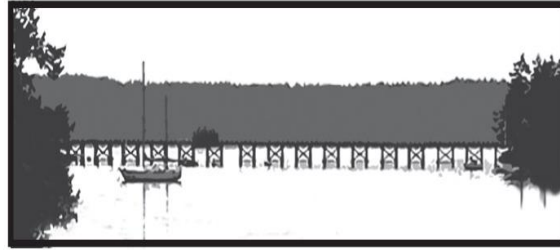


**REGION 5 HAZARD MITIGATION PLAN
RAFT ISLAND IMPROVEMENT ASSOCIATION**



RAFT ISLAND IMPROVEMENT ASSOCIATION

G I G H A R B O R , W A S H I N G T O N

Prepared for:

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REGION 5 HAZARD MITIGATION PLAN RAFT ISLAND IMPROVEMENT ASSOCIATION

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Section 1

Plan Process Requirements

Planning Process---Requirement §201.6(b):

An open public involvement process is essential to the development of an effective plan.

Documentation of the Planning Process---Requirement §201.6(b):

In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:

- (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

Documentation of the Planning Process---Requirement §201.6(c)(1):

[The plan **shall** document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

- Does the plan provide a narrative description of the process followed to prepare the new or updated plan?
- Does the new or updated plan indicate who was involved in the current planning process? (Who led the development at the staff level and were there any external contributors such as contractors? Who participated on the plan committee, provided information, reviewed drafts, etc.?)
- Does the new or updated plan indicate how the public was involved? (Was the public provided an opportunity to comment on the plan during the drafting stage and prior to the plan approval?)
- Does the new or updated plan discuss the opportunity for neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties to be involved in the planning process?
- Does the planning process describe the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information?
- Does the updated plan document how the planning team reviewed and analyzed each section of the plan and whether each section was revised as part of the update process?

SECTION 1

REGION 5 HAZARD MITIGATION PLAN RAFT ISLAND IMPROVEMENT ASSOCIATION PROCESS SECTION

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REGION 5 HAZARD MITIGATION PLAN RAFT ISLAND IMPROVEMENT ASSOCIATION

Plan Process

The Process Section of the Raft Island Improvement Association (RIIA) is a discussion of the planning process used to develop this addendum to the Region 5 Hazard Mitigation Plan (Pierce County is Homeland Security Region 5) in Washington State. This section will include how the process was prepared, who aided in the process, and the public involvement in the plan.

The Plan is developed around all major components identified in 44 CFR 201.6, including:

- **Public Involvement Process;**
- **Jurisdiction Profile;**
- **Capability Identification;**
- **Risk Assessment;**
- **Mitigation Strategy;**
- **Infrastructure; and,**
- **Plan Maintenance Procedure.**

Below is a summary of those elements and the processes involved in their development.

Public Involvement Process

Public participation is a key component to strategic planning processes. Citizen participation offers citizens the opportunity to voice their ideas, interests, and opinions. In order to accomplish this goal and to ensure that the final RIIA Hazard Mitigation Plan be comprehensive, the Hazard Mitigation Committee in conjunction with Pierce County Department of Emergency Management (PC DEM), developed a participation process of two components:

1. A Hazard Mitigation Committee (HMC) comprised of individuals from all participating jurisdictions working together to develop the plan in coordination with the PC DEM Planning Team;
2. Public meetings to identify common concerns and ideas regarding hazard mitigation and to discuss specific goals, objectives and measures of the mitigation plan.

This section discusses each of these components in further detail below with jurisdictional participation outlined in each. Integrating public participation into the development of the plan has helped to ensure an accurate depiction of the Region's risks, vulnerabilities, and mitigation priorities.

Hazard Mitigation Committee

The Hazard Mitigation Committee (HMC) was organized and met throughout the year of 2009 and 2010. The individual jurisdictional representatives have an understanding of specific jurisdictions, including how residents, businesses, infrastructure, and the environment may be affected by all hazard events. The members are experienced in past and present mitigation activities, and represent those entities through which many of the mitigation measures would be implemented. The HMC guided the development of the plan, assisted in developing goals and measures, identified stakeholders, and shared local expertise to create a more comprehensive plan. See Table 1-1 for the HMC Members.

Table 1-1 Hazard Mitigation Committee

NAME	TITLE	JURISDICTION
Steve Bailey	Director	Pierce County DEM
Jody Woodcock	Program Manager	Pierce County DEM Program Manager
Lou Dooley	Coordinator	Pierce County DEM Mitigation & Recovery
Debbie Bailey	Admin Aide/GIS	Pierce County DEM Mitigation & Recovery
Diane Schurr	Coordinator	Pierce County DEM Mitigation & Recovery
Claudia Ellsworth	Island Manager	Herron Island Management Company
Mike Davis	Emergency Committee	Herron Island Management Company
LeRoy Seeley	President	Taylor Bay Beach Club
Don Tjossem	Vice President	Taylor Bay Beach Club
Lita Dawn Stanton	Emergency Chair	Raft Island Improvement Association
Ted Smith	Bridge Chairman	Raft Island Improvement Association
Curt Simonson	President	Crystal River Ranch Association
Jim McKinley	CRVA Staff	Crystal River Ranch Association
Dee Patterson	President	Crystal Village Home Owner's Association
Gary Castellane	CV HOA Staff	Crystal Village Home Owner's Association
Bill Steel	Planner	Crystal Mountain Incorporated
Scott Bowen	Manager	Crystal Mountain Incorporated
Jeremy Kunkel	Police Chief	Town of Ruston
Richie Morgan	Mayor	Town of Carbonado
Tricia Thomaszewski	Clerk	Town of Carbonado
Robert Drozynski	Police Chief	Town of Steilacoom
Jeff Johnson	General Manager	Spanaway Water Company
Tim Tayne	Asst General Manager	Spanaway Water Company
Sandy Byers	Emergency Manager	Pierce Transit
Rod Baker	Chief of Security	Pierce Transit
John Cammon	RCC Staff	Riviera Community Club
Russ Rodocker	General Manager	Riviera Community Club
Todd Badham	Chief of Security	Puget Sound University
John Hickey	Department Chair	Puget Sound University
Brett Freshwaters	Metro Parks Staff	Metro Parks
James McDonald	Consultant	Metro Parks

Hazard Mitigation Committee Meetings

The HMC held 8 meetings and RIIA had 2 one-on-one meetings for a total of 10 meetings from March 16, 2009 to June 16, 2010. Each meeting presented an opportunity for discussion, review, and evaluation of the plan among the committee. Planning Team Members for PC DEM included, Luke Meyers, Program Coordinator II, and Lou Dooley, Program Coordinator. Lou Dooley coordinated the group and individual meetings. Table 1-2 documents these meetings including name, date, place and description of each meeting for each group.

Table 1-2 Hazard Mitigation Committee Meetings

HMC Meeting #1- Pierce County Emergency Operations Center	
March 16, 2009	Pierce County Planning Team
<p>Planning Team members Luke Meyers and Lou Dooley conducted the meeting and the Planning Team discussed the following items: Introduction of Planning Team, Review of the history of the Grant Application, Defining Hazard Mitigation, Defining the Planning Requirements, Benefits of Developing a plan, Defining the Planning Process, Draft Work Schedule, Draft Work Plan, Establishing reviewing sample completed plans, and defining next steps.</p>	
HMC Meeting #2- Pierce County Emergency Operations Center	
April 23, 2009	Pierce County Planning Team
<p>Planning Team members Luke Meyers and Lou Dooley conducted the meeting and the Planning Team discussed the following items: Introduction of Planning Team as there were new members present, review of items presented at previous meeting including History of the Grant Application, Defining the Planning Requirements, Benefits of Developing a plan, Defining the Process, the Draft Work Schedule and Work Plan, Establishing the Planning Team Meetings, Elected Official Meetings and Public Comment Meetings, and explaining the next steps. This meeting focused on the process that would be followed in developing the plans for each jurisdiction.</p> <p>It was decided to divide the participants into geographical groupings to allow ease of Plan development. Three Groups were designated:</p> <ul style="list-style-type: none"> • Western Group: <ol style="list-style-type: none"> 1. Herron Island Management Company 2. Taylor Bay Beach Club 3. Raft Island Improvement Association (Joined in July 2009) • Central Group:ⁱ <ol style="list-style-type: none"> 1. Town of Carbonado 2. Town of Ruston 3. Town of Steilacoom 4. Riviera Community Club 5. Spanaway Water Company 6. Pierce Transit 7. Metro Parks 8. Puget Sound University • Eastern Group:ⁱⁱ <ol style="list-style-type: none"> 1. Pierce County Fire District #25 2. Pierce County Fire District #26 3. Crystal River ranch Association 4. Crystal Village I,II,III 5. Crystal Mountain, Inc <p>Each Group would meet individually with Lou Dooley in agreed upon locations close to their jurisdictions until plans were drafted, when the RIIA would meet to discuss Plan adoption and implementation.</p>	

HMC Meeting #3- Western Group – Taylor Bay Beach Club	
June 24, 2009	Pierce County Planning Team - Lou Dooley
<p>Status of the Hazard Mitigation Plan was reviewed with the members present. Those present reviewed the info that had been shared and discussed the Profile information. Examples of Mission/Vision, Dependencies, Capabilities, and Services were provided. These pieces are due back to DEM before the next meeting, so they can be wrapped up at that time. Examples of Goals/Objectives were shared with the members, copying the actions from the examples is acceptable.</p>	
HMC Meeting #4 – Western Group -Key Center Library	
July 24, 2009	Pierce County Planning Team - Lou Dooley
<p>Lou welcomed and reviewed the Mitigation Plan purpose and procedures for those members of the Raft Island Improvement Association present. The group is new to the Western Region and serves to oversee the island resources, in particular the bridge connecting the island to the mainland Gig Harbor Peninsula.</p> <p>Lou acknowledged the work of the other two entities in gathering information and submitting it to PC DEM. Lou shared maps of the Western Region which noted the hazard impact areas for flooding and seismic activities. He explained that once the hazard impacted areas are formally designated, the group can begin to formulate mitigation strategies given the potential for disruption. Additionally he asked that each group submit pictures of their infrastructure and especially historical damage from any natural hazard event in the past.</p> <p>Assignments: Finalize submission of jurisdiction profile data, maps/boundaries, infrastructure, etc. Submit historical pictures of infrastructure and any damages from previous disaster events.</p>	
HMC Meeting #5 – Western Group - Key Center Library	
October 26, 2009	Pierce County Planning Team -Lou Dooley
<p>The participants reviewed where they were with the Profile Section, all three jurisdictions are in good shape. This will allow them to proceed to the Risk Assessment Sections. As maps are generated specific to their jurisdiction’s hazards will be more readily apparent. PC DEM will provide the maps and go over the respective risks in each jurisdiction.</p> <p>There was a discussion about the benefits of participating in the PC NET program with PC DEM, Debbie Bailey is the contact. Debbie will be asked to contact Cathy Driscoll of the RIIA to set up discussion with the members.</p>	
HMC Meeting #6 – Western Group - Key Center Library	
November 13, 2009	Pierce County Planning Team -Lou Dooley
<p>Hazard Maps were reviewed and infrastructure was reviewed per each hazard, risk codes were discussed and each was assigned a number. Members were to review and turn in their assessment sheets.</p> <p>Infrastructure forms were reviewed for those jurisdictions with completed forms.</p>	

HMC Meeting #7 – Western Group - Key Center Library	
December 11, 2009	Pierce County Planning Team -Lou Dooley
<p>Reviewed particular pieces of Profiles with jurisdiction leads. Reviewed Infrastructure designations with each jurisdiction.</p> <p>Reviewed each jurisdiction’s hazard numbers, clarified need to get assignment of codes in ASAP.</p> <p>Outlined the use of goals and example objectives from other plans. Handed out examples and directions for completion. Each jurisdiction to complete and send in to Lou ASAP.</p> <p>It was determined that the jurisdictions may well do better if they have one on one meetings with Lou to complete their input and focus on their tasks.</p>	
HMC Meeting #8 – Pierce County Emergency Operations Center	
June 16, 2010	Pierce County Planning Team -Lou Dooley
<p>Lou Dooley met with the RIIA Board and general membership to outline the final draft of the Hazard Mitigation Plan for Raft Island. The RIIA was represented by three representatives. The steps needed to formalize the final draft and obtain the approval of the elected officials of the RIIA were outlined. All input to the final drafts and arrangements for the public official meetings were to be completed by July 1, 2010.</p>	

One-on-One Meetings

During the timeframe from December 2009 to May 2010, one-on-one meetings were conducted with RIIA members. The meetings were set up primarily by Lou Dooley, Emergency Management Coordinator, in order to address hazards, infrastructure, and mitigation measures, see Table 1-3.

