration of critical infrastructure to meet basic needs- communication, electric	Response
Transportation routes to emergency services	Response
Hospitals/shelters	Response
We have three temporary emergency shelters which would be inadequate for our population, let alone emergency workers.	Response
Providing water/sewer services to remaining population. Garbage and public health.	Response
Significant non-resident population center around the oceanfront hotels.	Response
Evacuation of elderly and infirm.	Response

Appendix A: Individually Identified Issues
Population

Individually Identified Issues - Population	Disaster Phase
Within ts. Zone, survival from EQ so as to be able to evacuate before tsunami.	Response
Restoration of natural gas and electricity service	Response
Preserving records, eg maps, data bases for use in recovery	Response
How do we communicate?	Response
Medical support for whole population	Response
Communication	Response
Movement/ transportation	Response
Housing and basic services	Response
Moving non- residents out of area	Response
Family services	Response
Collapse of highway system affects mobility	Response
Significant resident population in Tolovana IZ	Response
Large population of visitors w/ IZ	Response
Special need population scattered around town	Response
High median age- health care/ workforce issues	Response
Time of event- night/day	Response
Hospitals starting	Response
Hotel room Normal pop	Response
Hotel room Large pop	Response
Meds for those who need them immediately	Response
immediate medical care	Response
long term housing for res displaces	Response
child care center	Response
elder care center	Response
How/where will we shelter the injured and displaces?	Response
How do we communicate with the various populations?	Response
Location of school children in inundation zone	Response
Providing post disaster medical response.	Response
Two bridges across Ecola Creek- both are critical to recovery efforts and initial evacuation efforts	Response
Reservoirs that could/would break and unleash large volume of water into a neighborhood	Response
Housing of response group short and long term	Recovery
Residential/Commercial building repair	Recovery
Mobility for freight (supplies)	Recovery
Control of necessary traffic from unnecessary traffic (rubber-neckers)	Recovery
Temporary housing	Recovery
Potential location/availability of temp housing.	Recovery
Business districts in inundation zone. Need for service delivery (food, water, etc)	Recovery
Return of or routing of visitors in Cannon Beach	Recovery
Tillamook/Clatsop/Pacific County Integration -i.e. workers in coastal business can't afford to live close enough to worksites in high rent areas, mass commute, how possible with roads! Bridges down. Employers/Employees- how get workers to job sites?	Recovery
When can visitors return?	Recovery
When can citizens return?	Recovery
Worker retention in service industry	Recovery
Worker availability for rebuilding	Recovery
Individual decisions about rebuilding	Recovery

Appendix A: Individually Identified Issues
Population

Individually Identified Issues - Population	Disaster Phase
How can we protect youngest and oldest?	Recovery
How can we identify resources in private and public sector above inundation zone for helping those in need?	Recovery
Where will we hold school for the short term/ long term?	Recovery
What about medication for children?	Recovery
Redesign of structures- temporary and permanent	Recovery
Prioritize resources to individual community needs	Recovery
Operational facilities (shops in flood zones).	Recovery
Maintaining consistent level of basic health and access.	Recovery
Provision of sanitary/electricity/water	Recovery
Debris removal and location for	Recovery
Utility restoration	Recovery
Where would temporary housing be located?	Recovery
Access to business community to salvage business- when could we return?	Recovery
Relocation of transient population	Recovery
Ability of elderly to resume residence	Recovery
Loss of employment for residents	Recovery
Establishing safety zones- shelters	Recovery
Damage to infrastructure	Recovery
Debris managements	Recovery
Recovery and return of local businesses	Recovery
Will the community be re-buildable?	Recovery
Housing for residents whose homes are destroyed	Recovery
Turning local motels into hospitals	Recovery
Most of the city's land is within the inundation zone, most of the population will be gone, i.e. most of the infrastructure will be gone and there will not be services for them. How does the City recover/become a more vibrant community again when most of	Recovery
Lower income population generally located east of the highway. A segment of that population depends on the bus for transportation.	Recovery
What provisions for crossing physical obstacles	Recovery
Are there adequate housing provisions?	Recovery
Financial Support	Recovery
Insurance Support	Recovery
long term medical care	Recovery
Income to residents	Recovery
Housing	Recovery
Building a structural sound school outside ts. Inundation zone	Recovery
Loss of employment for low income and service industry employees	Recovery
Public safety/public works workforce	Recovery
Unreinforced concrete school building- goes flat- not available for shelter or other pop. Needs	Recovery
Backup plan for continuity of school- where?	Recovery
Educating tourists re evacuation procedure.	Mitigation
How do you identify elderly, disabled required for evacuation assistance?	Mitigation
Who helps them to evacuate?	Mitigation
How to educate population about appropriate response	Mitigation

