

South Clatsop County Resilience Guide



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Volume III: Appendix E

Prepared for:

Clatsop County and the communities of
Seaside, Cannon Beach, Gearhart and Arch Cape
and the Department of Land Conservation and Development
North Coast Resilience Network Project

Prepared by:

Oregon Partnership for Disaster Resilience

A Program of the
Community Service Center



UNIVERSITY OF OREGON



This guide is available online at

<http://www.oregon.gov/LCD/Pages/publications.aspx>

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Oregon Department of Land Conservation and Development
Jim Rue, Director
635 Capitol Street NE #150
Salem, Oregon 97301-2540

SOUTHWEST CLATSOP COUNTY RESILIENCE GUIDE

Volume III

Appendix E

Appendix E: Full Size* Resilience Resource Sheets..... E- I

**Appendix E is exactly the same as pages 19-38 in Volume I, except for page size.*



The desired outcome of this resilience element is that leadership, legal frameworks, and institutions provide enabling conditions for resilience through community involvement with government.

Governance

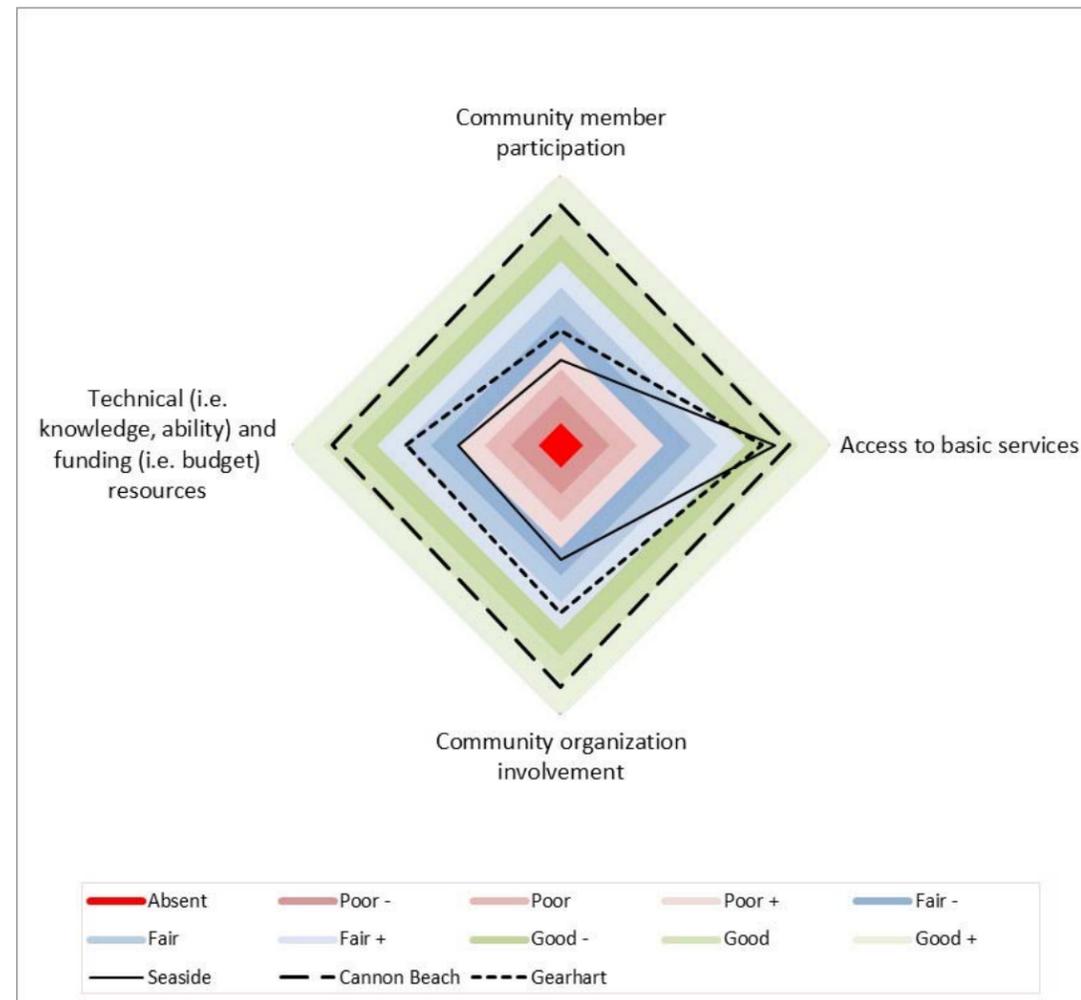
Current Assessment-Governance

Background

Governance is a process through which government institutions, organizations, communities, or any group of people with a mandate or with a common purpose make decisions that direct their collective efforts. Local governance is governing at the local level, viewed broadly to include not only the machinery of government, but also the community at large and its interaction with local authorities. Good governance is about achieving desired results and achieving them in the right way, in compliance with laws and policies and shaped by cultural norms and values of an institution, organization, or community.

Governance provides the enabling conditions for coastal communities to absorb or resist perturbations, bounce back from disturbances, and adapt to change. Governance provides the connection whereby community resilience is guided and nurtured over time through the various interventions of government, civil society, and the private sector in community development, coastal management, and disaster management.

– USAID Coastal Resilience Guide



Local Vision

At a meeting in May, 2014, members of the local workgroups participated in a resilience visioning exercise. We collected the following responses to the question: “What is an appropriate 20-year resilience vision for this sector?”

“Students are engaged in raising awareness through creative community projects. Under-represented/minority groups are targeted & listed to and their solutions and social capital are integrated into broader initiatives/strategies. Local social networks are supported through grants. Grass-root efforts are prioritized.”

“Seismic upgrades on most vulnerable public-critical buildings – schools, hospitals, fire stations, government buildings, etc.; education outreach project completed – all will know all we can re: evac., recovery, etc.; clearinghouse for info, [mutual?] aid plans, etc.; state resilience officer in place – to lead local programs, CERTs. Etc.; true cost accounting”

“We understand and incorporate true-cost accounting in our decision making.”

“Resilience planning is commonplace.”

“Collaboration across institutions and scales improves connectivity and learning ... Well-connected governance structures can swiftly deal with change and disturbance because they are addressed by the right people at the right time.”
 ~ Stockholm Resilience Center

Governance Goals and Questions

This section contains the goals for Governance developed and approved by the local workgroups.

Community leaders and staff can use the questions that follow each goal to guide discussions and help improve local resilience of the governance element.

Goal #1

Community development policies, plans, and programs are implemented, monitored, and enforced in a participatory and transparent process.

Translation

Community members actively participate in community planning processes.

Questions to ask:

- Is there a shared vision for resilience in the community? Does that vision inform all community planning (e.g. land use, emergency management, economic, infrastructure, etc.)
- Do existing programs support/promote long-term sustainability and community resilience principles?
- Do local decisions on development, infrastructure investment, social programs, and other activities consider potential risks from natural hazards?
- Has the “whole community” been engaged in identifying measures that reduce risks from coastal hazards? Is the community learning from past experiences locally as well as from the experience of other communities impacted by hazards the community can expect but has not directly experienced recently?

Goal #2

Basic government services are available and accessible to all.

Translation

All citizens have access to basic services (police, fire, utilities, other city/county services).

Questions to ask:

- Has an assessment of basic service needs been conducted?
- Are needed basic services provided efficiently and reliably?
- Are all members of the community served by these basic services?
- Are risk reduction measures incorporated into basic service delivery mechanisms?
- Is assistance available to special needs populations (transportation, help with applying for disaster assistance programs, etc.)?
- Do critical facilities and services have backup (diverse/redundant) systems in place to provide basic services, such as health and water, during hazard events?
- Are contingency plans in place to address disruptions in basic service delivery based on various hazard scenarios?

Goal #3

Public and private sector organizational networks for planning, participation, and collaboration are established and used to manage for resilience.

Translation

Community organizations work with local government to prepare for, respond to, and recover from natural or human caused community hazards events (e.g. floods, wildfires, landslides, earthquakes, etc).

Questions to ask:

- Are there interagency (national and local) and multi-sector agencies that meet to review policies, plans, and programs?
- Have resilience strategies and activities been developed that require several agencies to work together?
- Has community established agreements (mutual aid, contractual, memorandums of understanding, etc.) with other agencies / entities throughout the region and state to provide the necessary equipment and personnel needed to further local resilience?
- Are resilience efforts integrated across government offices, the private sector, and nongovernmental organizations?
- Do disaster management programs consider community cultural and natural resource elements and goals?

Goal #4

Technical and financial resources are transparent and administered to support community actions across the public and private sector.

Translation

Local government has the technical (i.e. knowledge, ability) and funding (i.e. budget) resources needed to support community needs.

Questions to ask:

- Are there regular budget allocations and grants to support activities that reduce risks to future damage from natural hazards?
- Does community budget incorporate priorities for management, upgrade, or mitigation of critical facilities and infrastructure?
- Have local governments identified options to supplement these funds?
- Do partnerships with local and regional nonprofit organizations, quasi-governmental organizations and the private sector exist to support financing and assisting with resilience activities?
- Do community leaders have resources and tools available to build resilience for day-to-day activities?



The desired outcome of this element of resilience is that communities are engaged in diverse and environmentally sustainable livelihoods resistant to hazards.