Table 1-3 –One-on-One Meetings

One-on-One Meeting: RIIA Co. – Pierce County DEM	
March 22, 2010 - Pierce County Planning Team -Lou Dooley	
Reviewed all forms and data that RIIA had provided to PC DEM. Discussed Mitigation Strategies.	
One-on-One Meeting: RIIA -	
April 23, 2010 - Pierce County Planning Team -Lou Dooley	
Reviewed Mitigation Strategies. RIIA in good shape for drafting plan	

Public Comment

PC DEM coordinated the plan process. This design allowed for a greater level of inter-jurisdictional coordination and involvement across the County. The HMC used the Pierce County Hazard Mitigation Forum distribution list to notify other jurisdictions about the plan status and updates.

The HMC provided opportunities for public comment through an ongoing and open process. Beginning in March 2009, the HMC published information about the process on the plan’s PC

DEM Webpageⁱⁱⁱ where it notified the public of the process, the progress, and any changes or upcoming meetings.

The HMC held informational meetings to provide a further opportunity for public involvement, see Table 1-4. Representatives from PC DEM presented the Natural Hazard Mitigation Plan Requirements, the plan process, the plan benefits, the Risk Assessment, and Mitigation efforts. The meetings in April 2009 and June 2010 were advertised in accordance with legal requirements.

Beginning in April 2009, and each month thereafter, documentation was added to the planning website to include the status of the planning efforts of RIIA.

Table 1-4 Public Information Meetings

RIIA Addendum - Public Information Meeting 1	
September 21, 2009	Facilitator: Lou Dooley PC DEM Program Coordinator
Planning Team Members outlined the purpose of Mitigation Planning and the process which would be followed in the development of the Pierce County Addendum. Maps of previous natural hazard events were shared.	
RIIA Addendum - Public Information Meeting 2	
June 21, 2010	Facilitator: Lou Dooley PC DEM Program Coordinator
Lou Dooley shared the draft plan, and outlined the efforts made to protect the RIIA members from applicable hazards to the Island. Input was requested from the membership and general public present.	

Elected Official's Meetings

The Elected Official's Meetings served as a part of the pre-adoption review process. These meetings were done close to the end of the process to review all the draft documentation with the Elected Officials prior to submitting the plans for approval to Washington State Emergency Management Division (EMD) and FEMA. Once the plans are approved by State EMD and FEMA, the Pierce County Council will pass a resolution adopting the plan. Table 1-5, Elected Official's Meetings, documents these meetings to include: name, date, place, and description.

Following these meetings, the Pierce County Addendum to the Region 5 Hazard Mitigation Plan was submitted to the State EMD for review in August, 2010. The plan was then submitted to FEMA for review and the FEMA letter of approval will appear in Appendix A.

Table 1-5 Elected Official's Meetings

Pierce County Addendum – RIIA Elected Official's Meeting 1	
September 21, 2009	Facilitator: Lou Dooley PC DEM Program Coordinator
Lou Dooley outlined the Hazard Mitigation Plan purpose and processes for the RIIA Board and residents. Hazard Maps for Raft Island and examples of other plans were shared with the Board. The Board indicated support for the plan.	

Pierce County Addendum – RIIA Elected Official’s Meeting 1	
June 21, 2010	Facilitator: Lou Dooley PC DEM Program Coordinator
Lou Dooley met with the RIIA Board and general membership to outline the final draft of the Hazard Mitigation Plan for Raft Island. The RIIA was consistently represented by multiple representatives at each meeting of the Western Group and the HMC. The RIIA Board supported the final draft and approved moving it forward to WA EMD and FEMA.	

Profile Process

The Profile Section of the HMC Plan covers all of Raft Island. The Profile Section utilizes Pierce County data to paint a portrait in narrative form of Raft Island. Compiling information from many sources the Profile section covers the Pierce County demographics, geography, geology, climate, land use, transportation, and economy. Because each jurisdiction, covered in the plan is part of the overall Region and since many of the hazards affect every jurisdiction it is necessary to understand their relationship to each other across the Region.

The Profile Section of this RIIA Plan paints a comprehensive picture of Raft Island through a series of tables, a base map, and the RIIA Mission and/or Vision Statement. Information came from documents, information provided by RIIA, collaboration with other agencies, and internet research as appropriate. RIIA supplied its Mission and/or Vision Statement, a list of the services it provides, an infrastructure summary, and budgetary information.

Capability Identification Process

The Disaster Mitigation Act 2000 requires a “review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.” For the purposes of this plan, these elements are referred to as capabilities and their “review and incorporation” as a capability identification. The County has revised this Section of the plan to reflect current capabilities and has completely overhauled the Section. The 2004 plan went into great greater detail on mitigation capabilities; some of these are incorporated and summarized in the Region 5 Base Plan, because they are relevant to many jurisdictions.

Over the last 6 years Pierce County implemented a number of mitigation measures based on capabilities identified in 2004. These capabilities include funding from the Federal Hazard Mitigation Grants. With the approved and adopted Pierce County Hazard Mitigation Plan, the County has been able to apply for pre and post disaster mitigation funds. The two primary Federal Funding sources include: the Pre-Disaster Mitigation (PDM) Grant Program and post disaster Hazard Mitigation Grant Program (HMGP). Table 1-6 summarizes the projects and dollars received from these programs with a special emphasis on the last 5 years. The two primary areas funded include: flood hazard acquisitions projects and natural hazard mitigation plans. The County has taken a proactive role in assisting other jurisdiction in the County develop FEMA approved and locally adopted hazard mitigation plans.

Table 1-6 Pierce County Mitigation Funding Summary

DISASTER NUMBER/ YEAR-EVENT	HMGP
	PROJECTS/PLANS TOTAL
DR-852-WA, January 1990--Flood	N/A
DR-883-WA, November 1990--Winter Storms & Flooding	N/A
DR-981-WA, January 1993--Inaugural Day Windstorm	N/A
DR-1079-WA, Nov.-Dec.1995--Winter Storms and Flooding	1 Project (Flood Acquisition) \$750,000
DR-1100-WA, February 1996--Winter Storms and Flooding	1 Project (Flood Acquisition) \$2,035,032
DR-1159-WA, Dec. 1996- Feb. 97--Winter Storms and Flooding	3 Projects (Flood Acquisition) \$2,944,335
DR-1361-WA, February 2001--Nisqually Earthquake	N/A
DR-1499-WA, October 2003--Flooding	N/A
DR-1671-WA, November 2006--Flooding and Severe Weather	2 Projects (Flood Acquisition) Estimated \$2,000,000
DR-1682-WA, December 2006--Windstorm	2 Projects (Flood Acquisition) \$1,927,958
DR-1734-WA, December 2007--Flooding and Severe Weather	1 Plan (18 Mitigation Plans) \$150,000 1 Project (Flood Acquisition) \$TBD
DR-1817-WA, December 2009--Flooding and Severe Weather	Applications Pending
DR-1825-WA, December 2008--Record Snow and Severe Cold	Applications Pending
<u>PRE-DISASTER MITIGATION GRANT</u>	PROJECTS/PLANS TOTAL
2005 Funding	1 Plan (48 Mitigation Plans) \$657,500
2008 Funding	1 Project (Flood Acquisition) \$554,008
2009 Funding	Application Pending

Risk Assessment Process

The Risk Assessment Section of the Base Plan covers Region 5. Since Region 5 is synonymous with Pierce County, the Risk Assessment Section utilizes Pierce County data to paint a portrait in narrative form of the Region. Since this RIIA Plan is an Addendum to the Region 5 Mitigation Plan, the hazard identification process used for this RIIA assessment is the same one used for the rest of the Base Plan.

The Region 5 Plan addresses the following 9 natural hazards: *Avalanche, Drought, Earthquake, Flood, Landslide, Severe Weather, Tsunami and Seiche, Volcano, and Wildland/Urban Interface Fire.*

An important element of the revised hazard identification includes the incorporation of several major natural hazard events that have occurred since the Base Plan was adopted in 2008 including: DR-1734-WA, December 2007--Flooding and Severe Weather, November 11th 2008 Flooding, DR-1817-WA, December 2009--Flooding and Severe Weather, and DR-1825-WA, December 2008--Record Snow and Severe Cold. These events provide documentation that offers new information on the County's natural hazards threats.

Based on new hazard information, 2 natural hazards have increased their overall risk to the County, the earthquake hazard and the flood hazard. Since 2004, new scientific information has lead to a better understanding on each hazard. The earthquake hazard has increased due to refined information on the Tacoma Fault Zone, which has lead to a greater vulnerability and consequences for Pierce County primarily in the Peninsula Area and Tacoma Area. The flood hazard has increased due to a new County-Wide Flood Hazard Map that shows a larger area of the County in flood hazard areas including those in channel migrations zones. This is an enhanced vulnerability for areas in the Puyallup Watershed and along the Nisqually River.

Various methodologies are available to facilitate the risk assessment. A common approach was needed to enable the setting of mitigation priorities both within and among all participants. The HMC developed a framework that assesses risk as a function of threat, vulnerability, and consequence. An addition to this Addendum is the Repetitive Flood Loss information as required in the newest revision to DMA 2000. The County has an in-depth program to track repetitive flood loss properties, to monitor those properties through each flood event, and to prioritize those properties as part of the extensive flood buy-out program within Pierce County.

Mitigation Strategy Process

The Mitigation Strategy Section includes a description of mitigation goals to reduce or avoid long-term vulnerabilities to the hazards identified in the Risk Assessment. The Section identifies and analyzes a comprehensive range of specific mitigation measures to reduce the effects of each hazard. As an Addendum the Region Plan, the process used in the update the hazard mitigation strategy is as identified in the Base Plan.

With the adoption of the Region 5 Base Plan and the inclusion of the Pierce County Plan in 2009, the HMC felt it was essential to have universal goals with the Region. In the 2009 Addendum, the Pierce County Plan goals were modified to match the Region 5 Hazard Mitigation Plan. The modified goals are as stated:

- **Protect Life and Property**
- **Ensure Continuity of Operations**
- **Establish and Strengthen Partnerships for Implementation**
- **Protect the Environment**
- **Increase Public Preparedness for Disasters**
- **Promote a Sustainable Economy**

The main modification includes changing Ensure Emergency Services to Ensure Continuity of Operations. This is an important change. By focusing on Continuity of Operations rather than

just Emergency Services, the goal took on a much larger significance and provided a more appropriate fit.

Infrastructure Summary Process

The Infrastructure Section is not a required element of the local hazard mitigation plan, but is instead optional. The HMC determined that this section should be developed in order to make the plan a more comprehensive blueprint for reducing the potential losses identified in the plan's Risk Assessment.

The Infrastructure Section is exempt from public disclosure pursuant to RCW 42.56.420. Requests for public disclosure of this section or parts thereof should be referred immediately to the Pierce County Prosecuting Attorney.

Definition

The Planning Team determined that the Addendum should follow the new requirements for identifying infrastructure and not solely the "critical facility" as defined in the 2004 plan. Therefore the 2004 Critical Facility Section is now the Infrastructure Section in this 2010 Addendum. The reason behind this change is that in 2004 there was a focus on critical facilities. In the last 5 years there has been a transition to looking at the infrastructure which each entity owns and maintains. The HMC realized that the jurisdictions included in the plans can make the biggest impact in the reduction of hazard vulnerability by focusing on what they can change.

Identification

The participants in this plan were asked to identify the infrastructure they wanted added to the Mitigation Plan. A template was created for each to use in listing their infrastructure. Members of the Planning Team and facility representatives filled out the templates which in turn helped develop the hazard identification and risk information for given locations. This assessment was intended to rely on the best judgment of the representative about the facility, its environment, and its functioning.