Appendix B: Economy Theme Issue Identification Summary

The following issues were identified during the issue identification process for the economy theme.

Appendix B: Individually Identified Issues
Economy

Individually Identified Issues - Economy Theme	Disaster Phase
Most structures will suffer partial or total damage.	Response
Clean up - basic damage assessment	Response
Loss of facilities in Seaside (shop).	Response
Loss of electronic capability - cash only.	Response
Complete devastation.	Response
Dead/injured visitors, hotel guests, employees and residents who are at work when tsunami hits.	Response
Accounting for missing, damage assessments, relocation plans.	Response
Services - power, gas, telephone, water, sewer.	Response
Residents need services/utilities and access to food.	Response
Excessive delay of phone restoration.	Response
No infrastructure, no visitors, no delivery of services.	Response
No stocks of food, medicine, supplies in town (major retailers in other communities).	Response
Loss of power.	Response
Can the critical infrastructure be re-built or fixed in time to enhance business survival?	Response
Design for vertical evacuation for visitors/special needs?	Response
How will inventory and belongings be protected from theft?	Response
Cleanup of debris critical.	Response
What to do with garbage?	Response
Safe evacuations of visitors (as well as full-time residents).	Response
Medical provisions.	Response
All professional health care in tsunami zone.	Response
Can hotels help with housing?	Recovery
Housing for retail/comm/motel	Recovery
Temporary space for critical business.	Recovery
Food markets - all in inundation zone.	Recovery
Food market.	Recovery
Loss of availability of retail services to residents.	Recovery
Market groceries 100% in tsunami zone.	Recovery
Cannon Beach is dependent upon delivery of products from outside of community - little to no warehousing or local distribution.	Recovery
Most grocery stores are in tsunami inundation zone.	Recovery
One of two gas stations is in tsunami inundation zone.	Recovery
How would new inventory be brought in?	Recovery
Return of population to some degree of normalcy.	Recovery
Unable to reach employers and employees.	Recovery
Restaurants - hotels.	Recovery
People's livelihood and means will be interrupted, how will they be able to access goods and services?	Recovery
Assisting visitors to return home ASAP.	Recovery
City Hall location	Recovery
Hotel and retail in inundation zone	Recovery
Business recovery: tax base greatly affected because of lack of tourism, employees may be scarce.	Recovery
When can business reopen?	Recovery
Do we rebuild downtown differently?	Recovery
When can visitors return?	Recovery
How do we expedite long-term survival of businesses?	Recovery