Society & Economy

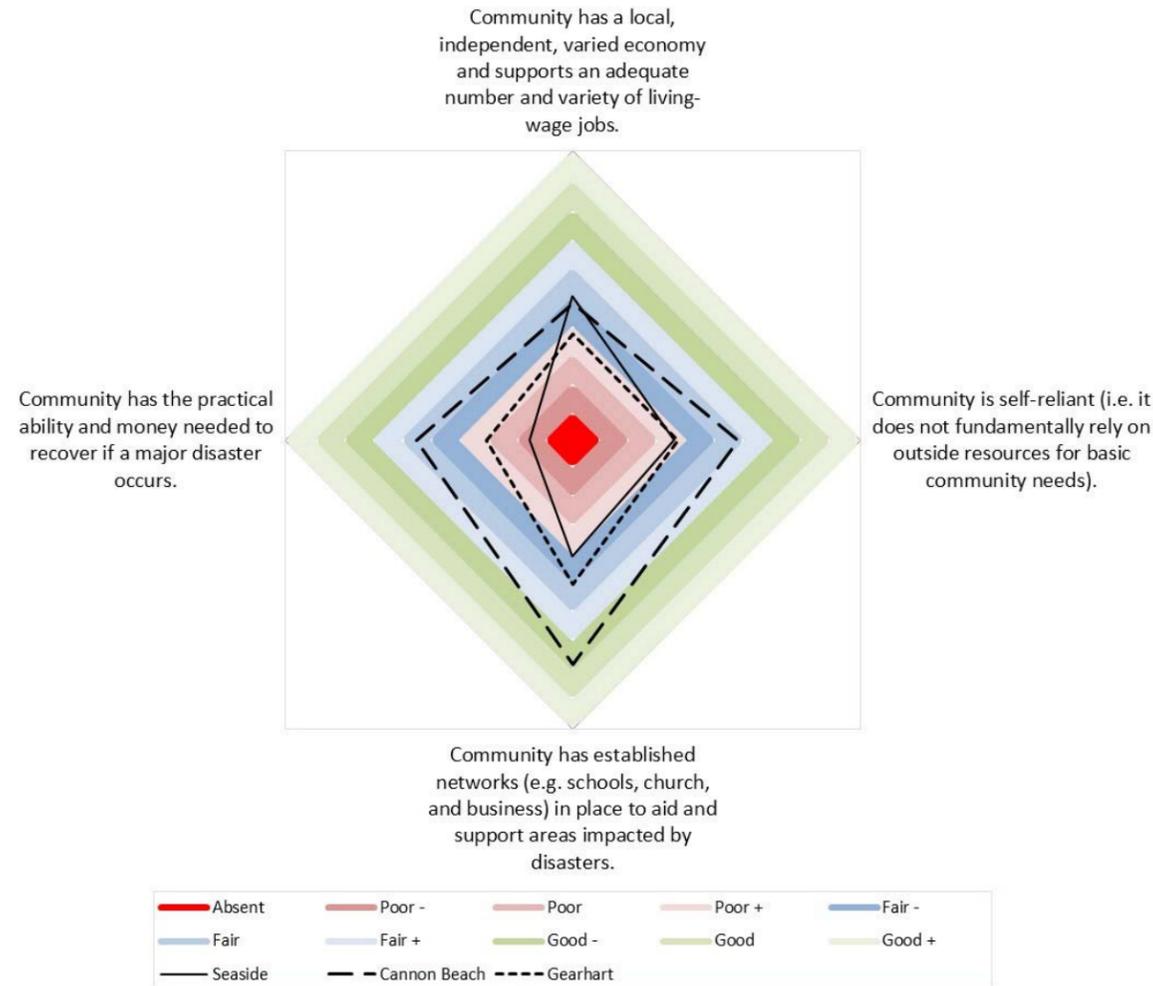
Current Assessment-Society & Economy

Background

Changes in the economy and people’s quality of life are often the main criteria upon which a community’s resilience is judged after a disaster. The strength of the economy and the diversity of livelihoods greatly influence the community’s ability to prepare for disasters, quicken the recovery process, and adapt to changes that make them less vulnerable in the future. Despite changes in coastal ecology, health, laws, governance frameworks, or hazard response programs, it is the improvement or decline in a person’s livelihood that directly affects resilience.

Society and economy serve as an essential element of resilience because of the direct relationship between economic activity (markets and commerce) and social life (culture, family, recreation). Changes in the local and regional economy such as new industries, specific jobs, or manufacturing technology have positive and negative impacts on individuals and communities through life expectancies, employment, wealth, and quality-of-life issues. Similarly, the culture of the community, family structure, and gender roles influence economic activities.

– USAID Coastal Resilience Guide



Local Vision

At a meeting in May, 2014, members of the local workgroups participated in a resilience visioning exercise. We collected the following responses to the question: “What is an appropriate 20-year resilience vision for this sector?”

“Local economies have more thriving and varied small businesses. There are lots of programs that support start-ups with T.A., micro-enterprise loans, data, etc. Jobs are created through the development of more local sustainable food systems and new resiliency-related regulation/requirements. More jobs/income = more resilient community.”

“A mix of strategic representatives from both the public and private sectors should be invited to participate in the economic [resilience] team. Otherwise, decision making on economic [resilience] topics is left to non-business, potentially inexperienced, individuals.”
 ~ International Economic Development Council

Socio-Economic Element Goals and Questions

This section contains the goals for Society & Economy developed and approved by the local workgroups.

Community leaders and staff can use the questions that follow each goal to guide discussions and help improve local resilience of the socio-economic element.

Goal #1

The community has a local, independent, varied economy and supports an adequate number and variety of living-wage jobs.

Translation

The economy includes a diverse mix of locally relevant business and industry sectors that provide a wide range of good jobs for people that live in the community.

Questions to ask:

- Do a mix of jobs exist for residents of varied skill sets and income levels?
- Are there skills-training programs for alternative livelihoods?
- What types of social safety nets exist to help vulnerable members of the community?
- Is a community-wide workforce retention strategy in place?
- Does the community assist businesses in creating their own workforce retention strategies?
- Are there ways to align the community's economic development goals with its risk reduction goals?

Goal #2

The community is self-reliant (i.e. it does not fundamentally rely on outside resources for basic community needs).

Translation

If there are impacts to businesses, infrastructure or financial systems outside the area, the community can still function.

Questions to ask:

- Is the local economy dominated by one sector (e.g. tourism)?
- Are local economies and livelihoods linked to internal and external markets?
- Are resource-extracting livelihoods based on a managed and sustainable natural resource base?
- Does community have and maintain a list of local businesses that are capable of providing services, material and equipment in the event of a disaster?
- Has community established a process to solicit, pre-approve and contract with local businesses for pre- and post-disaster services (e.g. lodging, heavy equipment, medical support, building inspections, etc.)?
- Are neighbors connected through CERT, Map Your Neighborhood or other preparedness programs?

Goal #3

The community has established networks (e.g. schools, church, and business) in place to aid and support areas impacted by disasters.

Translation

Groups and organizations throughout the community/region know each other and are willing/able to help each other out in a disaster or emergency situation.

Questions to ask:

- Are social networks or organized civic groups established with the capacity to assist communities during or after disaster?
- Are there social networks that serve the needs of vulnerable populations or groups?
- Are mechanisms in place to increase community participation in community development planning?
- Has the community explored partnerships with local and regional nonprofit organizations, quasi-governmental organizations and the private sector to finance and assist with pre- and post-disaster activities (e.g. grants management, volunteer coordination, donation management, process facilitation, etc.)?

Goal #4

The community has the practical ability and money needed to recover if a major disaster occurs.

Translation

The community has emergency funds set aside, has adequate insurance coverage, and has people in the community trained to process and manage volunteers, supplies and grant/relief funds that will flow in after a disaster.

Questions to ask:

- Are small business development or economic resilience programs (e.g. assistance, extension, and training) providing support to the community to promote sustainable livelihoods?
- Are businesses owners and employees aware and informed of coastal hazards (including long-term effects to businesses from coastal erosion and sea level rise)?
- Does an Economy and Resilience Finance Task Force (or other group) composed of key stakeholders including local business owners (including insurance industry), economic development professionals and government officials, exist?
- Have key businesses and organizations developed continuity of operations plans?



The desired outcome of the coastal resilience element is that active management of coastal resources sustains environmental services, and [economic] livelihoods and reduces risks from coastal hazards.

Coastal Resources

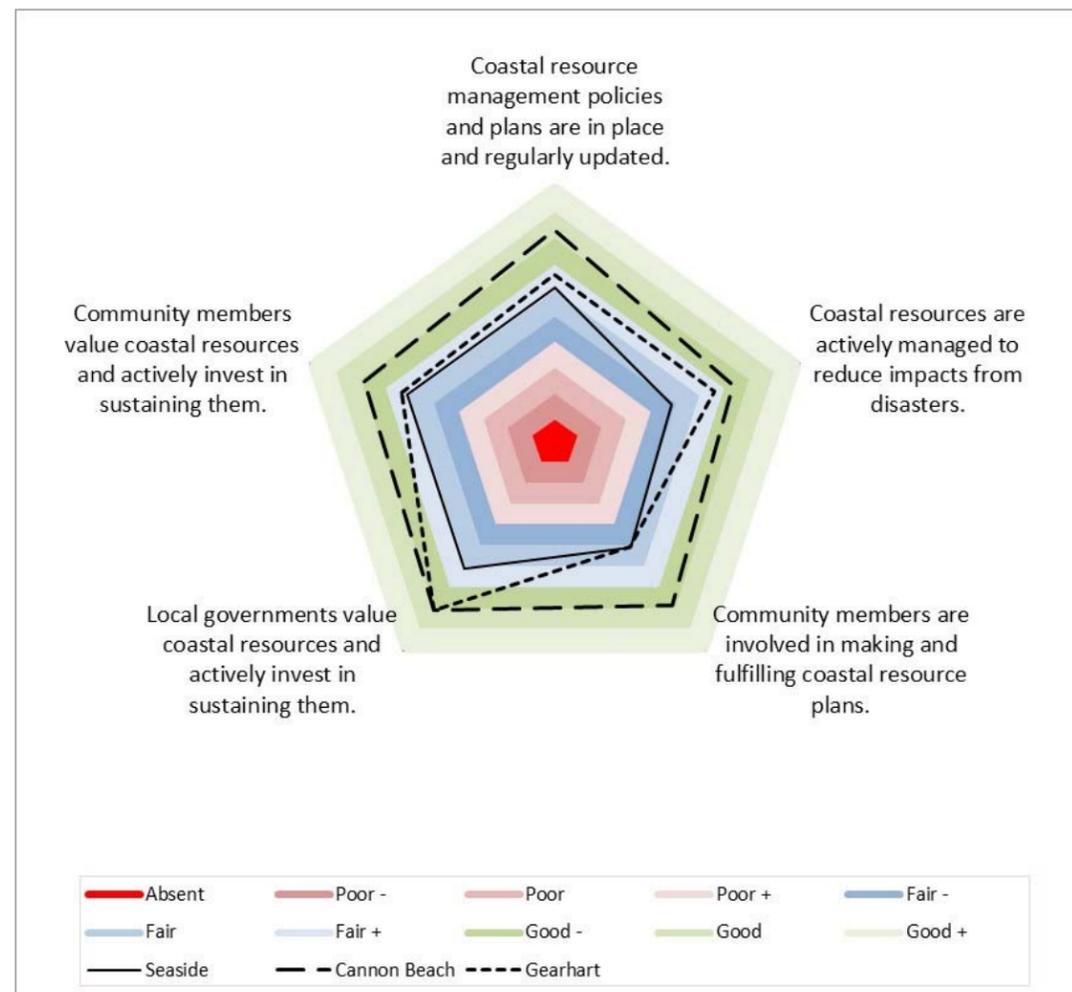
Current Assessment-Coastal Resources

Background

Coastal resource management refers to a formal or informal set of rules, practices, technologies, economies, and interactions between humans and the natural resources (animals, plants, rocks, water, etc.) located both landward and seaward of the coast. A key goal is to stem overfishing pollution, and habitat loss, all of which reduce future fishing or availability of other valuable resources. Effective coastal resource management ensures that (a) local institutions support coastal management processes, and (b) protection of sensitive coastal habitats is being achieved.