Plan Maintenance Process

This Maintenance Section is much the same as the Region 5 Plan. The RIIA utilized three tiers for their plan: Public Education/Board of Directors, Hazard Mitigation Committee, and the Hazard Mitigation Forum. This decision was made because the Hazard Mitigation Committee has representatives from all participating partners in the plan.

The initial review of the Addendum will be through a "Pre Adoption Review" followed by Washington State EMD and FEMA. State EMD and FEMA will review the Raft Island Improvement Association Inc.'s plan and either approve it subject to adoption or require some changes along with adoption prior to final approval. Once this is complete, RIIA Inc. will then formally adopt the plan and resubmit it for final approval.

Endnotes

ⁱ The Town of Ruston was unable to generate the employee resources to complete the HMC activities and withdrew from the planning process.

ⁱⁱ Pierce County Fire Districts #25 & #26 , were unable to generate the employee resources to complete the HMC activities and withdrew from the planning process. Crystal Mountain Inc. is a for-profit entity, and thus unable to participate in the Plan development.

ⁱⁱⁱ www.co.pierce.wa.us/mitigation - Hosted by Pierce County Department of Emergency Management.

Section 3

Capability Identification Requirements

Planning Process---Requirement §201.6(b):

An open public involvement process is essential to the development of an effective plan.

Documentation of the Planning Process---Requirements §201.6(b):

In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:

(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

- Does the planning process describe the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information?

Assessing Vulnerability: Analyzing Development Trends---Requirement §201.6(c)(2) (ii)(C):

[The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.]

- Does the plan describe land uses and development trends?

Identification and Analysis of Mitigation Actions: National Flood Insurance Program (NFIP) Compliance--Requirement §201.6(c)(3)(ii):

[The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.

- Does the new or updated plan describe the jurisdiction(s) participation in the NFIP?

**REGION 5 HAZARD MITIGATION PLAN
RAFT ISLAND IMPROVEMENT ASSOCIATION
CAPABILITY IDENTIFICATION SECTION**

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Legal and Regulatory

Regulatory Tools (Ordinances and Codes)	Yes or No
Jurisdiction Capabilities	
Building Construction/Design Construction Codes	No
Flood Damage Prevention Ordinance	No
Growth Management Ordinance	No
Critical Area Ordinance	No
Hazard Setback Requirements	No
Hillside and Steep Slope Ordinance	No
Land Use and Regulatory Codes	No
Mechanical Codes	No
Plan Review Requirements	No
Plumbing Codes	No
Real Estate Disclosure Requirements	No
Storm Water Management	No
Subdivision Ordinance or Regulations (CC&R's)	Yes
Tax and License Codes	No
Wildfire Ordinance	No
Zoning Ordinance	No

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Administrative Capability

Administrative Tools (Agency, Departments or Programs)	Yes or No
Jurisdiction Capabilities	
Architectural Review Board/Historic Review	No
Board of Adjustments/Hearing Examiner	No
Building Official	No
Chamber of Commerce	No
City/Town/Association Council/Board	Yes
City/Town/Association Meetings	Yes
City/Town Planning Commission	No
City/Town/Association Website	Yes
Commercial Fire Safety/Code Inspection Program	No
Community CPR/First Aid Program	No
Community Emergency Response Teams	No
Downtown Revitalization Committee	No
Economic Development Board (county only)	No
Emergency Manager	No
Engineers (under contract)	Yes
Families First Coalition	No
Fire and Injury Prevention Program	No
Fire Chief (East Pierce)	No
Fire Safety & Disaster Classes in Schools	No
Flood Plan Manager	No
Government TV Access	No
Grant Writers	No
Home Safety Council	No
Information included in Utility Bills	No
Lahar Warning System	No
Planners	No
Planning Commission	No
Police Chief	No
Police Department	No
Public Utility	No
Public Works Department	No
Safe Streets Program	No
Safety Fairs	No
Stream Team	No
Surveyors	No

Administrative Tools (Agency, Departments or Programs)	Yes or No
Regional Capabilities	
Pierce County Business Districts	No
Pierce County Department of Emergency Management	No
Pierce County Fire Agencies plus Mutual Aid with others	Yes
Pierce County Hospitals	Yes
Pierce County Law Enforcement Agencies and Mutual Aid with others	Yes
Pierce County Neighborhood Associations	Yes
Pierce County Neighborhood Emergency Teams (NET)	No
Pierce County Newspapers	Yes
Pierce County Parks Commission/Board	No
Pierce County Power Companies	Yes
Pierce County Parent Teacher's Association	Yes
Neighboring Counties	Yes
Pierce County Department of Emergency Management	Yes
Pierce County Fire Chiefs Association	Yes
Pierce County Neighborhood Emergency Teams (PCNET)	No
Pierce County Police Chiefs Association	No
Pierce County Safe Kids Coalition	No
Pierce County Sheriffs Department	Yes
Puget Sound Clean Air Agency	Yes
Puget Sound Energy	Yes
Puget Sound Regional Council	Yes
Puget Sound Water Quality Management Plan	Yes
Service Organizations	Yes
Tacoma/Pierce County Health Department	Yes
Tribes	Yes

Technical Capability

Technical Tools (Plans and Other)	Yes or No
Jurisdiction Capabilities	
After Action Reports of Any Incident	No
Capital Improvement Plan	Yes
Comprehensive Emergency Management Plan	No
Comprehensive Plan	No
Continuity of Governmental Services and Operations Plan (COOP and COG)	No
Critical Facilities Plan	No
Drainage Master Plan	No
Economic Development Plan	No
Emergency Evacuation Plan	No
Emergency Response Plan	No
Generator Placement Plan	No
Habitat Plan	No
Hazardous Materials Response Plan	No
Lahar Evacuation Plan	No
Pandemic Flu Plan	No
Post-Disaster Recovery Plan	No
Sewer/Wastewater Comprehensive Plan	No
Storm Comprehensive Plan	No
Water Comprehensive Plan	No
Regional Capabilities	
Coordinated Water System Plan and Regional Supplement 2001	No
Local and Regional Emergency Exercises – All Types	No

Fiscal Capability

Fiscal Tools (Taxes, Bonds, Fees, and Funds)	Yes or No
<u>Jurisdiction Capabilities</u>	
TAXES:	
Authority to Levy Taxes	No
BONDS:	
Authority to Issue Bonds	No
FEES:	
Fees for Water, Sewer, Gas or Electric Service	Yes
Impact Fees for Homebuyers/Developers for New Developments/Homes	No
Local Improvement District (LID)	No
FUNDS:	
Capital Improvement Project Funds	Yes
Enterprise Funds	No
General Operating Fund	Yes
Internal Service Funds	No
Special Revenue Funds	No
Withhold Spending in Hazard-Prone Areas	No
<u>Regional Capabilities</u>	
Pierce County Land Conservancy	No
Cascade Land Conservancy	No

Specific Capabilities

Jurisdiction Specific Capabilities	Yes or No
<u>Legal & Regulatory</u>	
RIIA CC&R's	Yes
<u>Administrative & Technical</u>	
Raft Island Newsletter "The Island Insider"	Yes
www.raftisland.org	Yes
<u>Fiscal</u>	
RIIA Annual Budget	Yes
RIIA HOA Collections	Yes

DRAFT

Section 4

Risk Assessment Requirements

Identifying Hazards--- Requirement §201.6(c)(2)(i):

[The risk assessment **shall** include a] description of the type ... of all natural hazards that can affect the jurisdiction.

- Does the new or updated plan include a **description** of the types of **all natural hazards** that affect the jurisdiction?

Profiling Hazards---Requirement §201.6(c)(2)(i):

[The risk assessment **shall** include a] description of the ... location and extent of all natural hazards that can affect the jurisdiction. The plan **shall** include information on previous occurrences of hazard events and on the probability of future hazard events.

- Does the risk assessment identify (i.e., geographic area affected) of each hazard being addressed in the new or updated plan?
- Does the risk assessment identify the extent (i.e., magnitude or severity) of each hazard addressed in the new or updated plan?
- Does the plan provide information on previous occurrences of each hazard addressed in the new or updated plan?
- Does the plan include the probability of future events (i.e., chance of occurrence) for each hazard addressed in the new or updated plan?

Assessing Vulnerability: Overview---Requirement §201.6(c)(2) (ii):

[The risk assessment **shall** include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description **shall** include an overall summary of each hazard and its impact on the community.

- Does the new or updated plan include an overall summary description of the jurisdiction's vulnerability to each hazard?
- Does the new or updated plan address the impacts of each hazard on the jurisdiction?

Assessing Vulnerability: Addressing Repetitive Loss Properties---Requirement §201.6(c)(2) (ii):

[The risk assessment] **must** also address the National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged by floods.

- Does the new or updated plan describe vulnerability in terms of the types and numbers of repetitive loss properties located in the identified hazard areas?

Assessing Vulnerability: Identifying Structures---Requirement §201.6(c)(2) (ii)(A):

The plan **should** describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas...

- Does the new or updated plan describe vulnerability in terms of the types and numbers of existing buildings, infrastructure, and critical facilities located in the identified hazard areas?
- Does the new or updated plan describe vulnerability in terms of the types and numbers of future buildings, infrastructure, and critical facilities located in the identified hazard areas?

Assessing Vulnerability: Estimating Potential Losses---Requirement §201.6(c)(2) (ii)(B):

[The plan **should** describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate...

- Does the new or updated plan estimate potential dollar losses for vulnerable structures?
- Does the new or updated plan describe the methodology used to prepare the estimate?

Assessing Vulnerability: Analyzing Development Trends---Requirement §201.6(c)(2) (ii)(c):

[The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

- Does the new or updated plan describe land uses and development trends?

SECTION 4

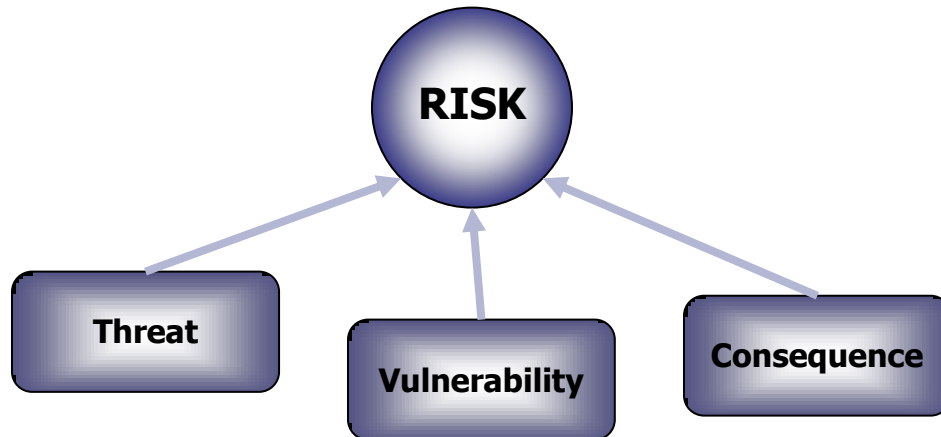
REGION 5 HAZARD MITIGATION PLAN RAFT ISLAND IMPROVEMENT ASSOCIATION RISK ASSESSMENT SECTION

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Section Overview

The Risk Assessment portrays the threats of natural hazards, the vulnerabilities of a jurisdiction to the hazards, and the consequences of hazards impacting communities. Each hazard is addressed as a threat and is identified and profiled in the Hazard Identification. The vulnerabilities to and consequences of a given hazard are addressed in the Vulnerability Analysis. Vulnerability is analyzed in terms of exposure of both population and infrastructure to each hazard. Consequences are identified as anticipated, predicted, or documented impacts caused by a given hazard when considering the vulnerability analysis and the characteristics of the hazard as outlined in its identification.



The WA Region 5 **Hazard Identification** was used for this plan. Each jurisdiction's Vulnerability and Consequence Analysis is based on the Region 5 Hazard Identification. The Region 5 Hazard Identification can be found in the Base Plan. Each hazard is identified in subsections. The subsections are grouped by hazard-type (i.e., geological and meteorological hazards) and then alphabetically within each type. A summary table of the WA Region 5 Hazard Identification is included in this section as Table 4-1a and Table 4-1b.