Appendix B: Individually Identified Issues
Economy

Individually Identified Issues - Economy Theme	Disaster Phase
Most prized or valuable asset will remain without significant damage, the ocean and coastal shoreline. Will need cleaning, but not repair.	Recovery
Reconstruction of downtown.	Recovery
Reconstruction of oceanfront motels/hotels.	Recovery
Impact on the second home industry.	Recovery
Loss of service industry worker base.	Recovery
Loss of financial assistance available for recovery (private and public).	Recovery
Loss of government revenue to support reconstruction.	Recovery
How will the loss or property value affect school (public) support funds? Locally, Seaside District relies heavily upon property tax.	Recovery
What kind of plan for economic redevelopment is there currently? If none, are there models elsewhere?	Recovery
What resources are available to bridge people out of work (including food, shelter, income, insurance)? Bridge until they are able to return to work to find new job.	Recovery
What vocational counseling resources are available to help people return to work after crisis?	Recovery
Adequate transportation - roads.	Recovery
Financing for rebuilding.	Recovery
Gas tax lose from no local sales and less use due to damaged roads.	Recovery
Vehicle registration loss.	Recovery
Vehicle registration loss gains from registration of replaced vehicles.	Recovery
Business destroyed - large and small.	Recovery
Loss of resources.	Recovery
Overwhelming insurance claims.	Recovery
Independent/small business inability to rebuild.	Recovery
Business relocation.	Recovery
Loss of tax revenue for City/County.	Recovery
Loss of employment for citizen.	Recovery
Business that cannot afford to relocate or rebuild.	Recovery
Loss of available workforce due to relocation.	Recovery
Developing a plan for rebuilding.	Recovery
No state parks no or fewer tourists.	Recovery
Cost of rebuilding parks.	Recovery
Day trippers - use retail and food services.	Recovery
Tourists - use hotel, motel, rental acc.	Recovery
Real estate - no sales!	Recovery
Construction - high demand	Recovery
Parks and beach access rebuild to attract visitors.	Recovery
Cannon Beach would not run businesses without visitors.	Recovery
Access to Cannon Beach for tourist and supplies.	Recovery
Reconstruction outside inundation zone. Makes no sense to rebuild where tsunami will just destroy again.	Recovery
Infrastructure restored.	Recovery
Majority of businesses would be ruined. How do we move forward to survive?	Recovery
Workforce would move away with no source of income to pay them.	Recovery
When, where, how does insurance, state, feds come to assist?	Recovery
Promotion resources to reinvent interest in community.	Recovery
Clearly, the data indicates an almost complete loss of revenue to the city and its businesses.	Recovery
No viable alternative commercial spaces.	Recovery

Appendix B: Individually Identified Issues
Economy

Individually Identified Issues - Economy Theme	Disaster Phase
Long-term impact on tourist desirability.	Recovery
Downtown business district may not be rebuildable due to subsidence.	Recovery
Return of tourist population dependent on recovery of transportation and infrastructure.	Recovery
Real estate industry may be impacted for extended period of time.	Recovery
Virtually all business in tsunami zone.	Recovery
Hotel/motel/restaurant 80% of all business is in tsunami zone.	Recovery
Sales volumes at least 65% in tsunami zone.	Recovery
Large percentage of business located in inundation zone.	Recovery
Tourist based economy.	Recovery
Lack of business continuity planning.	Recovery
Need for economic diversity.	Recovery
Destruction of business property.	Recovery
Possible loss of business districts to rebuild on.	Recovery
How do get tourists to return?	Recovery
Lack of suitable land to build on.	Recovery
Most 80% of business wiped out.	Recovery
Retail and motels in inundation zone.	Recovery
Rebuild in the same place?	Recovery
Rezoning high ground for business.	Recovery
"Taking" high ground for rebuild?	Recovery
Cannon Beach main economic stay is tourism related which will be eliminated after tsunami.	Recovery
What happens to our tax base?	Recovery
How do we replace the lost taxes?	Recovery
Will the area be suitable for re-building?	Recovery
Will the businesses want to return?	Recovery
Will there be a population base to support them [businesses]?	Recovery
How will this affect tourism?	Recovery
Will tourists feel safe to come back?	Recovery
How can we help the business community recover?	Recovery
Can we re-build?	Recovery
Tourism revitalization.	Recovery
Hotel dependent location	Recovery
Consider other diversification.	Recovery
Major retail business concentration is in the downtown area.	Recovery
Major concentration of hotel/motels exists all along the ocean shore.	Recovery
How do we facilitate business recovery of retail outlets/hotels/motels?	Recovery
City Hall and Police Department are in the zone.	Recovery
Almost all accommodations and food service businesses are in the zone. This means a very long recovery period to get tourism back up and bringing money into the community.	Recovery
School in "zone" - educational services.	Recovery
Destruction of scenic resources and historic sites, how to redefine community as destination?	Recovery
Tourism infrastructure - hotels, rentals (beach), roads/airports, port and harbor - is EXPENSIVE to construct/re-construct, and time consuming to build.	Recovery
Impact on offshore fisheries? Facilities AND fisheries populations.	Recovery
Non-profit sector (historical site management) depends on donations, foundations - if local economy tanks, where are donors?	Recovery