Coastal resources provide many valuable and sustainable services to communities. These include, among others, a reliable source of food, economic development through the use of renewable resources, transportation, protection from coastal hazards (storms, floods, tsunami, erosion, pollution, etc.), biodiversity conservation, and a pleasant lifestyle. If managed and protected, coastal resources can continue providing these services.

~ USAID Coastal Resilience Guide



Local Vision

At a meeting in May, 2014, members of the local workgroups participated in a resilience visioning exercise. We collected the following responses to the question: “What is an appropriate 20-year resilience vision for this sector?”

“Wave power has been well built out and is mature so that power is not knocked out by storms (though it would still be by a large quake or large tsunami). Communication resources are redundant with fiber/cell/satellite seamlessly handing off as necessary.”

“Deep understanding of the importance of coastal resources to our local communities & a desire to protect & enhance them. [More] wetland habitat, strong framework for protection of wetlands & watersheds. Less flooding due to wetland & watershed restoration.”

“In a rapidly changing world, managing slow variables and feedbacks is often crucial to keep social-ecological systems ‘configured’ and functioning in ways that produce essential ecosystem services. If these systems shift into a different configuration or regime, it can be extremely difficult to reverse.”

~ Stockholm Resilience Center

Coastal Resources Goals and Questions

This section contains the goals for coastal resources developed and approved by the local workgroups.

Community leaders and staff can use the questions that follow each goal to guide discussions and help improve local resilience of the coastal resources element.

Goal #1

Coastal resource management policies and plans are in place and regularly updated.

Translation

The community has agreed on a rational coastal resource management approach that is documented in a clear set of values and rules.

Questions to ask:

- Has the community identified specific coastal resources that are important for use as buffers against hazards?
- Are coastal resources and priority hazards routinely assessed?
- Are assessments used to characterize risks to community and to develop coastal resource management plans?
- Has the community endorsed coastal resource policies?
- Do coastal resource management strategies include protection, restoration and engineered construction where applicable?
- Is anyone monitoring slow changes and feedback loops related to natural resources?

Goal #2

Coastal resources are actively managed to reduce impacts from disasters.

Translation

The community understands the protective physical, economic and environmental benefits that coastal resources can provide and it actively manages and protects those resources as part of an integrated land use and emergency management strategy.

Questions to ask:

- Have regulations been established for resource extraction based on conservation priorities and risks from hazards?
- Is there a program for long-term coastal resource assessment and monitoring?
- Have opportunities to reduce risks from coastal hazards through restoration been identified?
- Has the community considered potential economic impacts to citizens and businesses that rely on coastal resources (e.g. fisheries, forests, tourism, etc.) if those resources are impacted by a natural hazard?
- Does community utilize conservation easements or land trusts to protect critical coastal resources?
- Are climate change and sea level rise included in the community's land use and coastal resource management plans?

Goal #3

Community members are involved in making and fulfilling coastal resource plans.

Translation

A wide range of stakeholders participate in a cooperative process to develop a shared and mutually beneficial, multi-objective approach to managing coastal resources.

Questions to ask:

- Does a process or procedure exist to review plans based on coastal resource issues and community feedback?
- Do “communities of practice” exist (i.e. do groups of people that have local knowledge of coastal resources periodically meet and work together)?
- Are communities of practice networked to encourage learning (i.e. are fisheries folks talking to forest management folks; are wave energy groups talking to coastal resource conservation groups)?

Goal #4

Local governments and community members value coastal resources and actively invest in sustaining them.

Translation

Citizens, business, organizations and government share responsibility for the stewardship, oversight, management and enforcement of the community's coastal resource values and rules.

Questions to ask:

- Are coastal resources valued by members of the community?
- Does the community use full-cost accounting when considering actions or policies that could have a negative effect on coastal resources?
- Does the community support long-term monitoring of coastal resources?
- Are sufficient resources in place to support coastal resource management strategies?



The desired outcome of this element of resilience is effective land use and structural design that complement environmental, economic, and community goals and reduce risks from hazards.

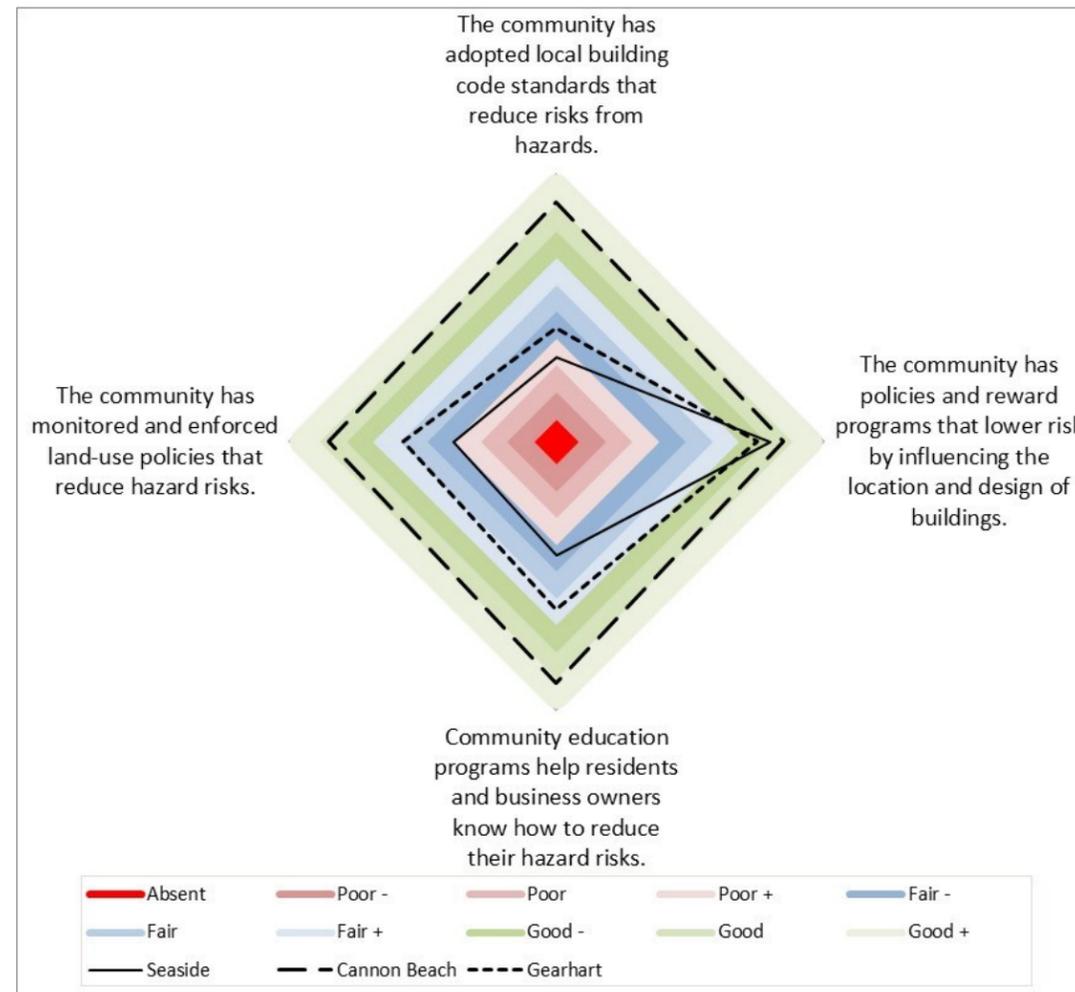
Land Use & Development

Background

“Land use management refers to the active use of formal and informal mechanisms for the planning and location of the various land uses, such as agriculture, industry, housing, and tourism in a community. In addition to determining appropriate uses of land, a community can also influence how development, buildings, and infrastructure are designed and built. Structural design refers to how physical structures within a community are engineered and constructed. In order to contribute to a community’s overall resilience, both land use management and structural design practices must consider the community’s vulnerability to all coastal hazards while minimizing impacts to natural resources. When used in combination, these related risk reduction strategies are very effective mechanisms for enhancing community resilience. Basic indicators for effective land use management and structural design include: (a) Land use plans are prepared and implemented; (b) Structural design minimizes risk; (c) Monitoring and enforcement of policies and codes occurs; and (d) Pre-established redevelopment policies exist.”

– USAID Coastal Resilience Guide

Current Assessment-Land Use & Development



Local Vision

At a meeting in May, 2014, members of the local workgroups participated in a resilience visioning exercise. We collected the following responses to the question: “What is an appropriate 20-year resilience vision for this sector?”

“Land use now supports ecological sustainability in housing and economic development. Development codes consider remediation of natural areas, balanced and harmonized with business operations. Tax credits, grants, and offsets nourish modification of existing business and attract new businesses that are low-carbon footprint in their operations, including production and customer base.”

“Clear and pointed land use options were devised that allow for advanced planning of post Cascadia inundation.”

“Some critical resources are out of the inundation zone.”

“Multi-jurisdictional purchase and transfer of development rights programs have directed development and investments to appropriate locations.”

“1. Key community facilities are located above XXL as indicated by tsunami inundation maps; 2. All land use decisions consider tsunami hazard risk & mitigation measures to address them adequately; 3. Adequate evacuation facilities have been developed to accommodate the community & community facilities (including addressing needs for the short term); 4. Economic – businesses are located out of harm’s way &/or plans for quick recovery.”