The **Vulnerability Analysis** is displayed in five tables:

- **Table 4-2 General Exposure**
- **Table 4-3 Population Exposure**
- **Table 4-4 General Infrastructure Exposure**
- **Table 4-5a Consequence Analysis Chart – Geological**
- **Table 4-5b Consequence Analysis Chart – Meteorological**

Each jurisdiction has its own Vulnerability Analysis, and it is included in this section.

The **Consequence Identification** is organized by Threat. Each threat page summarizes the hazard, graphically illustrates exposures from the Vulnerability Analysis, and lists corresponding Consequences. Each jurisdiction has its own Consequence Identification and it is included in this section: avalanche, earthquake, landslide, tsunami, volcanic, drought, flood, severe weather, and wildland/urban interface fire.

Specific information and analysis of a jurisdiction's owned (public) infrastructure is addressed in the Infrastructure Section of its Plan.

Table 4-1a WA Region 5 Hazard Identification Summary – Geological

	THREAT	DECLARATION # DATE/PLACE	PROBABILITY/RECURRENCE	MAPS, FIGURES AND TABLES
Geological	<u>AVALANCHE</u>	Not Applicable	Yearly in the mountainous areas of the County including Mt. Rainier National Park and the Cascades.	Slab Avalanche Areas Vulnerable to Avalanche Pierce County Avalanches of Record
	<u>EARTHQUAKE</u>	N/A--7/22/2001 Nisqually Delta N/A--6/10/2001 Satsop DR-1361-WA--2/2001 Nisqually N/A--7/2/1999 Satsop N/A--4/29/1965 Maury Island, South Puget Sound N/A--4/13/1949 South Puget Sound N/A--2/14/1946 Maury Island	Magnitude 4.3 Magnitude 5.0—Intraplate Earthquake Magnitude 6.8—Intraplate Earthquake Magnitude 5.8—Intraplate Earthquake Magnitude 6.5—Intraplate Earthquake Magnitude 7.0—Intraplate Earthquake Magnitude 6.3 40 years or less occurrence Historical Record—About every 23 years for intraplate earthquakes	Types of Earthquakes Major Faults in the Puget Sound Basin Seattle and Tacoma Fault Segments Pierce County Seismic Hazard Major Pacific Northwest Earthquakes Notable Earthquakes Felt in Pierce County Salmon Beach, Tacoma Washington following Feb 2001 Earthquake Liquefaction Niigata Japan-1964 Lateral Spreading – March 2001
	<u>LANDSLIDE</u>	DR-1159-WA--12/96-2/1997 DR-852-WA--1/1990 DR-545-WA--12/1977	Slides with minor impact (damage to 5 or less developed properties or \$1,000,000 or less damage) 10 years or less. Slides with significant impact (damage to 6 or more developed properties or \$1,000,000 or greater damage) 100 years or less.	Northeast Tacoma Landslide January 2007 Pierce County Landslide and Soil Erosion Hazard Pierce County Shoreline Slope Stability Areas Notable Landslides in Pierce County Ski Park Road – Landslide January 2003 SR-165 Bridge Along Carbon River – Landslide February 1996 Aldercrest Drive - Landslide
	<u>TSUNAMI</u>	N/A--1894 Puyallup River Delta N/A--1943 Puyallup River Delta (did not induce tsunami) N/A--1949 Tacoma Narrows	Due to the limited historic record, until further research can provide a better estimate a recurrence rate of 100 years plus or minus will be used.	Hawaii 1957 – Residents Explore Ocean Floor Before Tsunami Hawaii 1949 – Wave Overtakes a Seawall Puget Sound Fault Zone Locations, Vertical Deformation and Peak Ground Acceleration Seattle and Tacoma Faults Tsunami Inundation and Current Based on Earthquake Scenario Puget Sound Landslide Areas and Corresponding Tsunamis Puget Sound River Deltas, Tsunami Evidence and Peak Ground Acceleration Salmon Beach, Pierce County 1949 – Tsunamigenic Subaerial Landslide Puyallup River Delta – Submarine Landslides Puyallup River Delta – Submarine Landslides and Scarp Damage in Tacoma from 1894 Tsunami
	<u>VOLCANIC</u>	DR-623-WA--5/1980	The recurrence rate for either a major lahar (Case I or Case II) or a major tephra eruption is 500 to 1000 years.	Volcano Hazards Debris Flow at Tahoma Creek – July 1988 Douglas Fir Stump – Electron Lahar Deposit in Orting Landslide from Little Tahoma Peak Covering Emmons Glacier Tephra Types and Sizes Lahars, Lava Flows and Pyroclastic Hazards of Mt. Rainier Estimated Lahar Travel Times for Lahars 10 ₇ to 10 ₈ Cubic Meters in Volume Ashfall Probability from Mt. Rainier Annual Probability of 10 Centimeters or more of Tephra Accumulation in the Pacific NW Cascade Eruptions Mt. Rainier Identified Tephra, last 10,000 years Pierce County River Valley Debris Flow History

Table 4-1b WA Region 5 Hazard Identification Summary – Meteorological

HAZARD		FEMA DECLARATION # DATE/PLACE		PROBABILITY/RECURRENCE	MAPS, FIGURES AND TABLES
Meteorological	<u>CLIMATE CHANGE</u>	Not Applicable		Not Applicable	Global Temperature Change: 1850 to 2006 Recent and Projected Temperatures for the Pacific Northwest Comparison of the South Cascade Glacier: 1928 to 2003 Lower Nisqually Glacier Retreat: 1912 to 2001
	<u>DROUGHT</u>	DR-981-WA--1/1993 DR-137-WA--10/1962		50 years or less occurrence	Sequence of Drought Impacts Palmer Drought Severity Index Pierce County Watersheds % Area of Basin in Drought Conditions Since 1895 % Time in Severe to Extreme Drought: 1895-1995 % Time in Severe to Extreme Drought: 1985-1995 Notable Droughts Affecting Pierce County Columbia River Basin USDA Climate Zones – Washington State
	<u>FLOOD</u> Since 1978 3 Repetitive Loss Areas have produced 83 Claims totaling Nearly \$1.78 Millions Dollars.	DR-WA 1817--01/2009 NA-11/2008 DR-1734-WA--12/2007 DR-1671-WA--11/2006 DR-1499-WA--10/2003 DR-1159-WA--12/96-2/1997 DR-1100-WA--1-2/1996 DR-1079-WA--11-12/1995 DR-896-WA--12/1990 DR-883-WA--11/1990	DR-852-WA--1/1990 DR-784-WA--11/1986 DR-545-WA--12/1977 DR-492-WA--12/1975 DR-328-WA--2/1972 DR-185-WA--12/1964	5 years or less occurrence Best Available Science--The frequency of the repetitive loss claims indicates there is approximately a 33 percent chance of flooding occurring each year.	Pierce County Watersheds Pierce County Flood Hazard Pierce County Repetitive Loss Areas Clear Creek Basin Repetitive Flood Loss Aerial Photo Flood Hazard Declared Disasters February 1996 Flooding – Del Rio Mobile Homes Along Puyallup River Nov 2006 Flooding River Park Estates – Along Puyallup River Nov 2006 Flooding State Route 410 – Along Puyallup River Nov 2006 Flooding Rainier Manor – Along Puyallup River
	<u>SEVERE WEATHER</u>	DR-1825- WA – 12/2008 DR-1682-WA--12/2006 DR-1671-WA--11/2006 DR-1159-WA--12/96-2/1997 DR-1152-WA--11/19/1996	DR-981-WA--1/1993 DR-137-WA--10/1962	The recurrence rate for all types of severe storms is 5 years or less.	Fujita Tornado Damage Scale Windstorm Tracks Pierce County Severe Weather Wind Hazard – South Wind Event Pierce County Severe Weather Wind Hazard – East Wind Event Notable Severe Weather in Pierce County Snowstorm 01/2004 Downtown Tacoma Satellite Image – Hanukkah Eve Windstorm Before/After Tornado Damage Greensburg KS May 2007 Public Works Responds 2005 Snowstorm Downed Power Pole February 2006 Windstorm County Road December 2006 Windstorm Tacoma Narrows Bridge – November 1940 Windstorm
	<u>WUI FIRE</u>	Not Applicable		Based on information from WA DNR the probability of recurrence for WUI fire hazard to Pierce County is 5 years or less.	Washington State Fire Hazard Map Pierce County Forest Canopy Industrial Fire Precaution Level Shutdown Zones Carbon Copy Fire August 2006 Washington State DNR Wildland Fire Statistics: 1973-2007 DNR Wildland Response South Puget Sound Region: 2002-2007 Pierce County DNR Fires