Appendix B: Individually Identified Issues
Economy

Individually Identified Issues - Economy Theme	Disaster Phase
Any businesses that will not be allowed to return?	Recovery
Will oceanfront hotels have setbacks or building restrictions?	Recovery
Business recovery plan - lodging.	Recovery
Assisting business with relocation.	Recovery
Businesses without continuity plans	Recovery
Loss of revenue - tax, sales.	Recovery
The City is dependent upon the tourist economy and virtually the entire economy is within the tsunami zone.	Recovery
City government is dependent upon transient room tax, without tax how does the government continue to function?	Recovery
All wine stores are in tsunami inundation zone.	Recovery
Will there be interim employment for local work force?	Recovery
How would rebuild of public structures be funded?	Recovery
Would long-term land/property values be affected?	Recovery
Most of our businesses re in inundation zone.	Recovery
Building repair/rebuild will be necessary.	Recovery
Housing for employees short/long-term.	Recovery
Infrastructure will need to be rebuilt to handle tourism.	Recovery
Since most businesses are located in inundation zone - no where for business to relocate.	Recovery
Lack of additional area to rebuild.	Recovery
Heavy dependency on tourist money.	Recovery
Little diversity in employment opportunities.	Recovery
Demographic change in workforce potential to lose lower paid workers from area.	Recovery
Business need to get funding to re-open.	Recovery
Hotels, restaurants, retail > entire economy will be ruined.	Recovery
Do you rebuild in the same location? If yes, pre-plan in place for how to finance rebuilding.	Recovery
Plan ahead for rebuilding utilities.	Recovery
Support of workforce and families for short/long-term (including food, shelters, water).	Recovery
Putting people back to meaningful work ASAP.	Recovery
Have plan in place PRIOR to event for rebuilding (including future evacuation routes).	Recovery
How to get people working again?	Recovery
Hire local displaced labor staff as local infrastructure clean-up laborers.	Recovery
Money needed by citizens to rebuild.	Recovery
Repair/replace infrastructure in new locations.	Recovery
Relocate motels on higher ground.	Recovery
Simplified building design/repair process.	Mitigation
Lack of seismic retrofit on existing buildings.	Mitigation
Lack of insurance coverage.	Preparedness
Evacuation planning for employees.	Preparedness
Evacuation planning for visitors.	Preparedness
Would local construction stop due to the awareness of future danger (ocean and near oceanfront)?	Preparedness

Appendix C: Critical Facilities and Infrastructure Theme Issue Identification Summary

The following issues were identified during the issue identification process for the critical facilities and infrastructure theme.

Appendix C: Individually Identified Issues
Critical Facilities Infrastructure

Individually Identified Issues - Critical Facilities & Infrastructure	Disaster Phase
Access to elevated temporary sites	Response
Movement of non-resident population from area	Response
Access to hospital	Response
Loss of sewer and water system	Response
Road access disrupted, including bridges	Response
Loss of utilities	Response
Electricity/generators/find available to power all means	Response
Large evacuation [units] available [started] w/2 housing food/water/blankets	Response
Clean water available	Response
Create helipads / evacuation and receiving area	Response
Plan for off-load boats providing supplies w/o	Response
Medical services	Response
Highways into coastal areas (# 30, 20, 202)	Response
Hwy 101 as community connector	Response
Many structures like bridges likely failed - steep slopes failed temps/ debris removal	Response
Priority to emergency shelters	Response
Damage to local emergency vehicles	Response
Emergency shelters would need to accommodate visitors	Response
Damage to pre-set emergency supplies	Response
Inability to get relief w/ damaged roads	Response
Loss of power to emergency services communications	Response
Power and communication needed to be restored as quickly as possible	Response
Water and sewer	Response
Hospital	Response
Physical access via roads	Response
How will we deal w/ municipal water supply	Response
How will we deal w/ health issues and to no sewer septic	Response
How will we deal with isolation from highways impassable	Response
Do we have enough 1st responders to deal with all the short term recovery issues	Response
How do we communicate with the outside world in the absence of phone and all infrastructure	Response
How do people get to safety if transportation infrastructure is not functioning?	Response
Outside providers ability to support sewer / water	Response
No major critical facilities on state	Response
Road access to seaside and beyond	Response
Water	Response
Sewer - can these just flow into the ocean?	Response
Electrical power - how soon can it be restored?	Response
Repair/construct sewer/water/roads/electricity	Response
Central office gone (911, FAA, State)	Response
Power / fuel supply even for temporary use of telephone system	Response
Roadways - main thorough fares	Response
Medical facility - temporary?	Response
Are there any back roads to go east - logging roads?	Response
Major highway could be impacted by non-inundation damage	Response
Need for wireless communications not dependent on power grid	Response
Importation of medical services impacted	Response
Wastewater treatment facility is in the inundation zone and may be totally destroyed	Response
Water system - broken pipes and reservoirs	Response