“Development in FHO, esp. velocity zone and floodway no longer allowed ... unless development can be certified as “safe”. All have access to emergency routes. No critical structures in FHO. Previously built structures – existing – are retrofitted on removal. Similar w/ FHO – all existing structures retrofitted.”

“Every community is faced with natural and man-made hazards that can best be addressed ahead of time by [land-use] planners working closely with emergency management personnel to mitigate the threat and prepare for post-disaster recovery.

~ American Planning Association

Land Use & Development Goals and Questions

This section contains the goals for Land Use & Development developed and approved by the local workgroups.

Community leaders and staff can use the questions that follow each goal to guide discussions and help improve local resilience of the land use and development element.

Goal #1

The community has monitored and enforced land-use policies that reduce hazard risks.

Translation

Important buildings and developments are directed away from risky areas and/or are constructed in such a manner that risks are reduced.

Questions to ask:

- Has the community updated the “Areas Subject to Natural Hazards” (Goal 7) section of the Comprehensive Plan for all hazards?
- Does the comprehensive plan provide for a desired amount of land (e.g. acreage, percent of total, etc.) for residential, commercial, industrial, and public land uses (among others) designated outside catastrophic hazard zones where the risk to people and property cannot be mitigated (e.g. tsunami inundation zone)? Alternatively, are all such lands designated as unsuitable for development?
- Does the community have a strategy and process in place to ensure that land use, development and building permits can be issued in a strategic and efficient manner following a disaster?
- Does the community have policies that limit investment and construction in vulnerable areas?
- Are there restrictions on rebuilding after a disaster in areas subject to hazards?

Goal #2

The community has adopted local development standards that reduce risks from hazards.

Translation

Local development code regulations and/or voluntary building code standards that go above and beyond state building codes are adopted or made available to developer, builders and property owners.

Questions to ask:

- Has the community adopted land development regulations that avoid placing new development or significant re-development in hazard areas where the risk to people and property cannot be mitigated?
- Does the community utilize voluntary building codes, such as the Institute for Business and Home Safety’s Fortified for Safer Living program?
- Are mechanisms in place to encourage compliance with land use policies and building standards and codes (e.g. collecting, verifying and maintaining flood elevation certificates)?
- Are sensitive coastal features and habitats protected from development activities and coastal engineering structures?
- Does the community have policies, ordinances or provisions for dealing with abandoned or blighted buildings following a disaster?

Goal #3

The community has policies and reward programs that lower risk by influencing the location and design of buildings.

Translation

Development is directed to and encouraged in low risk places and is discouraged in high risk places.

Questions to ask:

- Do structural engineers factor in risk for designing and constructing safe infrastructure?
- Has community adopted development standards specific to the siting, design, and construction of infrastructure within hazard areas?
- Is there an outreach program in place to educate the public in hazard-resilient building practices and designs?
- Has the community inventoried land suitable for temporary housing following a disaster?
- Do existing programs (e.g. capital improvement, urban renewal, community development block grants, FEMA pre-disaster mitigation, etc.) support and encourage hazard mitigation actions?
- Has the community investigated incentive programs, such as tax increment financing or transfer of development rights, to encourage development in low risk places and discourage it in high risk places?

Goal #4

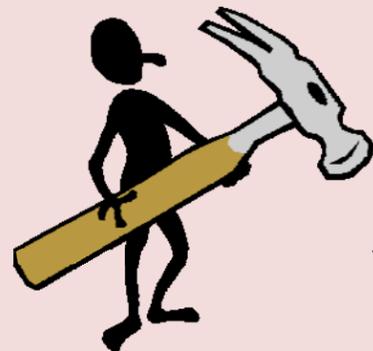
Community education programs help residents and business owners know how to reduce their hazard risks.

Translation

The community promotes “best management” development and construction approaches.

Questions to ask:

- Are local architects and builders informed about design standards or voluntary programs (e.g. Institute for Business and Home Safety “Fortified for Safer Living” program) that can help mitigate hazard impacts during design and construction?
- Do local colleges or trade schools incorporate courses on land use policies, building standards, and hazard mitigation?
- Is hazard specific curriculum, educational content and associated resources being used in local K-12 schools?
- Is public informed about and aware of strategies and resources to mitigate hazard risks to their homes and places of business?
- Are people knowledgeable about coastal resources and hazard management involved in building siting and design?



The desired outcome of this element of resilience is that leadership and community members are aware of hazards and risk information is utilized when making decisions.

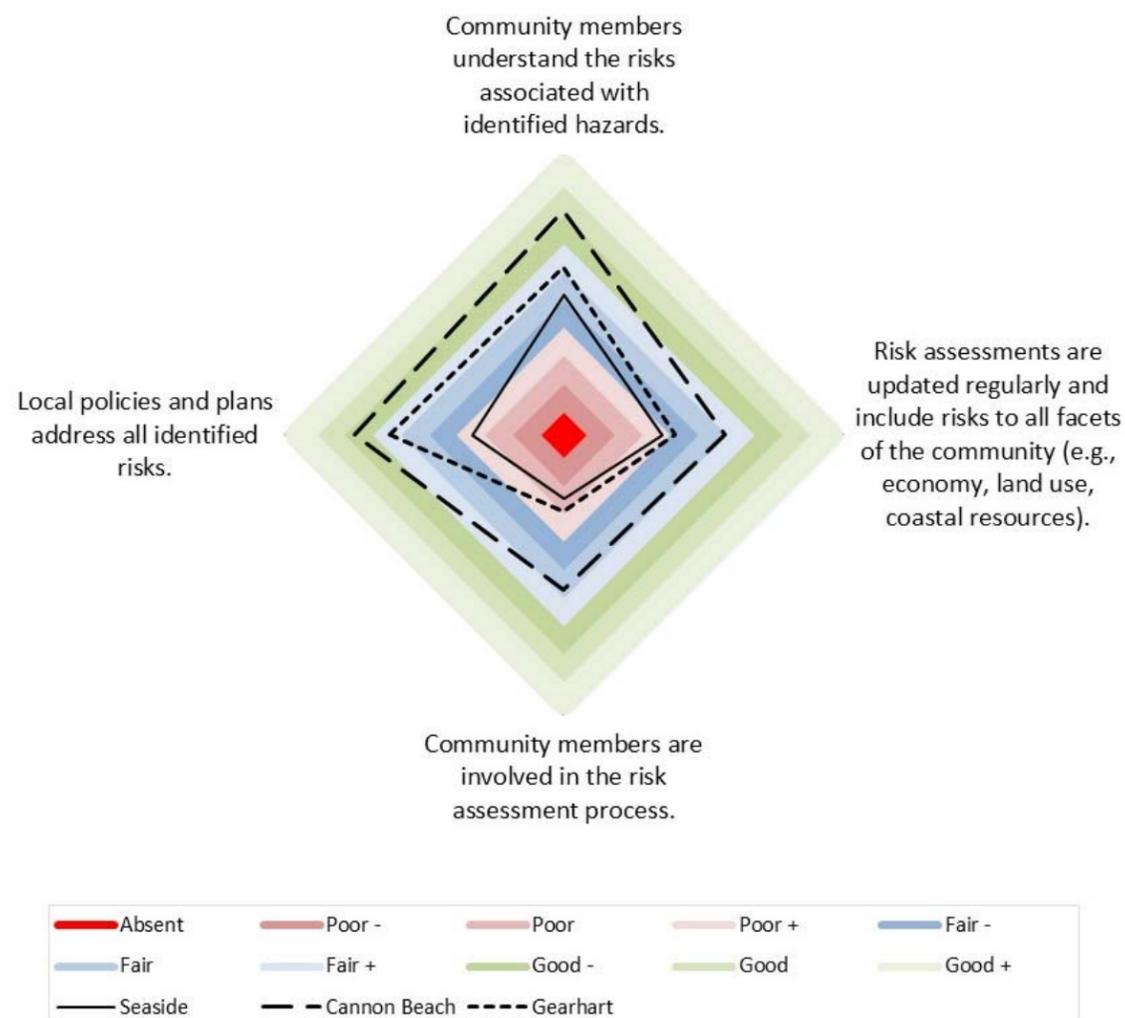
Risk Knowledge

Background

“Risk knowledge, a cornerstone of [community resilience], is the awareness a community has about its potential hazards and its susceptibility to experiencing the negative impacts of those hazards. Risk knowledge requires an understanding of all of the chronic and episodic hazards that threaten the community, including the potential geographic extent of impact and the potential frequency of impact. It also involves knowing how each of these hazards threatens various components of the community, such as the local economy, the built environment, terrestrial and marine natural resources, all segments of the population, critical facilities, utilities, infrastructure, etc. It is essential that access to information pertaining to risk knowledge be open and freely shared among the entire community.”

– USAID Coastal Resilience Guide

Current Assessment-Risk Knowledge



Local Vision

At a meeting in May, 2014, members of the local workgroups participated in a resilience visioning exercise. We collected the following responses to the question: “What is an appropriate 20-year resilience vision for this sector?”

“Public education has raised the public’s awareness of all hazards. Neighborhoods have created block level preparedness groups & those groups are documented throughout town & they are recognized within the city’s action plans [at] all levels.”

“Students are engaged in raising awareness through creative community projects. Under-represented/minority groups are targeted & listened to and their solutions & social capital are integrated into broader initiatives/strategies. Local social networks are supported through grants. Grass-root efforts are prioritized.”

“Integrated CERT/EVC; GIS system that encompasses all typed of hazards available to planners & responders; policy that requires businesses & vacation rentals to communicate hazards; active volunteers; recovery plans are in place.”

“Folks believe & are now individually & as a community prepared for the worst case scenarios in all hazards.”

“2034: (1)All residents of Clatsop are able to give transit directions to tsunami safe high ground from each mile marker on Hwy 101. (2) Residents can [rank?] the likelihood of Cascadia relative to other, more common hazards. (3) Residents and visitors can decide what a rip current is, and how to get out of one safely.”

“Clatsop CC has educational programs & community partnerships for Emergency Management, Paramedic, and Allied Health opportunities to support resilience.”