Map 4-1 Raft Island Improvement Association – Flood Hazard Map

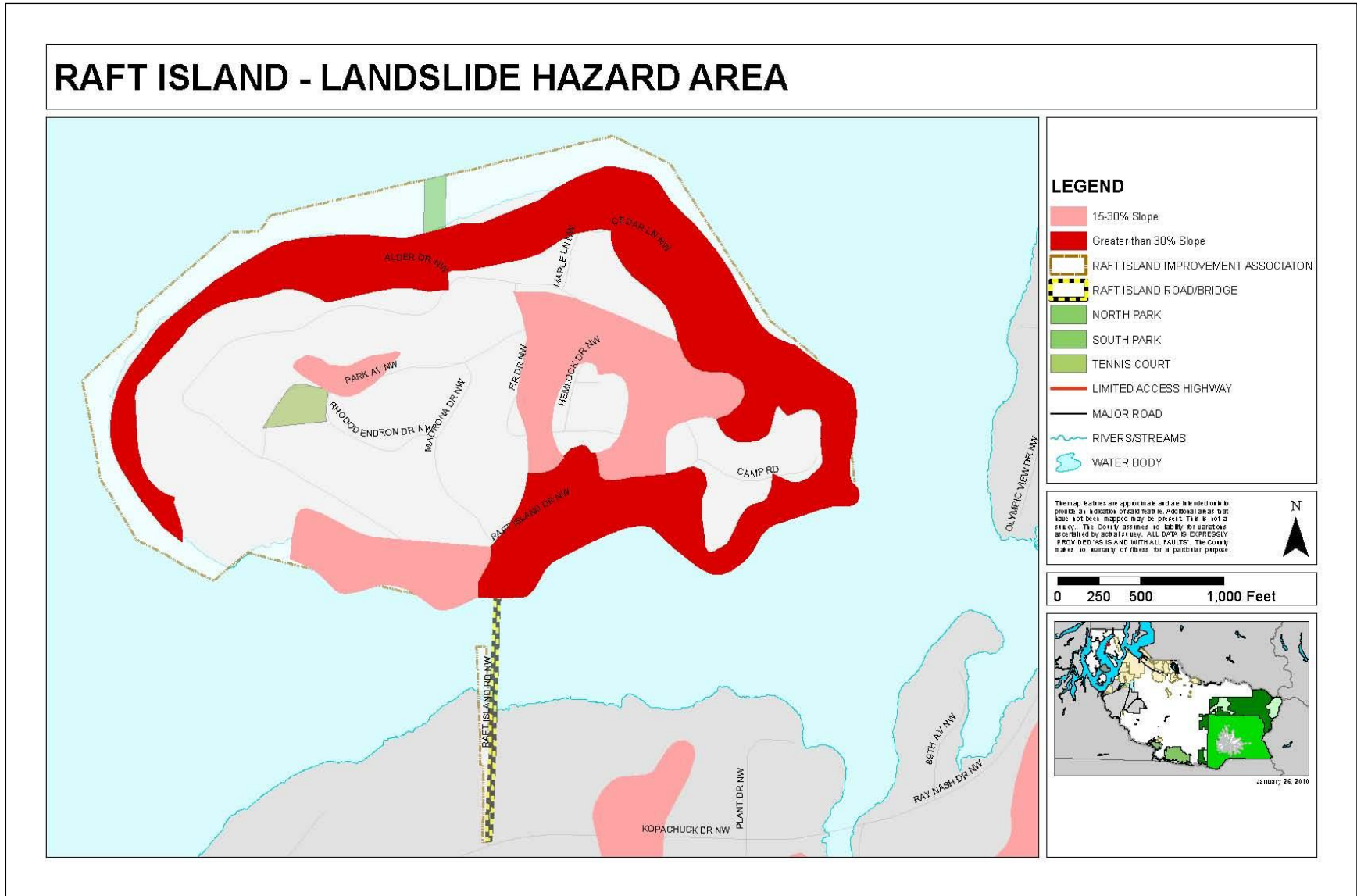
RAFT ISLAND - FLOOD HAZARD AREA



RAFT ISLAND - LAHAR HAZARD AREA



Map 4-3 Raft Island Improvement Association –Landslide Hazard Map



Map 4-4 Raft Island Improvement Association – Seismic Hazard Map

RAFT ISLAND - SEISMIC HAZARD AREA

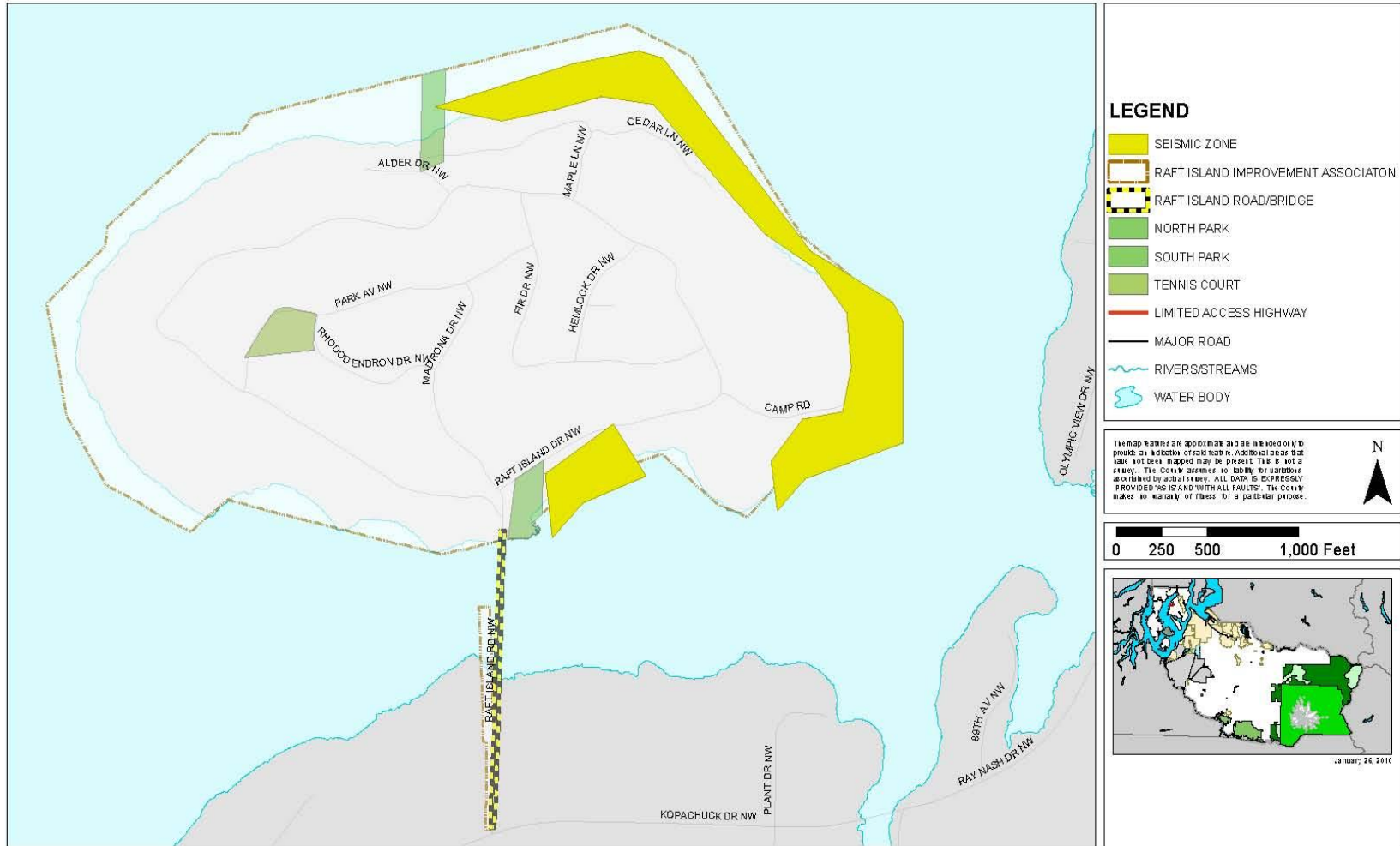


Table 4-2 Vulnerability Analysis: General Exposure¹

THREAT ²		AREA (SQ MI)		PARCELS	
		Total	% Base	Total	% Base
BASE		.22	100%	234	100%
<i>Geological</i>	Avalanche³	N/A	N/A	N/A	N/A
	Earthquake⁴	.04	18%	37	16%
	Landslide	.17	77%	164	70%
	Tsunami	N/A	N/A	N/A	N/A
	Volcanic⁵	N/A	N/A	N/A	N/A
<i>Meteorological</i>	Drought⁶	.22	100%	234	100%
	Flood	.11	50%	102	44%
	Severe Weather	.22	100%	234	100%
	WUI Fire	N/A	N/A	N/A	N/A

Table 4-3 Vulnerability Analysis: Population Exposure

THREAT ²		POPULATION			SPECIAL POPULATIONS (OF TOTAL EXPOSED POPULATION)			
		Total	% Base	Density (pop/sq mi)	65+ yrs		18- yrs	
					#	%	#	%
BASE		489	100%	2,205	55	100%	127	100%
<i>Geological</i>	Avalanche	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Earthquake	102	21%	2,299	15	15%	11	11%
	Landslide	489	100%	2,948	55	11%	127	26%
	Tsunami	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Volcanic	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<i>Meteorological</i>	Drought	489	100%	2,205	55	100%	127	100%
	Flood	489	100%	4,422	55	15%	127	26%
	Severe Weather	489	100%	2,205	55	100%	127	100%
	WUI Fire	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-4 Vulnerability Analysis: General Infrastructure Exposure

THREAT ²		LAND VALUE			IMPROVED VALUE			TOTAL ASSESSED VALUE		
		Total (\$)	% Base	Avg. Value (\$)	Total (\$)	% Base	Avg. Value (\$)	Total (\$)	% Base	Avg. Value (\$)
BASE		\$79,983,800	100%	\$341,811	\$46,179,300	100%	\$197,347	\$126,163,100	100%	\$539,159
<i>Geological</i>	Avalanche	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Earthquake	\$23,014,400	29%	\$622,102	\$8,675,400	19%	\$234,470	\$31,690,800	25%	\$856,481
	Landslide	\$66,691,700	83%	\$406,657	\$34,814,400	84%	\$212,283	\$101,506,100	80%	\$618,940
	Tsunami	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Volcanic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<i>Meteorological</i>	Drought	\$79,983,800	100%	\$341,811	\$46,179,300	100%	\$197,347	\$126,163,100	100%	\$539,159
	Flood	\$57,681,900	72%	\$565,509	\$25,093,200	54%	\$246,012	\$82,775,100	67%	\$811,521
	Severe Weather	\$79,983,800	100%	\$341,811	\$46,179,300	100%	\$197,347	\$126,163,100	100%	\$539,159
	WUI Fire	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-5a Consequence Analysis Chart – Geological^{7,8}

THREAT²		CONSEQUENCE	YES OR NO
<i>Geological</i>	Avalanche	Impact to the Public	No
		Impact to the Responders	No
		Impact to COG and/or COOP in the Jurisdiction	No
		Impact to Property, Facilities and Infrastructure	No
		Impact to the Environment	No
		Impact to the Jurisdiction Economic Condition	No
	Impact to Reputation or Confidence in Jurisdiction	No	
	Earthquake	Impact to the Public	Yes
		Impact to the Responders	Yes
		Impact to COG and/or COOP in the Jurisdiction	Yes
		Impact to Property, Facilities and Infrastructure	Yes
		Impact to the Environment	Yes
		Impact to the Jurisdiction Economic Condition	Yes
	Impact to Reputation or Confidence in Jurisdiction	Yes	
	Landslide	Impact to the Public	Yes
		Impact to the Responders	No
		Impact to COG and/or COOP in the Jurisdiction	No
		Impact to Property, Facilities and Infrastructure	Yes
		Impact to the Environment	Yes
		Impact to the Jurisdiction Economic Condition	No
	Impact to Reputation or Confidence in Jurisdiction	No	
	Tsunami	Impact to the Public	No
		Impact to the Responders	No
		Impact to COG and/or COOP in the Jurisdiction	No
		Impact to Property, Facilities and Infrastructure	No
		Impact to the Environment	No
		Impact to the Jurisdiction Economic Condition	No
	Impact to Reputation or Confidence in Jurisdiction	No	
Volcanic⁹	Impact to the Public	Yes	
	Impact to the Responders	Yes	
	Impact to COG and/or COOP in the Jurisdiction	No	
	Impact to Property, Facilities and Infrastructure	Yes	
	Impact to the Environment	Yes	
	Impact to the Jurisdiction Economic Condition	No	
Impact to Reputation or Confidence in Jurisdiction	No		

Table 4-5b Consequence Analysis Chart – Meteorological

THREAT		CONSEQUENCE	YES OR NO
<i>Meteorological</i>	Drought	Impact to the Public	Yes
		Impact to the Responders	No
		Impact to COG and/or COOP in the Jurisdiction	No
		Impact to Property, Facilities and Infrastructure	No
		Impact to the Environment	Yes
		Impact to the Jurisdiction Economic Condition	Yes
		Impact to Reputation or Confidence in Jurisdiction	No
	Flood	Impact to the Public	Yes
		Impact to the Responders	No
		Impact to COG and/or COOP in the Jurisdiction	No
		Impact to Property, Facilities and Infrastructure	Yes
		Impact to the Environment	Yes
		Impact to the Jurisdiction Economic Condition	No
		Impact to Reputation or Confidence in Jurisdiction	No
	Severe Weather	Impact to the Public	Yes
		Impact to the Responders	Yes
		Impact to COG and/or COOP in the Jurisdiction	Yes
		Impact to Property, Facilities and Infrastructure	Yes
		Impact to the Environment	Yes
		Impact to the Jurisdiction Economic Condition	Yes
		Impact to Reputation or Confidence in Jurisdiction	Yes
	WUI Fire	Impact to the Public	Yes
		Impact to the Responders	Yes
		Impact to COG and/or COOP in the Jurisdiction	No
Impact to Property, Facilities and Infrastructure		Yes	
Impact to the Environment		Yes	
Impact to the Jurisdiction Economic Condition		Yes	
Impact to Reputation or Confidence in Jurisdiction		Yes	

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Endnotes

¹ Data is derived from Pierce County GIS CountyView Pro 12/09.

² Currently the expanding body of empirical data on climate change supports its basic premise that the long term average temperature of the earth's atmosphere has been increasing for decades (*1850 to 2008*). This trend is continuing and will create dramatic changes in the local environment of Pierce County. Today, questions revolve around the overall increase in local temperature and its long term effects. Climate change today refers to variations in either regional or global environments over time. Time can refer to periods ranging in length from a few decades to other periods covering millions of years. A number of circumstances can cause climate change. Included herein are such diverse factors as solar cycles, volcanic eruptions, changing ocean current patterns, or even something as unusual as a methane release from the ocean floor. Over the past 150 years good temperature records have allowed comparisons to be made of global temperatures from year-to-year. This has shown an overall increase of approximately 0.7° C during this period. An increasing body of scientific evidence implies that the primary impetus driving climate change today is an increase in atmospheric green house gases.

³ Jurisdiction is not vulnerable to this hazard, therefore it is marked NA or non-applicable.

⁴ It should be noted here that although all residents, all property and all infrastructure of Raft Island are vulnerable to earthquake shaking, not all are subject to the affects of liquefaction and liquefiable soils which is what is represented here.

⁵ The threat of volcanic ash fall affects the entire Region 5, however some jurisdictions are specifically threatened by lahar flows directly from Mt. Rainier; an active volcano.