Appendix C: Individually Identified Issues
Critical Facilities Infrastructure

Individually Identified Issues - Critical Facilities & Infrastructure	Disaster Phase
Water system - will earthquake effect springs / will creek water be usable?	Response
Medical facilities will be difficult to access	Response
Shelter-food-water-medical immediate need	Response
Sewer plant gone	Response
Water system gone	Response
Energy utilities gone/inaccessible	Response
Communication systems gone SS hospital collapsed / inaccessible	Response
School gone	Response
bridges / highways gone	Response
only gas station runs out of fuel	Response
local roads impassable	Response
N.G. Helicopters all in Iraq	Response
School located in inundation zone in unreinforced building	Response
Sewer treatment in inundation zone	Response
Clinics located in inundation zone	Response
Water system disrupted	Response
Disruption / destruction of all utilities	Response
Have we identified our critical infrastructure ?	Response
How do we prioritize a response of this magnitude?	Response
Can outside resources get to us?	Response
What if no outside resources are available?	Response
Do we have alternate routes for normal transportation routes?	Response
Seaside facilities access	Response
Supply chain Helo Pad Warehouse	Response
Cannon Beach developed (built) a helicopter pad to ferry supplies in and remove critical injured out	Response
Debris on US101	Response
US101 access from south closed for months	Response
US101 access from north limited for weeks	Response
Locate local trails around closed structures	Response
Clear landing areas	Response
Communications / Media - radio/TV/cable: power + electrical, ability to originate local content, access to critical information to pass on to listeners	Response
Port facilities - if roads out, water become best way to move volume goods, but harbors & docks are gone?	Response
Continuity of government where?	Response
Communications / Utilities electric water	Response
Waste water system	Response
With a 9.0 earthquake, will the city's springs continue to produce h20?	Response
Critical communication facilities, eg., telephone switching are in ts. Inundation zone	Response
Bridge across Ecola Creek integral to ingress and egress	Response
Access to medical care, eg., hospitals, will be precluded by road closures due to slides, flooding, bridge damage	Response
Will natural gas supply survive earthquake?	Response
Bridges and hwy overpasses need detour routes ?	Response
Emergency water supply available	Response
Keys to private forest land gates for alt. Routes	Response
How will medical evac. Occur to seaside?	Response