“Every community is faced with natural and man-made hazards that can best be addressed ahead of time by [land-use] planners working closely with emergency management personnel to mitigate the threat and prepare for post-disaster recovery.

~ American Planning Association

Risk Knowledge Goals and Questions

This section contains the goals for Risk Knowledge developed and approved by the local workgroups.

Community leaders and staff can use the questions that follow each goal to guide discussions and help improve local resilience of the risk knowledge element.

Goal #1

Community members understand the risks associated with identified hazards.

Translation

People know what to do before, during and after a hazard event.

Questions to ask:

- Has an assessment of coastal hazards been completed?
- Did the assessment consider historical events, existing hazards, and potential future coastal hazards?
- Was there any community participation in the assessment?
- Do educational programs engage a wide variety of community participants?
- Does the community devote sufficient resources to community education campaigns?
- Are different education methods being utilized to ensure that different learning styles and levels of knowledge are being considered, valued and supported?

Goal #2

Risk assessments are updated regularly and include risks to all facets of the community (e.g., economy, land use, coastal resources).

Translation

Risk assessment is an ongoing comprehensive planning activity.

Questions to ask:

- Does the community have an understanding of how coastal hazards could impact its economic and livelihood assets?
- Has the community identified all facilities, infrastructure, and utilities that are deemed critical?
- Has an assessment of social and cultural vulnerability been conducted that identifies areas where individual resources for disaster preparation and recovery tend to be minimal (i.e. areas with high concentrations of poverty, elderly, illiteracy, gender issues, etc.)?

Goal #3

Community members are involved in the risk assessment process.

Translation

Citizens understand and have an opportunity to contribute to the risk assessment process.

Questions to ask:

- Was the community involved when risks from natural hazards were assessed?
- Is risk information made available to the community?
- Is risk information shared among and used by institutions to better inform policy and action?
- Does the community promote individual, family and business level risk assessment?
- Does the community promote individual, family and business level disaster preparedness?

Goal #4

Local policies and plans address all identified risks.

Translation

The decision making and community investment approach includes an explicit consideration of hazard risks.

Questions to ask:

- Are hazard risks considered by institutions when making planning and development decisions?
- Do community development goals and the plans to achieve them take into account hazard risk?
- Are risks utilized to prioritize and guide planning and mitigation actions consistent with community development goals?
- Do comprehensive plan and zoning maps clearly show hazard zones?
- Does the capital improvements plan consider hazard risks?
- Do local plans consider system interdependencies (i.e. impacts to one sector may result in impacts to other sectors)?



The desired outcome of this element of resilience is a community that is capable of receiving notifications and alerts of coastal hazards, warning at-risk populations, and acting on an alert.

Warning & Evacuation

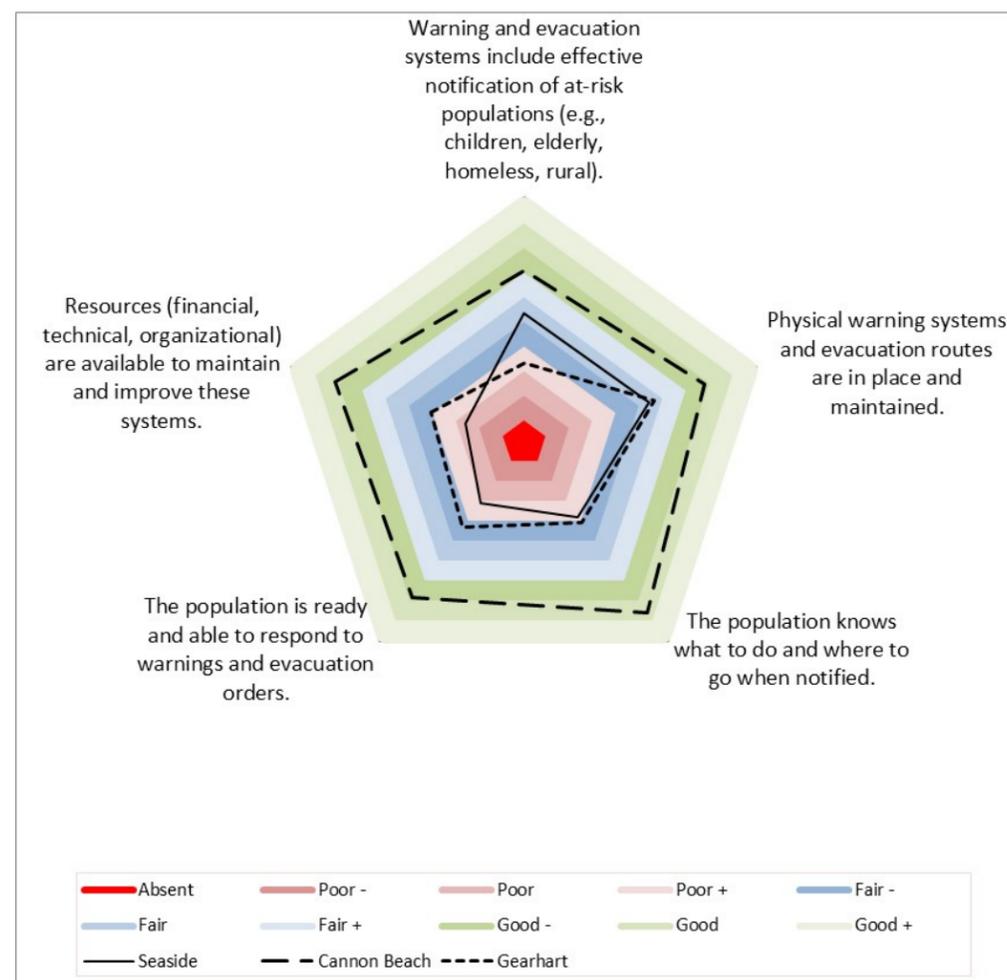
Current Assessment-Warning & Evacuation

Background

“Warning and evacuation consists of three essential parts: an early warning system, evacuation plans, and a well-informed public. Resilient coastal communities possess early warning systems that provide the best available information on potential hazards in a timely manner, implement effective evacuation plans, and have a population that responds appropriately to the information they are given.

Warning systems and evacuation procedures provide communities an opportunity to significantly reduce risk by taking quick action to mitigate impacts of hazard events. An effective response to an impending hazard event can greatly reduce hazard impacts by removing people from dangerous areas.”

– USAID Coastal Resilience Guide



Local Vision

At a meeting in May, 2014, members of the local workgroups participated in a resilience visioning exercise. We did not receive any responses to the question: “What is an appropriate 20-year resilience vision for this sector?” The following statement regarding warning and evacuation is excerpted from the Oregon Department of Land Conservation and Development publication, Preparing for a Cascadia Subduction Zone Tsunami: A Land Use Guide for Oregon Coastal Communities.

“A comprehensive evacuation route plan is essential to the implementation of evacuation route development and improvement in conjunction with the land use review and approval process. The evacuation route plan should provide the detailed information necessary to utilize various potential funding mechanisms available to local governments, if those are proposed. The evacuation route plan should address vertical evacuation routes, if appropriate, and can include an inventory of any existing buildings within the community that could be considered as candidates for evacuation structures. The plan should be coordinated with transportation, park, and trail system plans that can help provide for pedestrian tsunami evacuation routes.”

“Within the tsunami inundation zone, practically all of the 22,000 permanent residents . . . who survive the tsunami will be instantly displaced (Wood, 2007). The visitor population presents a great challenge, because visitors tend to congregate in the tsunami inundation zone and have the least knowledge of where and how to evacuate.”

~ Oregon Resilience Plan

Warning & Evacuation Goals and Questions

This section contains the goals for Warning & Evacuation developed and approved by the local workgroups.

Community leaders and staff can use the questions that follow each goal to guide discussions and help improve local resilience of the warning and evacuation element.

Goal #1

Warning and evacuation systems include effective notification of at-risk populations (e.g. children, elderly, homeless, rural).

Translation

Everyone in the community can be made aware of an emergency and can get to a safe place.

Questions to ask:

- Is there redundancy in both human and technical components of the warning and evacuation system?
- Does the community have an evacuation plan in place that is comprehensive and addresses individuals with special needs?
- Does the community have a way to receive emergency information from national and/or regional systems?
- Do evacuation procedures address visitor populations (tourists or migrants) and local businesses?
- Are warning system and evacuation procedures tested regularly and evaluated after exercises or hazard events to improve effectiveness?

Goal #2

Physical warning systems and evacuation routes are in place and maintained.

Translation

Warning and evacuation infrastructure is in place and adequate to serve the needs of the entire population.

Questions to ask:

- Are warning system components (signs, way finding, physical roads/paths) in place and maintained?
- Are hazard zones, evacuation routes, shelters, and safe areas clearly marked throughout the community with signs, maps and/or other route indicators?
- Is there redundancy in the technical and human components of the warning and evacuation system?
- Do evacuation routes include provisions for disabled populations?
- Has the community reviewed the Department of Land Conservation and Development Tsunami Land Use Guide for information related to evacuation planning?

Goal #3

The population knows what to do and where to go when notified and is ready and able to respond to warnings and evacuation orders.

Translation

Citizens and visitors understand and/or have practiced what to do, where to go and what to take in the event of an emergency.

Questions to ask:

- Are short-term emergency shelters, as well as locations for long-term temporary housing, identified and retrofitted to meet the needs of both resident and visitor populations?
- Are warning procedures and evacuation routes clear for visitors from out of the area to follow?
- Have outreach programs been established to ensure that community members are aware of hazard risks, warning procedures, and evacuation plans?
- Do outreach efforts reach transient populations such as tourists?
- Do schools teach students about hazard risks, emergency preparedness, hazard warnings, and evacuation plans?

Goal #4

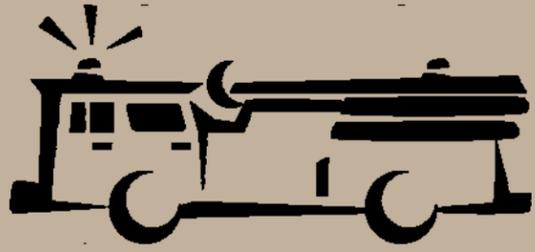
Resources (financial, technical, organizational) are available to maintain and improve warning and evacuation systems.

Translation

The community provides funding for warning and evacuation systems.