⁶ The entire jurisdiction is vulnerable to drought. There are three things that must be understood about the affect of drought on the jurisdiction: 1) Drought is a Region wide event. When it does affect Pierce County, it will affect every jurisdiction, 2) Drought will gradually develop over time. It is a gradually escalating emergency that may take from months to years to affect the jurisdiction. Initially lack of water may not even be noticed by the citizens. However, as the drought continues, its effects will be noticed by a continually expanding portion of the community until it is felt by all, and 3) Jurisdictions will be affected differently at different times as a drought develops. This will vary depending on the needs of the each local jurisdiction. Some examples are: jurisdictions that have industry that requires a continuous supply of a large quantity of water; others have agriculture that requires water, but may only require it at certain times of the year; and, some jurisdictions have a backup source of water while others do not.

⁷ In the Impact to Property, Facilities and Infrastructure, both Tables 4-5a and 4-5b, look at the impact to all property, facilities and infrastructure existing in the jurisdiction, not just to that owned by the jurisdiction.

⁸ The consideration for each of these hazards, in both Tables 4-5a and 4-5b, as to whether an individual hazard's consequences exist, or not, is based on a possible worst case scenario. It must also be understood that a "yes" means that there is a good possibility that the consequence it refers to could happen as a result of the hazard, not that it will. Conversely "No" means that it is highly unlikely that that consequence will have a major impact, not that there will be no impact at all.

⁹ While the major volcanic hazard from Mt. Rainier is from a lahar descending the main river valleys surrounding the mountain, it is not the only problem. Most jurisdictions could receive tephra in greater or lesser amounts, sometimes with damaging results. Consequence analyses in this section take into account the possibility of tephra deposition in addition to a lahar.

Section 5

Mitigation Strategy Requirements

Mitigation Strategy---Requirement §201.6(c)(3):

The plan **shall** include a strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

Local Hazard Mitigation Goals---Requirement §201.6(c)(3)(i):

[The hazard mitigation strategy **shall** include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

- Does the new or updated plan include a description of mitigation **goals** to reduce or avoid long-term vulnerabilities to the identified hazards?

Identification and Analysis of Mitigation Actions---Requirement §201.6(c)(3) (ii):

[The mitigation strategy **shall** include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

Identification and Analysis of Mitigation Actions: National Flood Insurance Program (NFIP) Compliance--Requirement §201.6(c)(3)(ii):

[The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.

- Does the new or updated plan identify and analyze a **comprehensive range** of specific mitigation actions and projects for each hazard?
- Do the identified actions and projects address reducing the effects of hazards on **new** buildings and infrastructure?
- Do the identified actions and projects address reducing the effects of hazards on **existing** buildings and infrastructure?
- Does the new or updated plan describe the jurisdiction(s) participation in the NFIP?
- Does the mitigation strategy identify, analyze and prioritize actions related to continued compliance with the NFIP?

Implementation of Mitigation Actions---Requirement: §201.6(c)(3) (iii):

[The mitigation strategy section **shall** include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization **shall** include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

- Does the new or updated mitigation strategy include how the actions are **prioritized**? (For example, is there a discussion of the process and criteria used?)
- Does the new or updated mitigation strategy address how the actions will be **implemented and administered**, including the responsible department, existing and potential resources and the timeframe to complete each action?
- Does the new or updated prioritization process include an emphasis on the use of **cost-benefit review** to maximize benefits?
- Does the updated plan identify the completed, deleted or deferred mitigation actions as a benchmark for progress, and if activities are unchanged (i.e., deferred), does the updated plan describe why no changes occurred?

SECTION 5

**REGION 5 HAZARD MITIGATION PLAN
RAFT ISLAND IMPROVEMENT ASSOCIATION
MITIGATION STRATEGY SECTION**

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Table 5-1 Raft Island Improvement Association: Mitigation Strategy Matrix

Mitigation Measure ¹	Lead Jurisdiction(s) / Department(s)	Timeline (years)	Plan Goals Addressed					
			LIFE AND PROPERTY	CONTINUITY OF OPERATIONS	PARTNERSHIPS	NATURAL RESOURCES	PREPAREDNESS	SUSTAINABLE ECONOMY
1. RIIA Bridge – Seismic Retrofit	RIIA Board of Directors	1-5	X	X	X		X	
2. Develop Alternatives for Mainland Access	RIIA Board of Directors	1-5	X	X	X		X	
3. Initiate Partnerships with PC-Net and CERT	RIIA Board of Directors	1-5	X	X	X		X	
4. Provide Public Education Guides on Preparedness	RIIA Board of Directors	1-5	X	X	X		X	
5. Populate Neighborhood Emergency Preparedness Teams	RIIA Board of Directors	1-5	X	X	X		X	
6. Develop a Neighborhood Emergency Preparedness Committee	RIIA Board of Directors	1-5	X	X	X		X	
7. Develop a Neighborhood Emergency Plan for RIIA	RIIA Board of Directors	1-5	X	X	X		X	

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Mitigation Strategies

Seismic Retrofit of Raft Island Bridge

Hazards: E

Description: The Raft Island Bridge represents the sole access and egress to the Island for residents and for emergency response vehicles. RIIA will undertake the reconstruction/retrofit of the mainland bridge to current earthquake standards.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; and Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** TBD
3. **Funding Source and Situation** = Funding will be obtained through local, state and federal budgets and grants.
4. **Lead Jurisdiction** = RIIA Board of Directors
5. **Timeline**= Underway and On-going over 1-5 years
6. **Benefit** = Entire Raft Island and its 500+ residents directly and all visitors indirectly.
7. **Life of Measure** = 75 years
8. **Community Reaction** = The proposal is likely to be endorsed by the entire community.

Develop Alternatives for Mainland Access

Hazards: E

Description: RIIA will develop mainland access transportation alternatives which can be utilized during an emergency, and publish those alternatives on their RIIA website.² This strategy will ensure uninterrupted Emergency Services (access to mainland), and increase public awareness and preparation for emergencies.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; and Establish and Strengthen Partnerships for Implementation, Increase Public Preparedness for Disasters.
2. **Cost of Measure** TBD
3. **Funding Source and Situation** = Funding will be obtained through local budgets and grants.
4. **Lead Jurisdiction** = RIIA Board of Directors
5. **Timeline**= Underway and On-going over 1-5 years
6. **Benefit** = Entire Raft Island and its 500+ residents directly and indirectly all associated schools, employers, etc
7. **Life of Measure** = Perpetual
8. **Community Reaction** = The proposal is likely to be endorsed by the entire community.

Develop a Neighborhood Emergency Plan for RIIA

Hazards: E, Ls, L, SW, WUI, Ts

Description: RIIA will develop a neighborhood emergency plan which can be utilized during an emergency, and make the plan available to all RIIA members on its website.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; and Establish and Strengthen Partnerships for Implementation, Increase Public Preparedness for Disasters.
2. **Cost of Measure** TBD
3. **Funding Source and Situation** = Funding will be obtained through local budgets and grants.
4. **Lead Jurisdiction** = RIIA Board of Directors working with PC Dept of Emergency Management
5. **Timeline**= Underway and On-going over 1-5 years
6. **Benefit** = Entire Raft Island and its 500+ residents directly and indirectly all associated Pierce County schools, employers, visitors etc.
7. **Life of Measure** = Perpetual
8. **Community Reaction** = The proposal is likely to be endorsed by the entire community.

Develop a Neighborhood Emergency Preparedness Committee

Hazards: E, Ls, L, Ts, SW, WUI

Description: RIIA will develop a Neighborhood Emergency Committee which will coordinate Emergency Plan development and educational programs which will be available to all RIIA members on its website.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; and Establish and Strengthen Partnerships for Implementation, Increase Public Preparedness for Disasters.
2. **Cost of Measure** TBD
3. **Funding Source and Situation** = Funding will be obtained through local budgets and grants.
4. **Lead Jurisdiction** = RIIA Board of Directors working with PC Dept of Emergency Management
5. **Timeline**= Underway and On-going over 1-5 years
6. **Benefit** = Entire Raft Island and its 500+ residents directly and indirectly all associated Pierce County schools, employers, visitors etc.
7. **Life of Measure** = Perpetual
8. **Community Reaction** = The proposal is likely to be endorsed by the entire community.

Provide Public Education Guides on Preparedness

Hazards: E, Ls, L, Ts, SW, WUI

Description: RIIA will coordinate the education of its members by dispensing “Preparedness Guidebooks” in conjunction with Pierce County “PC-Net” programs. RIIA will dispense the guidebooks to all residents to increase awareness and preparation for emergencies.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; and Establish and Strengthen Partnerships for Implementation, Increase Public Preparedness for Disasters.
2. **Cost of Measure** TBD
3. **Funding Source and Situation** = Funding will be obtained through local budgets and grants.
4. **Lead Jurisdiction** = RIIA Board of Directors working with PC Dept of Emergency Management
5. **Timeline**= Underway and On-going over 1-5 years
6. **Benefit** = Entire Raft Island and its 500+ residents directly and indirectly all associated Pierce County schools, employers, visitors etc.
7. **Life of Measure** = Perpetual
8. **Community Reaction** = The proposal is likely to be endorsed by the entire community.

Initiate Partnerships with PC-Net and CERT

Hazards: E, Ls, L, Ts, SW, WUI

Description: RIIA will organize its neighborhoods in emergency planning by working with Pierce County PC –Net and the Community Emergency Response Teams (CERT) to educate its members as to how they can protect themselves and their neighbors.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; and Establish and Strengthen Partnerships for Implementation, Increase Public Preparedness for Disasters.
2. **Cost of Measure** TBD
3. **Funding Source and Situation** = Funding will be obtained through local budgets and grants.
4. **Lead Jurisdiction** = RIIA Board of Directors working with PC Dept of Emergency Management
5. **Timeline**= Underway and On-going over 1-5 years
6. **Benefit** = Entire Raft Island and its 500+ residents directly and indirectly all associated Pierce County schools, employers, visitors etc.
7. **Life of Measure** = Perpetual
8. **Community Reaction** = The proposal is likely to be endorsed by the entire community.

Populate Neighborhood Emergency Preparedness Teams

Hazards: E, Ls, L, Ts, SW, WUI

Description: RIIA will coordinate with Pierce County PC –Net employees to appoint block captains and teams to implement emergency preparedness practices within their specific neighborhoods.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; and Establish and Strengthen Partnerships for Implementation, Increase Public Preparedness for Disasters.
2. **Cost of Measure** TBD
3. **Funding Source and Situation** = Funding will be obtained through local budgets and grants.
4. **Lead Jurisdiction** = RIIA Board of Directors working with PC Dept of Emergency Management
5. **Timeline**= Underway and On-going over 1-5 years
6. **Benefit** = Entire Raft Island and its 500+ residents directly and indirectly all associated Pierce County schools, employers, visitors etc.
7. **Life of Measure** = Perpetual
8. **Community Reaction** = The proposal is likely to be endorsed by the entire community.

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ENDNOTES

¹ Hazard Codes:

Where necessary, the specific hazards addressed are noted as follows:

A:	Avalanche
E:	Earthquake
F:	Flood
D:	Drought
T:	Tsunami
V(l or t):	Volcanic (lahar or tephra-specific)
SW:	Severe Storm (wind-specific)
L:	Landslide
WUI:	Wildland/Urban Interface Fire
MM:	Man-made to include terrorism
All:	All hazards, including some man-made. Where only natural hazards are addressed, it is noted.

¹ While this Plan is strictly a *Natural* hazard mitigation plan, where a measure stems from a facility recommendation (Infrastructure Section) that deals specifically with terrorism, the mitigation strategy will use that analysis. Other measures, such as those that deal with multi-hazard community preparedness or recovery planning, mitigate man-made hazards and are noted as such. It is not the intent of this notation to imply that all measures were analyzed with regard to man-made hazards or that measures were identified with that in mind. Rather, the notation merely illustrates the potential on this template for the inclusion of man-made hazard analysis.

² <http://www.raftisland.org/>

Section 6

Infrastructure Requirements

Assessing Vulnerability: Identifying Structures---Requirement §201.6(c)(2) (ii)(A):

The plan **should** describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.

- Does the new or updated plan describe vulnerability in terms of the **types and numbers** of **existing** buildings, infrastructure, and critical facilities located in the identified hazard areas?
- Does the new or updated plan describe vulnerability in terms of the **types and numbers** of **future** buildings, infrastructure, and critical facilities located in the identified hazard areas?