Appendix C: Individually Identified Issues
Critical Facilities Infrastructure

Individually Identified Issues - Critical Facilities & Infrastructure	Disaster Phase
Roads and bridge integrity will be important for medical support & transporting non-residential persons out of area	Response
Hospitals, Police Dept, Doctors	Response
Accessible - highways, roads	Response
Hospital located in Seaside and local clinic is w/in I.Z.	Response
Waste water treatment w/in I.Z.	Response
Water treatment outside I.Z.	Response
Older water supply lines failure - no drinking, no fire fighting	Response
City isolated by access dependent on hwy 101	Response
Communications need to be operational first power / water /	Response
Hospital / Clinic operational	Response
Communication network	Response
Roads	Response
Utilities	Response
Health-Care	Response
Critical facility - water system will probably be knocked out. Water must be trucked in from outside source. Until water service is restored	Response
911 center in inundation area will be destroyed	Response
Communication systems -both tech and organizational	Response
Isolation d/t infrastructure damage	Response
Really there are not many people living here: temporary facilities do not have to deal with hundreds of thousands except in tourist season	Response
Temporary housing	Recovery
Transportation: roads and bridges but even with them open how many vehicles survive? Can enough petrol get into area to let everybody drive? With no jobs, who will be able to buy gas?	Recovery
Repair of water distribution system	Recovery
Repair of waste water collection and treatment	Recovery
Reconstruction of sewer treatment plant	Recovery
Reconstruction of roads/bridges	Recovery
Where will people gather to worship god during recovery period?	Recovery
Who will partner with 3 churches to help rebuild church buildings for return to operate worships ?	Recovery
Where will mobile medical clinics be located during recovery ?	Recovery
How can life basics best be distributed ? Water, food, medicines	Recovery
Adequate transportation	Recovery
Infrastructure repair	Recovery
Restoration of emergency services	Recovery
How do we rebuild our infrastructure to make it earthquake and tsunami - proof?	Recovery
911 Back on line	Recovery
Replace / repair telecommunication facilities	Recovery
Power, water, sewer, trash	Recovery
Public access to start recovering	Recovery
Only available land is Ecola state park - how to get there, how to get temporary facilities there ?	Recovery
Road system - city will be cut off - loud movement may cause damage to hwy 101 that will take extended period to repair	Recovery
1 Ecola creek bridge out from tsunami	Recovery
All practical connection to "outside world" only from north side of creek	Recovery

Appendix C: Individually Identified Issues
Critical Facilities Infrastructure

Individually Identified Issues - Critical Facilities & Infrastructure	Disaster Phase
Debris Management	Recovery
Restoring power to waste water and water treatment plants and fire hall	Recovery
Re-establishing access roads in and out of CB	Recovery
Electric infrastructure brought backup	Recovery
Bridge rebuilding (Nacenum?)	Recovery
Repairs of hwy 101	Recovery
Collaborative with city to obtain area to move in mobile sub if substation damaged	Recovery
How quickly can the h20 dist. Come back online - ie. Structural integrity of lines / tanks	Recovery
Public works projects will take time, money & materials that are not always available in the coast	Recovery
Cell towers will need to be operational as quickly as possible	Recovery
Wastewater treatment relocate out of I.Z	Recovery
Move police station out of I.Z	Recovery
Move city hall out of I.Z	Recovery
Sewer processing - all in tsunami zone	Recovery
Do we have a plan for temporary vs permanent restoration ?	Recovery
Water system - delivered by pipeline from springs in the forest to reservoirs - difficult to get to and repair system	Recovery
School locations ?	Recovery
Should better medical facility be built in Cannon Beach	Recovery
Need meeting facilities - information/communication for community	Recovery
Have we planned with area utilities for response and recovery?	Recovery
Do we have a plan on what to restore first ?	Recovery
Medical clinic (providence seaside) is in the "zone" - when I asked the staff what their plan was, they said they had to leave Cannon Beach and get to the hospital in Seaside	Recovery
Underground and aerial plant - public access necessary to restore these services	Recovery
Seismic resistant structures for services	Mitigation
Would 101 changes effect across to park land ?	Mitigation
Move school out of inundation zone	Mitigation
Identify private roads that access the area that could be utilized as alternate access	Preparedness
Do we have medical aid agreement with those outside our area ?	Preparedness
Do we have all necessary parties engaged?	Preparedness

Appendix D: Land and Development Theme Issue Identification Summary

The following issues were identified during the issue identification process for the land and development theme.