Questions to ask:

- Does the community have the appropriate amount of resources to maintain warning systems?
- Has the community established partnerships or agreements with external governments or organizations for funding or technical assistance?
- Does the community utilize System Development Charges to help pay for existing and planned warning and evacuation infrastructure?
- Are evacuation procedures routinely updated to incorporate changes in the community?



The desired outcome of this element of resilience is that mechanisms and networks are established and maintained to respond quickly to coastal disasters and address emergency needs at the community level.

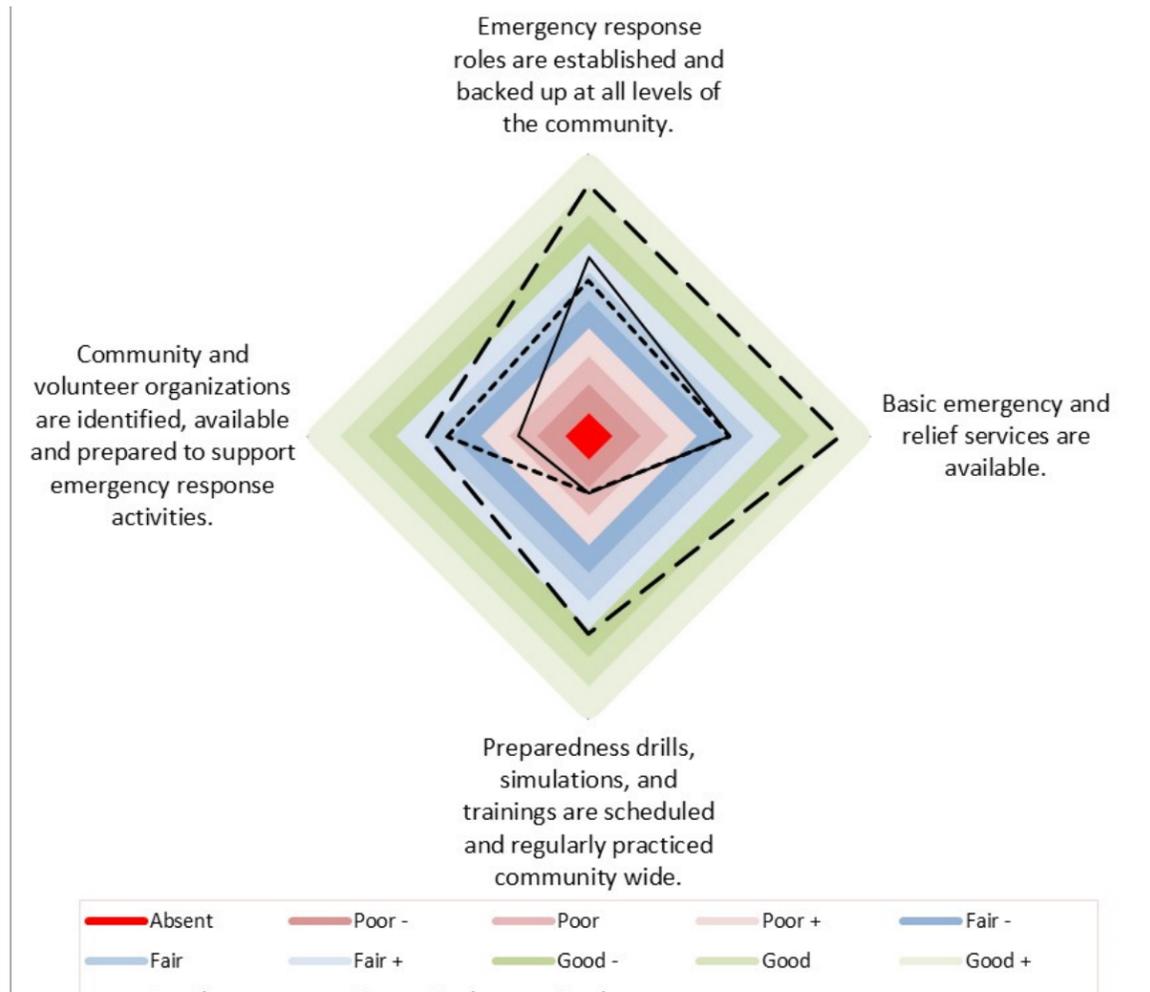
Emergency Response

Current Assessment-Emergency Response

Background

“The emergency response function incorporates a wide range of measures to manage risks to communities and the environment. Emergency response addresses the potential occurrence of major emergency situations requiring a complete government approach to natural and human-induced hazards (e.g. the consequences of acts of terrorism or the release of hazardous materials, etc.). All emergencies and crisis events are by definition chaotic and highly dynamic, creating physical, emotional, and social disorder. The establishment of an emergency response system, including all of the institutions that are maintained to respond quickly to disasters, is essential for addressing emergency needs at the community level.”

– USAID Coastal Resilience Guide



Local Vision

At a meeting in May, 2014, members of the local workgroups participated in a resilience visioning exercise. We collected the following responses to the question: “What is an appropriate 20-year resilience vision for this sector?”

“Significant portion of community is aware and able to help/aid in community wide disaster response.”

“Clatsop Community College has educational programs and community partnerships for emergency management, paramedic, and allied health opportunities to support resilience.”

“Knowledge of a system is always partial and incomplete ... Efforts to enhance the resilience of [community] systems must therefore be supported by continuous learning and experimentation.”

~ Stockholm Resilience Center

Emergency Response Goals and Questions

This section contains the goals for Emergency Response developed and approved by the local workgroups.

Community leaders and staff can use the questions that follow each goal to guide discussions and help improve local emergency response element.

Goal #1

Emergency response roles are established and backed up at all levels of the community.

Translation

Diverse and redundant emergency response capabilities are in place.

Questions to ask:

- Have disaster-specific emergency response plans been developed?
- Do emergency response plans clearly define leadership roles and coordination mechanisms (e.g. incident command system, recovery operations, resilience officer, etc.)?
- Are materials and supplies for short-term disaster management and emergency response stored in locations outside of high risk areas?
- Are redundant infrastructure and critical facilities systems (including operations, paperwork, buildings and staff) in place?

Goal #2

Basic emergency and relief services are available.

Translation

People can get the help and assistance they need.

Questions to ask:

- Have facilities vital to emergency response been identified?
- Have assessments been done to determine if these vital facilities will withstand the impacts of disasters?
- Have measures been taken to ensure that emergency healthcare and life support systems for the community will be functional during a disaster?
- Does the community have a local energy assurance plan?

Goal #3

Preparedness drills, simulations, and trainings are scheduled and regularly practiced community wide.

Translation

The whole community regularly practices how to respond to disasters.

Questions to ask:

- Are there public awareness and education programs to inform all sectors of the community of the emergency response plans?
- Have volunteers been identified and trained properly prior to disaster events?
- Are the results of emergency response drills and exercises utilized to identify gaps or deficiencies in existing response plans?
- Does the whole community participate in drills, simulations, exercises and trainings?

Goal #4

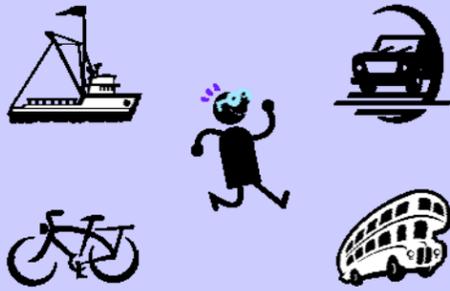
Community and volunteer organizations are identified, available and prepared to support emergency response activities.

Translation

N/A

Questions to ask:

- Has the community identified community members and organizations that can be called upon to assist when responding to an emergency?
- Have agreements been established to utilize community resources during emergency response?
- Has the community identified organizations that are willing to assist during emergencies?
- Has the community identified local response and recovery functions, roles and structures for public, private, non-profit and volunteer organizations?



The desired outcome of this element of resilience is to ensure that transportation facilities and systems are built and maintained so that they remain available after a natural hazard or disaster event.

Transportation

Background

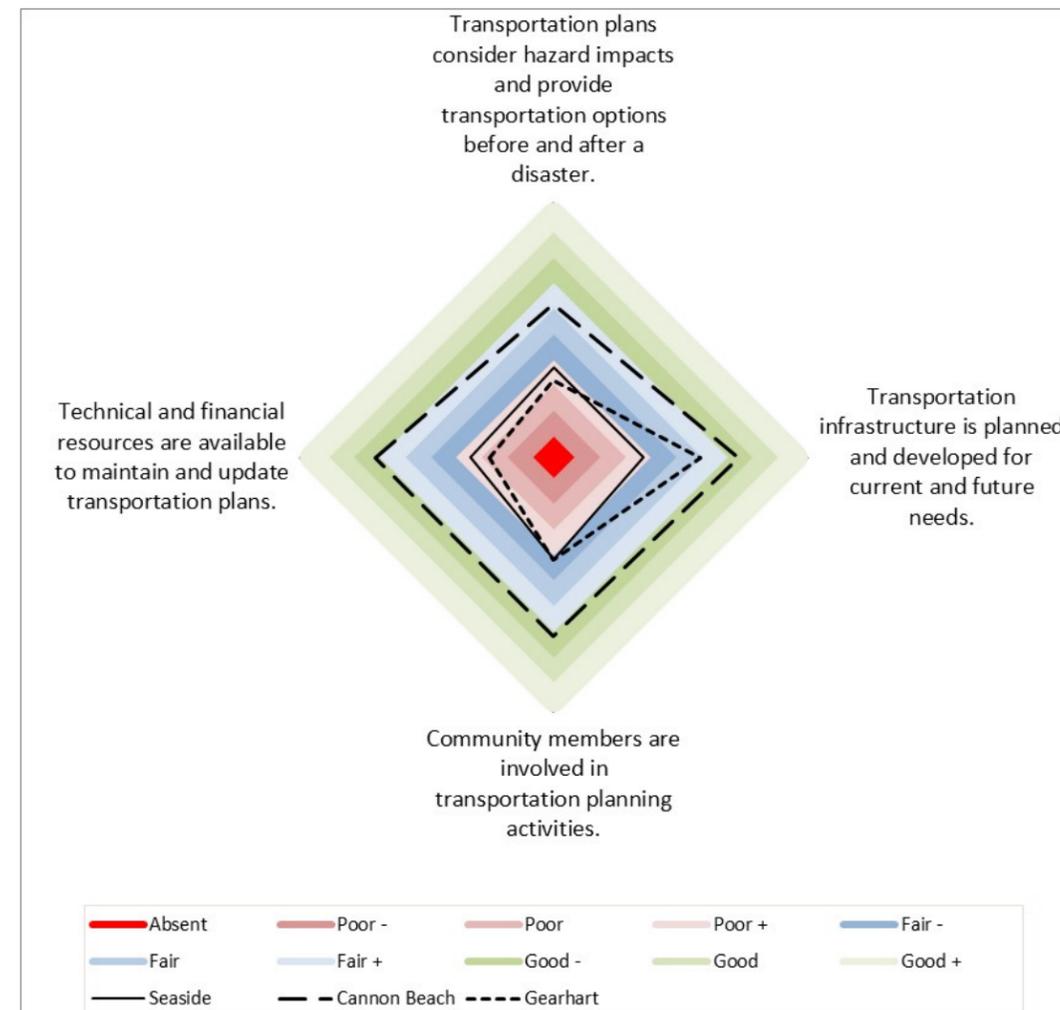
“Emergency response, access to critical buildings, the restoration of utilities, and the reopening of businesses all depend on the transportation network. The resilience of the transportation network is considered a key factor for re-establishing other lifelines after a major Cascadia subduction zone earthquake [or other disaster] . . .