Assessing Vulnerability: Estimating Potential Losses---Requirement §201.6(c)(2) (ii)(B):

The plan **should** describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate.

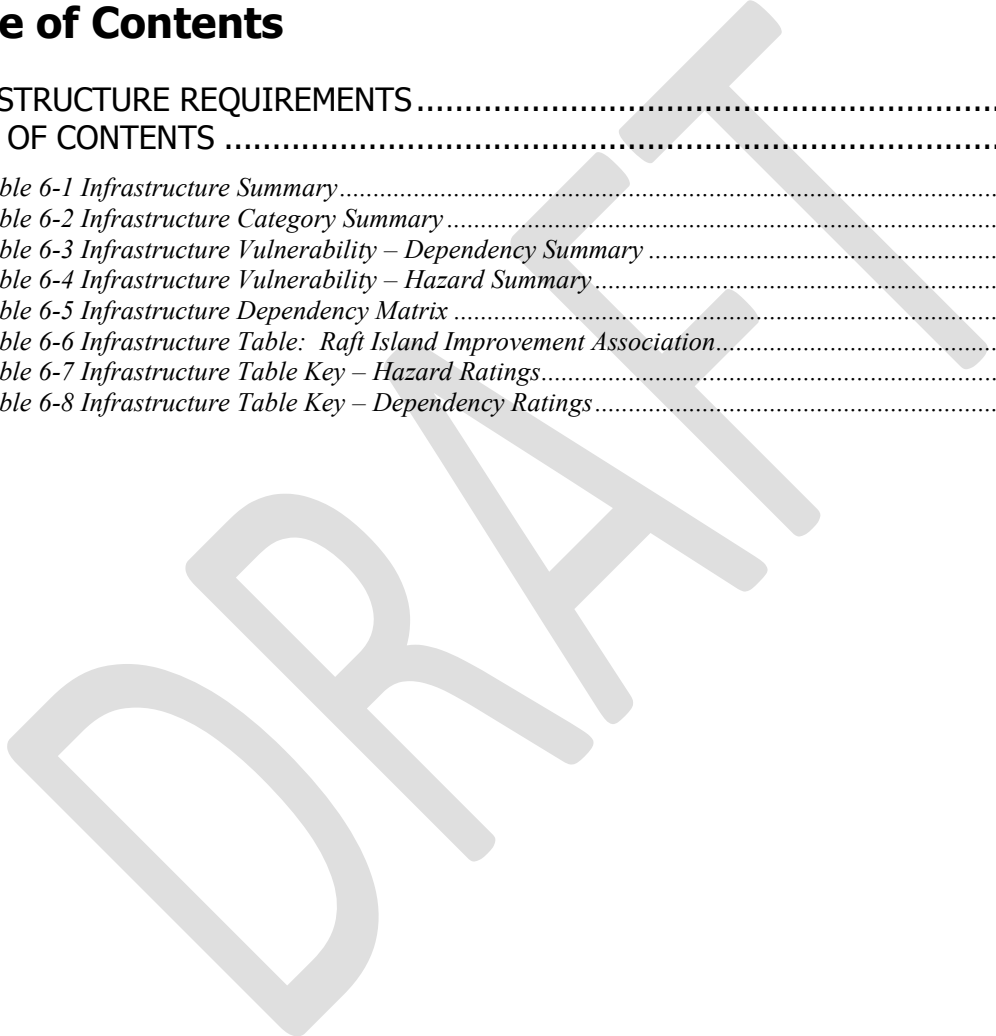
- Does the new or updated plan estimate **potential dollar losses** to vulnerable structures?
- Does the new or updated plan describe the **methodology** used to prepare the estimate?

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**REGION 5 HAZARD MITIGATION PLAN
RAFT ISLAND IMPROVEMENT ASSOCIATION
INFRASTRUCTURE SECTION**

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The **Infrastructure** for the **Raft Island Improvement Association** is displayed in following tables and graphics:

- **Table 6-1 Infrastructure Summary**
- **Table 6-2 Infrastructure Category Summary**
- **Table 6-3 Infrastructure Vulnerability – Dependency Summary**
- **Table 6-4 Infrastructure Vulnerability – Hazard Summary**
- **Table 6-5 Infrastructure Dependency Matrix**
- **Table 6-6 Infrastructure Table**

The tables and graphics show the overview of infrastructure owned by the Raft Island Improvement Association. The infrastructure is categorized according to the infrastructure sectors as designated by the Department of Homeland Security. These tables are intended as a summary only. For further details on Department of Homeland Security infrastructure sectors, please see the Process Section 1.

Table 6-1 Infrastructure Summary

INFRASTRUCTURE SUMMARY¹	
TOTAL INFRASTRUCTURE (#)	7
TOTAL VALUE (\$)	\$6,300,000

Table 6-2 Infrastructure Category Summary

INFRASTRUCTURE CATEGORY SUMMARY²	
EMERGENCY SERVICES	0
TELECOMMUNICATIONS	0
TRANSPORTATION	2
WATER	0
ENERGY	0
GOVERNMENT	0
COMMERCIAL	5

Table 6-3 Infrastructure Vulnerability – Dependency Summary

DEPENDENCE	# DEPENDENT ON SERVICE	%
RELIANCE ON EMERGENCY SERVICES	2 of 7	29%
RELIANCE ON POWER	0 of 7	0
RELIANCE ON SEWER	0 of 7	0
RELIANCE ON TELECOMMUNICATION	0 of 7	0
RELIANCE ON TRANSPORTATION	2 of 7	29%
RELIANCE ON WATER	0 of 7	0

Table 6-4 Infrastructure Vulnerability – Hazard Summary

HAZARD	# IN HAZARD ZONE	%
AVALANCHE	0 of 7	0
DROUGHT	0 of 7	0
EARTHQUAKE	4 of 7	57%
WILDLAND/URBAN FIRE	2 of 7	29%
FLOOD	0 of 7	0
LANDSLIDE	3 of 7	43%
TSUNAMI	4 of 7	57%
VOLCANIC	5 of 7	71%
WEATHER	6 of 7	86%

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Table 6-5 Infrastructure Dependency Matrix

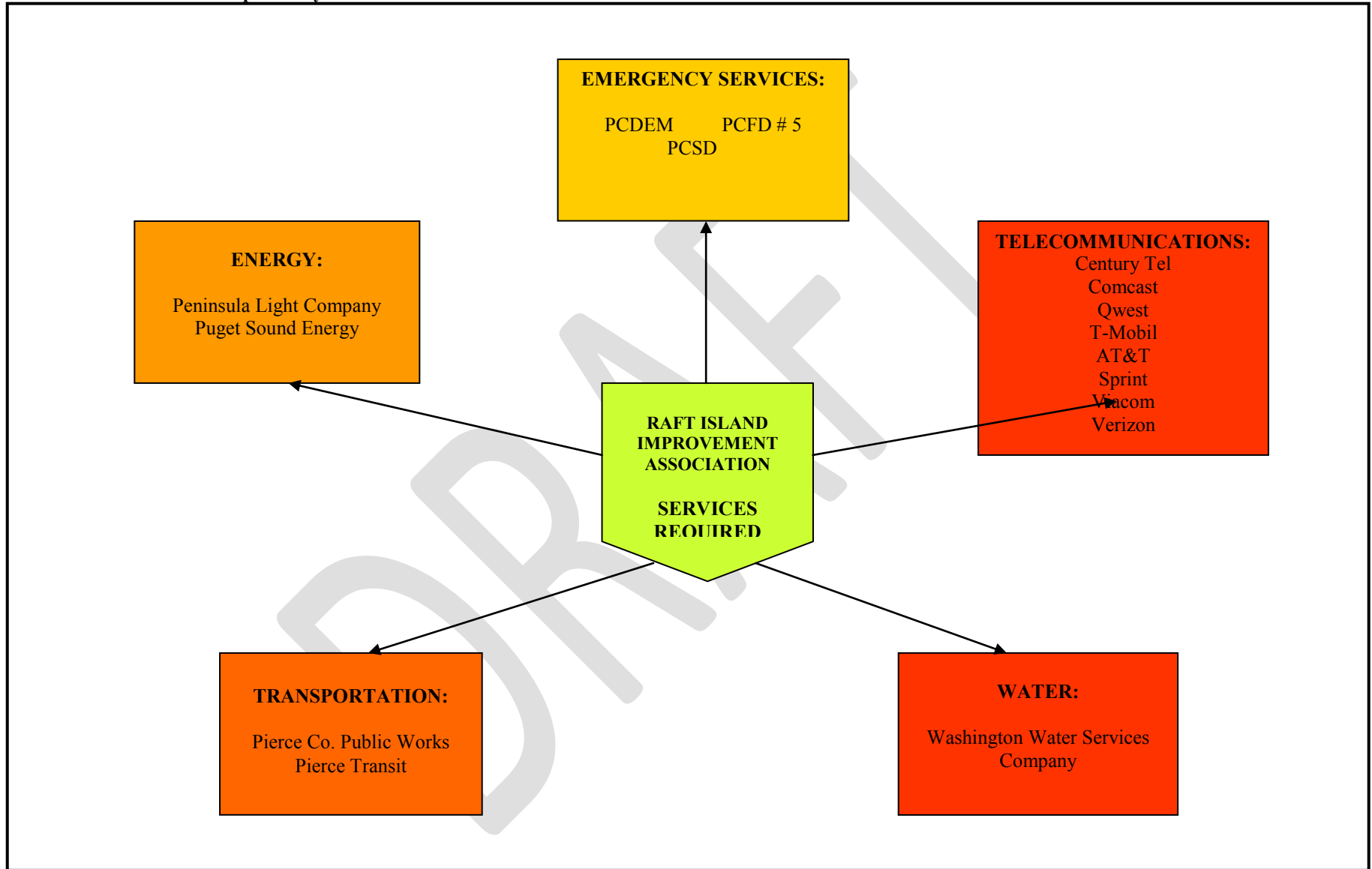


Table 6-6 Infrastructure Table: Raft Island Improvement Association

Facility or System ³	Year ⁴ Built	Major Remodels, Upgrades or additions ⁵	Insured or Assessed Value	AVALA	DROUT	EQUAKE	FIRE	FLOOD	LANDS	TSUNAMI	VOLCAN	WEATHR	EMERG	POWER	SEWER	TELECOM	TRANSP	WATER
Raft Island Bridge & Approach (C,4,16)	1958	On-going	\$3,700,000	0	0	2	1	0	1	1	1	1	3	0	0	0	3	0
Raft Island Roads (C,16)	1958	On-going	\$700,000	0	0	2	0	0	3	0	1	1	3	0	0	0	3	0
South Beach Park (4)	1958	NA	\$300,000	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0
South Beach Dock, Ramp and Float (4)	1962	NA	\$300,000	0	0	2	1	0	0	1	1	1	0	0	0	0	0	0
North Beach Stairs/Picnic Area (4)	1958	1995	\$600,000	0	0	2	0	0	1	1	1	1	0	0	0	0	0	0
Boat Launch (4)	1962	2008	\$500,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tennis Court (4)	1962	2000	\$200,000	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0

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Table 6-7 Infrastructure Table Key – Hazard Ratings

HAZARD CATEGORY	RATING	SELECTION FACTOR OR DESCRIPTION
Avalanche	0	The infrastructure is not located in a known avalanche prone area.
	1	The infrastructure is in an avalanche prone area but has no prior history of avalanche damage.
	2	The infrastructure is in an avalanche prone area and has experienced some limited avalanche damage in the past.
	3	The infrastructure is in an avalanche prone area and has experienced significant avalanche damage.
Drought	0	The infrastructure would not suffer any damage or operational disruption from a drought.
	1	The infrastructure could suffer some damage or minor operational disruption from a drought.
	2	The infrastructure has suffered damages or significant operational disruption from past droughts.
	3	The infrastructure has suffered damages or significant operational disruption from past droughts which has had serious community economic or health consequences.
Flood	0	The infrastructure is not located in a known flood plain or flood prone area.
	1	The infrastructure is in a flood plain or flood prone area but has no prior history of flood damage.
	2	The infrastructure is in a flood plain or flood prone area and has experienced some flood damage in the past.
	3	The infrastructure is in a flood plain or flood prone area and has experienced significant flood damage, or the property is an NFIP repetitive loss property.
Earthquake	0	The infrastructure is not located in an area considered to have any significant risk of earthquake
	1	The infrastructure is in an area considered at risk to earthquakes but has no prior history of earthquake damage.
	2	The infrastructure is in an area considered at risk to earthquakes, is located on soft soils, and has no history of damage OR in an area considered as at risk to earthquakes and has experienced some limited earthquake damage.
	3	The infrastructure is in an area considered at risk to earthquakes, is located on soft soils and experienced significant earthquake damage.
Landslide	0	The infrastructure is not located in a known area considered vulnerable to landslides.
	1	The infrastructure is in an area vulnerable to landslides but has no prior history of landslides.
	2	The infrastructure is in area vulnerable to landslides area and infrastructure has experienced some landslide damage.
	3	The infrastructure is in area vulnerable to landslides and infrastructure has experienced significant landslide damage.
Major U/I Fire	0	The infrastructure meets the current fire code, has adequate separation from other structures and good access, and is not close to heavily vegetated areas.
	1	The infrastructure meets the current fire code, is not close to heavily vegetated areas, but access and/or separation from nearby structures increase fire risk.
	2	The infrastructure does not meet current fire code, is in or adjacent to large vegetated areas, and has inadequate access and/or separation from other structures.