Appendix D: Individually Identified Issues
Land and Development

Individually Identified Issues - Land and Development	Disaster Phase
Adequate transportation	Response
How and where to relocate residents who don't want to leave	Response
Portable central office facilities	Response
How long would community be idled by infrastructure damage & shut	Response
Adequate shelter for displaced persons after event	Response
Lack of temporary shelter for tourist population	Response
Restoring life essential services-power, water	Response
How accessible are "safe" areas?	Response
Attempt to local temp area in local area	Response
Capacity of temporary shelters is much too limited	Response
Need more temporary shelter	Response
Shelter locations with necessary services for residents and relief workers must be determined and made ready for use (it looks like that area should be in the south east residential neighborhoods near Tolovan)	Response
High ground all owned by timber companies, state and/or fed natural resource agencies. How can community get control of access to this land?	Response
Sewage treatment plant, including ponds and mush system, are in the inundation zone, as are most institutional facilities	Response
Do we have sufficient places to temporarily house people?	Recovery
Where can temporary housing be set up after a crisis? Who will help provide?	Recovery
Predesignated temporary location for RV type sites	Recovery
There appears to be no location for temporary housing. Where then?	Recovery
Limited availability for locating temporary shelter/housing	Recovery
There is not a lot of options for temp. housing out of inundation zone	Recovery
Access to supplies for rebuilding will be affected by road closures due to EQ-triggered landslides	Recovery
We have limited areas to house the population-even temporarily	Recovery
Are we willing to relax our land use and design standards to expedite redevelopment?	Recovery
Do we require rebuilding in the inundation zone to be earthquake and tsunami proof?	Recovery
What areas are permanently uninhabitable that were habitable before?	Recovery
What permanent damage will be done to the environment?	Recovery
How will 3 foot subduction permanently effect land use?	Recovery
Continuing land development in the inundation zone	Recovery
Housing	Recovery
Lack of provincial policies on land use-deregulation	Recovery
Maintain public areas outside of the inundation zone available for post disaster recovery	Recovery
Land use allowing additional types outside of inundation zone	Recovery
Rebuilding destroyed area within high impact inundation zones: downtown and oceanfront	Recovery
Assessing impact of land subsidence & ensuing coastal erosion of decisions about rebuilding	Recovery
Lack of significant undeveloped areas, e.g. community commercial center	Recovery
Individual decisions about reconstruction	Recovery
Where can a temporary structure be placed to house a public school if the current school is ruined?	Recovery
How to move people form Red Cross shelters into temporary housing?	Recovery
What if the business district of Cannon Beach sinks 3 feet? Will it need to be relocated in recovery	Recovery

Appendix D: Individually Identified Issues
Land and Development

Individually Identified Issues - Land and Development	Disaster Phase
Zone/code changes to allow density	Recovery
How will ODOT provide access to new developed areas-post event relocation of lost homes/buss.	Recovery
Access control on permitting of new developments	Recovery
Long term transportation planning	Recovery
Vacation homes, ability to rebuild	Recovery
Environmental damage	Recovery
Emergency buildings destroyed-priority to rebuild	Recovery
Zoning changes	Recovery
Farm population destroyed	Recovery
May not be possible to accommodate the rebuild all land use	Recovery
How and where to rebuild	Recovery
What land is available for relocation?	Recovery
Change in landform could create more parkland	Recovery
Insuring open areas remain undeveloped	Recovery
If state parks are a temp. shelter site make sure they return to previous use	Recovery
Don't rebuild vital infrastructure in inundation zone	Recovery
Rebuild permanent office/garage	Recovery
majority of housing is in inundation zone-could housing be rebuilt?	Recovery
Basic short & long term would be facilities damage. And its impact on building	Recovery
Would building codes change due to flood zone-stilts? Higher costs?	Recovery
Assuming subsidence who gets to rebuild where?	Recovery
Rebuilding of commercial core outside of inundation zone?	Recovery
Post-disaster, will zoning laws (current) need to be amended to require development to occur outside the inundation zone	Recovery
Do we attempt to direct economic (re)development away from the inundation zone	Recovery
What theme's should be used to guide economic rebuilding. Tourism-environmental? Cultural? Intellectual?	Recovery
Market forces determine value? Govt. determine value?	Recovery
Condemnation of prop.	Recovery
Condemnation of structures	Recovery
No policies exist for post-disaster redevelopment	Recovery
Temporary shelters & housing outside of inundation zone	Recovery
no land use mechanism to deal with post disaster land use issues	Recovery
no post disaster guiding principles & policies	Recovery
Possible loss of business & residential districts	Recovery
Lack of available land for shelter, redevelopment	Recovery
Sewer treatment plant destroyed & may not be able to be rebuilt in same area	Recovery
Rehabilitation of inundation zone-allowing.	Recovery
What do we do with the debris	Recovery
Collaboration with serving utilities of plans for authorized areas for redevelopment	Recovery
Debris disposal nearby is limited by topography, open space	Recovery
Where will post disaster development take place?	Recovery
We do not have areas to relocate much of our community	Recovery
Areas that can be re-built are minimal in this community	Recovery
Strong pressure to not expand UGB into areas that would be outside I.Z.	Recovery
No post-disaster plan to relocate outside I.Z.	Recovery
How can political processes manage "Wholesale chunks" of re-zoning without creating a nightmare of litigation? Who gets to drive the process? Local gov't? (if it still functions) state? County? Or, as usual, carpet-bagging scammers	Recovery
redevelopment would heavily go hillsides	Recovery