The overall resilience goal for the transportation network is first to facilitate immediate emergency response, including permitting personnel to access critical areas and allowing the delivery of supplies, and second to restore general mobility within specified time periods for various areas of the state . . .

Given the transportation system’s current state of vulnerability to ground shaking and tsunami inundation, initial damage from a Cascadia subduction zone earthquake is expected to be devastating to the parts of the system located along the coast and in western Oregon. The resulting lack of mobility will have direct impacts that severely limit rescue operations, inspection of critical infrastructure, restoration activities, and the state’s ability to restore services leading to recovery . . .”

~ Oregon Resilience Plan

Current Assessment-Transportation



Local Vision

At a meeting in May, 2014, members of the local workgroups participated in a resilience visioning exercise. We collected the following responses to the question: “What is an appropriate 20-year resilience vision for this sector?”

“All of the current evacuation routes associated with Cascadia have been upgraded in conjunction with improving all of our modes of transportation.”

“Highway 101 bridges and overpasses are all earthquake resistant; key city bridges are earthquake resistant; north/south transportation along 101-corridor includes other modes (bus, rail, ?); robust pedestrian trails also reach high ground, shelters, assembly areas.”

“Two of three creek crossings have been improved to withstand both earthquake and tsunami together with improved and widely identified evacuation corridors to high, safe ground. The third corridor is scheduled for improvement.”

“The kind of transportation we invest in determines the shape of our communities, our access to jobs and services, and how much of our time and money we spend on getting around.”

~The Rockefeller Foundation

Transportation Goals and Questions

This section contains the goals for Transportation developed and approved by the local workgroups.

Community leaders and staff can use the questions that follow each goal to guide discussions and help improve local resilience of the transportation element.

Goal #1

Transportation plans consider hazard impacts and provide transportation options before and after a disaster.

Translation

People can get around easily before and after disasters.

Questions to ask:

- Does the transportation system include diverse and redundant transportation options?
- How will people get around after a disaster?
- How will commercial goods and services move around after a disaster?
- Are there transportation options we haven't considered emphasizing in our community?
- Do transportation plans account for energy availability post-disaster?
- Do our plans consider design and engineering approaches that allow for "safe failure" of transportation components?

Goal #2

Transportation infrastructure is planned and developed for current and future needs.

Translation

Future generations are considered during the transportation planning process.

Questions to ask:

- Do transportation plans account for long-term changes in how people, goods and services move around?
- Do transportation plans consider potential impacts from future hazard events?
- Do transportation plans account for the need to evacuate hazard zones?
- Are there opportunities to bring new transportation technologies to the community (e.g. Personal Rapid Transit, cargo bicycles, electric vehicles, etc.)?

Goal #3

Community members are involved in transportation planning activities.

Translation

People participate in deciding how they want to get around their community.

Questions to ask:

- Is the public aware of the amount, condition and replacement cost of transportation infrastructure in hazard zones?
- Is the existing transportation system meeting the needs of all members in the community?
- Have community members been asked how they want their transportation system to function?
- Have decision makers specifically asked members of the community who do not drive (youth, elderly, alter-abled, etc.) what they want/need out of their transportation system?
- Has the business community been invited to participate?

Goal #4

Technical and financial resources are available to maintain and update transportation plans.

Translation

The community implements its transportation strategy.

Questions to ask:

- Is funding available for re-siting or improving transportation infrastructure?
- Does the community have the resources needed to propose and evaluate a range of community-scale transportation options?
- Does the community have the money to build and maintain its transportation system?



The desired outcome of this element of resilience is to ensure that vital community facilities and services are built and maintained so that they remain available after a natural hazard or disaster event.

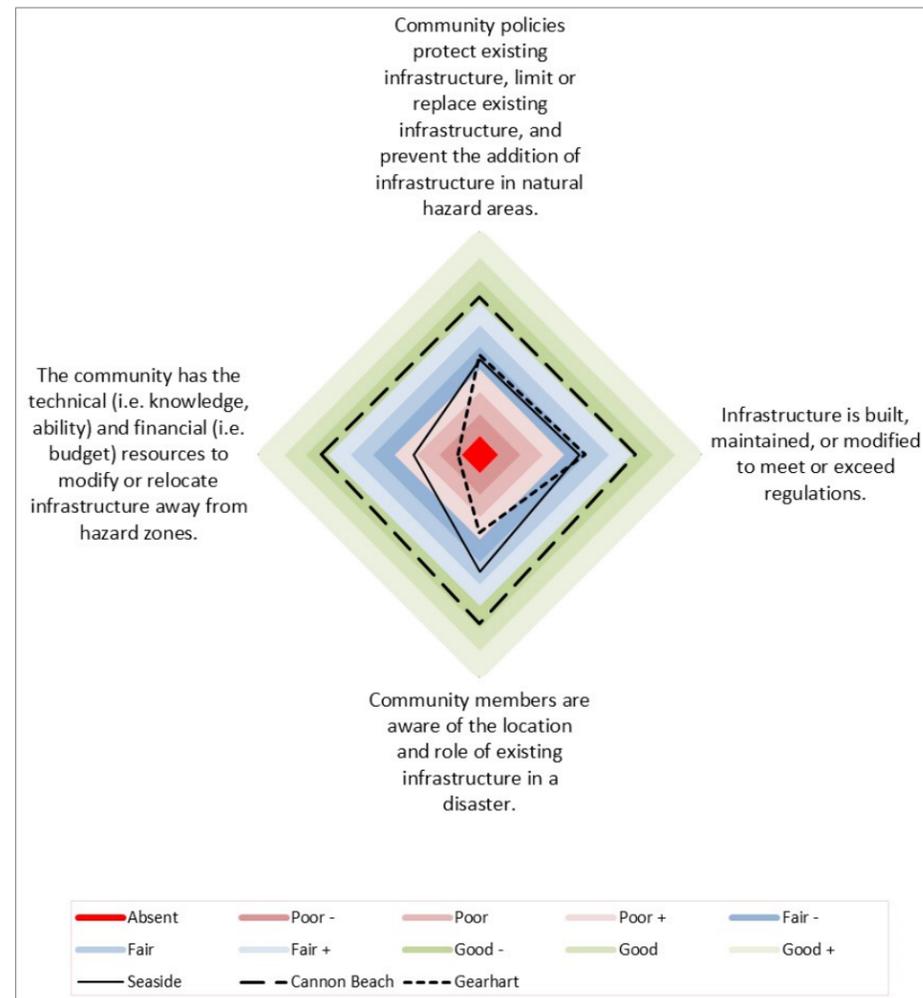
Critical Infrastructure

Current Assessment-Critical Infrastructure

Background

“Critical infrastructure and facilities, notably transportation, water, waste water, power, telecommunications, storm water, police and fire stations, jails, schools, hospitals and airports among others, are vitally important to community function. Prior to a disaster, diversifying, hardening and/or relocating infrastructure are strategies to increase community resilience. Following a disaster, it will be important to evaluate opportunities to modify or improve the existing infrastructure and facilities systems based upon the community’s vision for future growth.”

~ Oregon Partnership for Disaster Resilience



Local Vision

At a meeting in May, 2014, members of the local workgroups participated in a resilience visioning exercise. We collected the following responses to the question: “What is an appropriate 20-year resilience vision for this sector?”

“Shelters in place; planning recognizes hazards and has reserve accounts to accomplish; future plans for resiliency is built into infrastructure planning; checklists are used to incorporate resiliency on all building & development.”

“The above has allowed for the movement of critical facilities to safe location, and now there comes some funding source.”

“Water system transmission lines are moved out of slide prone areas. All bridges have been replaced with new bridges built to current seismic standards.”

“Solar & other ways to diversify electrical production; De centralize key community infrastructure; Critical infrastructure out of flood plain/tsunami zone; Buildings upgraded to most up to date seismic codes.”

“The estimated current state of hospitals, Emergency Operation Centers, fire and police stations falls significantly short of the target state need for these facilities to be immediately available following the CSZ event.”

~ Oregon Resilience Plan

Critical Infrastructure Goals and Questions

This section contains the goals for Infrastructure developed and approved by the local workgroups.

Community leaders and staff can use the questions that follow each goal to guide discussions and help improve local resilience of the critical infrastructure element.

Goal #1

Community policies protect existing infrastructure, limit or replace existing infrastructure, and prevent the addition of infrastructure in natural hazard areas.

Translation

Risks to critical infrastructure are minimized through policy and community investments.

Questions to ask:

- Have critical facilities been located outside of the hazard area or built to be resistant to the known hazard impacts?
- Do local policies limit critical infrastructure development in vulnerable land areas?
- Has the community identified and pursued opportunities to provide redundant infrastructure systems?
- Some critical facilities function best within zones that are prone to hazards (i.e., water treatment facilities). Has the community ensured that in such cases, proper siting and construction standards are in place?
- Has the community considered design and engineering approaches that allow for “safe failure” of critical system components?
- Is system diversity and redundancy considered when siting, designing and constructing critical facilities and systems?

Goal #2

Infrastructure is built, maintained, or modified to meet or exceed regulations.

Translation

Critical infrastructure is built to a high standard.

Questions to ask:

- Has an assessment of critical infrastructure been conducted to determine vulnerability to various hazards?
- Is there available land outside the hazard zones for the re-siting or development of critical infrastructure?
- Has community analyzed energy supply distribution risks and vulnerabilities; developed new, or refined existing, facilities to increase resiliency Example: Smart Grid technology, integrate new energy portfolios (renewable, biofuels, etc.)

Goal #3

Community members are aware of the location and role of existing infrastructure in a disaster.

Translation

Everyone knows where critical infrastructure is located and what it is needed for.

Questions to ask:

- Is the public aware of critical infrastructure in the hazard zone?
- Is the public aware of the role of each facility and the impacts on the community?
- Has community identified critical public and private infrastructure and key services that must be restored immediately post-disaster (i.e. schools, grocers, health care providers, water, waste water, power, emergency services, etc.).

Goal #4

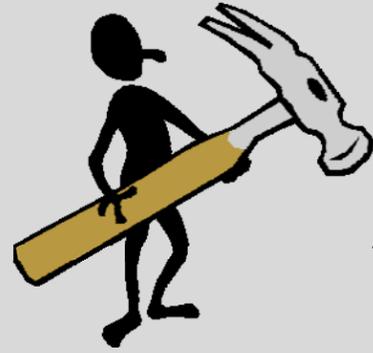
The community has the technical (i.e. knowledge, ability) and financial (i.e. budget) resources to modify or relocate infrastructure away from hazard zones.

Translation

The community makes investments to ensure critical infrastructure is not located in risky places.

Questions to ask:

- Are funding sources available for re-siting or improving critical infrastructure?
- Do local contractors have technical knowledge to retrofit or move resources?
- Has the community ensured that all funding for new critical infrastructure is prioritized for projects located outside hazard zones, except where required to function properly?



The desired outcome of this element of resilience is that plans are in place prior to hazard events that accelerate disaster recovery, engage communities in the recovery process, and minimize negative environmental, social, and economic impacts.

Recovery

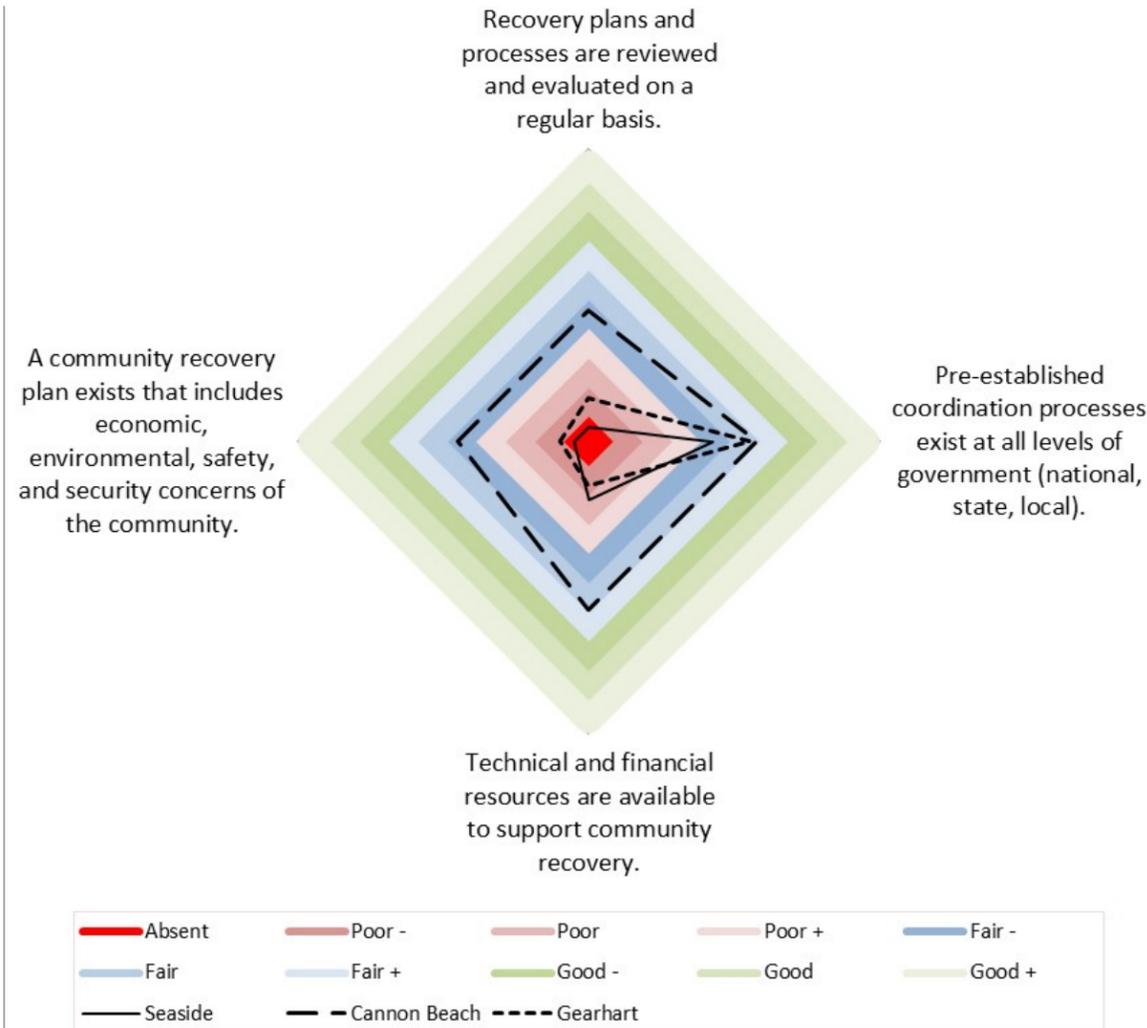
Current Assessment-Recovery

Background

“Disaster recovery is the process of restoring and improving basic services, natural resources, and livelihoods in a community affected by a hazard event. Resilient coastal communities accept that hazard events will happen in their community and develop plans and procedures before they happen to guide the recovery process. Furthermore, resilient communities seek out and take advantage of opportunities to reduce exposure to potential future hazards and further reduce risk through restoration and reconstruction activities.

The period immediately following a disaster provides many opportunities for implementing strategies to mitigate the impacts of potential future disasters, especially while the political will remains strong. If the disaster recovery process is to be successful in building community resilience, it must take a holistic approach by incorporating good practices from the other essential elements of [coastal community resilience] and fully integrate the domains of disaster management, community development, and coastal resource management. “

– USAID Coastal Resilience Guide



Local Vision

At a meeting in May, 2014, members of the local workgroups participated in a resilience visioning exercise. We collected the following responses to the question: “What is an appropriate 20-year resilience vision for this sector?”

“Have a north[-south] major highway besides Hwy 101 coming from Astoria going south to Tillamook. If Hwy 101 is destroyed in small sections it is impossible to go anywhere.”

“No one hurt. Buildings still standing. Food & H2O available. Communication is normal.”

“Clatsop Community College has educational programs and community partnerships for emergency management, paramedic, and allied health opportunities to support resilience.”

“Today’s emergency management programs tend to focus on the preparedness and response phases, leaving limited resources to address the recovery and mitigation phases. The goal of a disaster resilient approach is to . . . recover from future disaster events in a manner that efficiently leverages limited resources . . .”
 ~ Oregon Partnership for Disaster Resilience

Recovery Goals and Questions

This section contains the goals for Recovery developed and approved by the local workgroups.

Community leaders and staff can use the questions that follow each goal to guide discussions and help improve local resilience of the recovery element.

Goal #1

A community recovery plan exists that includes economic, environmental, safety, and security concerns of the community.

Translation

The community has considered and established a set of recovery goals, strategies and systems prior to a disaster event.

Questions to ask:

- Does the community have a pre-established disaster recovery plan (or plans)?
- Does the community have an infrastructure recovery protocol that prioritizes which infrastructure will be brought back on-line first after a hazard event?
- Do policies and procedures exist for guiding reconstruction and redevelopment away from hazard areas and sensitive natural resources post event?
- Are multiple hazard scenarios (both chronic and catastrophic) used to consider the range of potential impacts?
- Do existing plans address long-term community development goals and values?

Goal #2

Recovery plans and processes are reviewed and evaluated on a regular basis.

Translation

Recovery plans are updated with new information and strategies as things change over time.

Questions to ask:

- Has the community identified a group or body (e.g. new committee or standing group such as planning commission or hazard planning committee) that has oversight responsibility and is accountable for reviewing, evaluating and implementing the recovery plan(s)?
- Are processes to monitor and report on the progress of recovery efforts in place?
- Are there opportunities to periodically revise recovery plans based on assessments, community input, and monitoring?
- Is there a process to review and assess post-disaster recovery efforts so that future protocols can be improved?

Goal #3

Pre-established coordination processes exist at all levels of government (national, state, local).

Translation

Structures, systems, agreements and contracts are in place that establish shared understanding of recovery roles and capabilities.

Questions to ask:

- Who is responsible for managing overall recovery coordination at the local level?
- Has the community written and adopted a recovery ordinance that gives the city/county the authority to guide its own redevelopment?
- Have stakeholder coordination mechanisms been pre-established with organizations and agencies responsible for recovery efforts (e.g. ?
- Have mechanisms been pre-established to coordinate donor and service organization efforts in the community?
- Are communication mechanisms in place to obtain and share information with the community on the recovery process?
- Do external organizations understand the process for delivering goods and services?

Goal #4

Technical and financial resources are available to support community recovery.

Translation

The community is making pre-disaster investments in post-disaster recovery.

Questions to ask:

- Is technical assistance available to the community after a hazard event?
- What local, state or federal recovery programs or incentives exist that offer funds for recovery?
- Has the community engaged the local banking and insurance industries to assist in rapid business recovery while awaiting state and federal assistance?
- Are mechanisms in place for communities to solicit, accept and manage external funds following a disaster?
- Does the community use local and regional economic opportunities to create a more resilient community?