Appendix D: Individually Identified Issues
Land and Development

Individually Identified Issues - Land and Development	Disaster Phase
Work at relocation of essential facilities out of inundation & seismic strengthening of existing located outside	Recovery
Ability to relocate wastewater treatment plant	Recovery
School/Students re-sited!!	Recovery
Purchase/congeal land out of tsunami zone where the downtown can be rebuilt w/ adequate setback	Recovery
Stricter zoning laws for building private property in the inundation zone	Recovery
Incentives for development outside of zone	Recovery
Density-better/multiple use of existing land	Recovery
Planning-more wetlands/parks in tsunami zone	Recovery
Land use rules that address tsunami inundation	Recovery
Building in inundation zone is not restricted	Recovery
City limits are not related to developing inundation safe areas	Recovery
Building codes	Recovery
Design of utilities for disaster resistance	Recovery
What impact of M37 is attempt zone change	Recovery
Hazard zone is high density	Recovery
Rezone hi ground for bus use, res. Use, timber, education, roads/highways	Recovery
No development minimized in tsunami zone	Recovery
Projected development continued in tsunami zone	Recovery
Easily flooded (subsided) low areas unavailable for redevelop.	Recovery
Primary development in inundation zone	Recovery
Limiting development within inundation zone	Recovery
relocating existing development within inundation zone	Recovery
Do we need to re-think our zoning?	Recovery
Is local government willing to champion & sponsor any necessary regulations?	Recovery
Codes to restrict unsafe development	Recovery
zoning change outside zone	Recovery
Cannon Beach is a narrow, 3-mile long strip of development-there is the ocean to the west, and a privately owned tree farming area to the east-no movement of developed areas can be accomplished to the east on any major level	Recovery
Subsidence would exacerbate the above situation	Recovery
Develop new construction standards for building in inundation zones	Recovery
Restrict beach front hi-density construction	Recovery
Should waste water facility be relocated further inland, east?	Recovery
Relocate school	Recovery
People want to live near the beach which in essence puts people in a higher risk category	Recovery
The area will continue to have higher populations wanting to be close to the beach	Recovery
Should the city restrict all building in dangerous areas	Recovery
Are city facilities located properly?	Recovery
Zoning rules encourage building in I.Z.	Recovery
See no pattern that minimize development	Recovery
Stop development in hazard zone	Recovery
Community is projected to grow	Recovery
Should land be sought out to house refugees from the inundation?	Recovery
Bridges reinforced/replaced as Seaside has done	Mitigation
Factor inundation zone into planning/zoning ord.	Mitigation
Are there any viable mitigation activities?	Mitigation
Build natural dune barrier at beach front	Mitigation

Appendix D: Individually Identified Issues
Land and Development

Individually Identified Issues - Land and Development	Disaster Phase
Should hazardous areas be condemned? Now?	Mitigation
Not sure that earthquake hazard for structure is well understood	Preparedness
Mandate info re: inundation zone to potential purchasers of property	Preparedness
Do we need more community education?	Preparedness