HAZARD CATEGORY	RATING	SELECTION FACTOR OR DESCRIPTION
	3	The infrastructure does not meet the current fire code, is in or adjacent to vegetated areas, with access limitations or structure separation making fire suppression difficult.
Severe Weather	0	The infrastructure would not suffer any damage or operational disruption from severe weather.
	1	The infrastructure could suffer some damage or minor operational disruption from severe weather.
	2	The infrastructure has suffered damages or significant operational disruption from past severe weather.
	3	The infrastructure has suffered damages or significant operational disruption from past severe weather which has had serious community economic or health consequences.
Tsunami/or Seiche	0	The infrastructure is not located in or near a known area considered to be a tsunami or seiche inundation area.
	1	The infrastructure is located at the edge of a designated tsunami or seiche risk zone.
	2	The infrastructure is located just inside a designated tsunami or seiche risk zone, but has no prior damage.
	3	The infrastructure is located well inside a designated tsunami or seiche risk zone, and/or has experienced prior tsunami or seiche damage.
Volcanic	0	The infrastructure is not located in or near a known area with significant risk from volcanic hazards.
	1	The infrastructure is in or near an area that could receive some ashfall, but has no structural features, equipment or operations considered vulnerable to ash.
	2	The infrastructure is in or near an area where heavy ashfall or a debris flow could occur.
	3	The infrastructure is in an area known to have experienced heavy ashfall, debris flow or blast effects from past volcanic activity.

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Table 6-8 Infrastructure Table Key – Dependency Ratings

EXTERNAL DEPENDENCY CATEGORY	RATING	SELECTION FACTOR OR DESCRIPTION
Emergency Services	0	The infrastructure can maintain essential functions without emergency services.
	0	The infrastructure has ability to independently provide emergency services to all essential functions of infrastructure.
	1	The infrastructure would have to <u>curtail</u> operations somewhat without emergency services with <u>no</u> direct economic/environmental/safety/health consequences.
	2	The infrastructure would have to <u>curtail</u> operations somewhat without emergency services with <u>some</u> direct economic/environmental/safety/health consequences OR <u>stop</u> operations with <u>no</u> direct economic/environmental/safety/health consequences.
	3	The infrastructure would have to <u>stop</u> its operations without emergency services and <u>significant</u> economic/environmental/safety/health consequences will occur.
Power Outage	0	The infrastructure can maintain essential functions without electricity or gas supply.
	0	Infrastructure has ability to independently provide power to all essential functions of infrastructure.
	1	The infrastructure would have to <u>curtail</u> operations somewhat without gas or electrical supply, with <u>no</u> direct economic/environmental/safety/health consequences.
	2	The infrastructure would have to <u>curtail</u> operations somewhat without gas or electrical supply, with <u>some</u> direct economic/environmental/safety/health consequences OR <u>stop</u> operations with <u>no</u> direct economic/environmental/safety/health consequences.
	3	The infrastructure would have to <u>stop</u> its operations without gas or electrical supply and <u>significant</u> economic/environmental/safety/health consequences will occur.
Sewer Out	0	The infrastructure can maintain essential functions without sewer service
	0	The infrastructure has ability to independently provide wastewater or septic service to support essential functions.
	1	The infrastructure would have to <u>curtail</u> operations somewhat without wastewater service, with <u>no</u> direct economic/environmental/safety/health consequences.
	2	The infrastructure would have to <u>curtail</u> operations somewhat without wastewater service, with <u>some</u> direct economic/environmental/safety/health consequences OR <u>stop</u> operations with <u>no</u> direct economic/environmental/safety/health consequences.
	3	The infrastructure would have to <u>stop</u> its operations without wastewater service and <u>significant</u> economic/environmental/safety/health consequences will occur.
Telecomm Failure	0	The infrastructure can maintain essential functions without telecommunications.
	0	The infrastructure has ability to independently provide phone service or alternate/redundant communications systems to support essential functions.
	1	The infrastructure would have to <u>curtail</u> operations somewhat without telecommunication service, with <u>no</u> direct economic/environmental/safety/health consequences.
	2	The infrastructure would have to <u>curtail</u> operations somewhat without telecommunication service, with <u>some</u> direct economic/environmental/safety/health consequences OR <u>stop</u> operations with <u>no</u> direct economic/environmental/safety/health consequences.
	3	The infrastructure would have to <u>stop</u> its operations without telecommunication service and <u>significant</u> economic/environmental/safety/health consequences will occur.
Transportation	0	The infrastructure can maintain essential functions without transportation routes.
	0	Infrastructure has ability to independently provide alternate transportation, in the absence of transportation routes, to ensure all essential functions.
	1	The infrastructure would have to <u>curtail</u> operations somewhat without transportation routes with <u>no</u> direct economic/environmental/safety/health consequences.
	2	The infrastructure would have to <u>curtail</u> operations somewhat without transportation routes with <u>some</u> direct economic/environmental/safety/health consequences OR <u>stop</u> operations with <u>no</u> direct economic/environmental/safety/health consequences.
	3	The infrastructure would have to <u>stop</u> its operations without transportation routes and <u>significant</u> economic/environmental/safety/health consequences will occur.

EXTERNAL DEPENDENCY CATEGORY	RATING	SELECTION FACTOR OR DESCRIPTION
Water Supply	0	The infrastructure can maintain essential functions without its water supply.
	0	The infrastructure has ability to independently provide water to support essential functions.
	1	The infrastructure would have to <u>curtail</u> operations somewhat without water supply, with <u>no</u> direct economic/environmental/safety/health consequences.
	2	The infrastructure would have to <u>curtail</u> operations somewhat without water supply, with <u>some</u> direct economic/environmental/safety/health consequences OR <u>stop</u> operations with <u>no</u> direct economic/environmental/safety/health consequences.
	3	The infrastructure would have to <u>stop</u> its operations without its water supply and <u>significant</u> economic/environmental/safety/health consequences will occur.

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Endnotes

¹ This is a total of infrastructure and the approximate value provided by the jurisdiction. If no value, then value was not provided or not available.

² These are the Homeland Security Infrastructure Categories which were used in completing the Infrastructure Tables in the plan.

³ The following table explains the codes used in this column:

Code	Explanation
C	Infrastructure critical in first 72 hours after disaster
AP	Infrastructure has auxiliary or backup power
(#)	Homeland Security Infrastructure Category Number
S	Infrastructure is a designated community shelter

⁴ The “Built” column refers to the year in which the original infrastructure was constructed.

⁵ This column addresses major remodels, upgrades or additions to the infrastructure in dollar amount and/or year of changes.

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Section 7

Plan Maintenance Procedures Requirements

Monitoring, Evaluating, and Updating the Plan---Requirement §201.6(c)(4)(i):

[The plan maintenance process **shall** include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

- Does the new or updated plan describe the method and schedule for **monitoring** the plan, including the responsible department?
- Does the new or updated plan describe the method and schedule for **evaluating** the plan, including how, when and by whom (i.e. the responsible department)?
- Does the new or updated plan describe the method and schedule for **updating** the plan within the five-year cycle?

Incorporation into Existing Planning Mechanisms---Requirement §201.6(c)(4) (ii):

[The plan **shall** include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

- Does the new or updated plan identify other local planning mechanisms available for incorporating the mitigation requirements of the mitigation plan?
- Does the new or updated plan include a process by which the local government will incorporate the mitigation strategy and other information contained in the plan (e.g., risk assessment) into other planning mechanisms, when appropriate?
- Does the updated plan explain how the local government incorporated the mitigation strategy and other information contained in the plan (e.g., risk assessment) into other planning mechanisms, when appropriate?

Continued Public Involvement---Requirement §201.6(c)(4) (iii):

[The plan maintenance process **shall** include a] discussion on how the community will continue public participation in the plan maintenance process.

- Does the new or updated plan explain how continued public participation will be obtained? (For example, will there be public notices, an on-going mitigation plan committee, or annual review meetings with stakeholders?)

SECTION 7

**REGION 5 HAZARD MITIGATION PLAN
RAFT ISLAND IMPROVEMENT ASSOCIATION
PLAN MAINTENANCE SECTION**

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Plan Maintenance

The planning process undertaken in the last eighteen months is just the foundation of breaking the disaster cycle by planning for a disaster resistant community in the Raft Island Improvement Association (RIIA) and Pierce County Region 5. This Section details the formal process that will guarantee the RIIA Hazard Mitigation Plan remains an active and relevant document. The plan Maintenance Section includes a description of the documentation citing the plan's formal adoption by the RIIA Board of Directors. The Section also describes: the method and schedule of monitoring, evaluating, and updating within a five-year cycle; the process for incorporating the mitigation strategy into existing mechanisms; and, the process for integrating public participation throughout the plan maintenance. The Section serves as a guide for implementation of the hazard mitigation strategy.

Plan Adoption

Upon completion of the RIIA Plan it will be submitted to Washington State Emergency Management Division (EMD) for a Pre-Adoption Review. The EMD has 30 days to then take action on the plan and forward it to the Federal Emergency Management Agency (FEMA) Region X for review. This review, which is allowed 45 days by law, will address the federal criteria outlined in FEMA Interim Final Rule 44 CFR Part 201.6. In completing this review there may be revisions requested by the EMD and/or FEMA. Revisions could include changes to background information, editorial comments, and the alteration of technical content. Pierce County Department of Emergency Management (PC DEM) will call a Planning Team Meeting to address any revisions needed and resubmit the changes.

The RIIA is responsible for the adoption of the plan after the Pre-Adoption Review by the EMD and the FEMA Region X. Once the Association adopts the plan, the RIIA Board of Directors will be responsible for submitting it, with a copy of the resolution, to the State Hazard Mitigation Officer at the Washington State EMD. EMD will then take action on the plan and forward it to the FEMA Region X for final approval. Upon approval by FEMA, the RIIA will gain eligibility for both Hazard Mitigation Grant Program and Pre-Disaster Mitigation Grant Program funds.

Appendix A will list the dates and include a copy of the signed Resolution from the jurisdiction as well as a copy of the FEMA approval of the jurisdiction's plan. In future updates of the plan, Appendix C will be used to track changes and/or updates. This plan will have to be re-adopted and re-approved prior to the five year deadline of November 24, 2013.

Maintenance Strategy

The RIIA maintenance strategy for implementation, monitoring, and evaluation provides a structure that encourages collaboration, information transference, and innovation. Through a multi-tiered implementation method, RIIA will provide its citizens a highly localized approach to loss reduction while serving their needs through coordinated policies and programs. The method's emphasis, on all levels of participation, promotes public involvement and adaptability to changing risks and vulnerabilities. Finally, it will provide a tangible link between citizens and the various levels of government service, ranging from community action to the Department of Homeland Security. Through

this strategy, RIIA will continue to break the disaster cycle and achieve a more disaster resistant community.

Implementation

In order to ensure efficient and effective implementation, the RIIA will make use of its capabilities, infrastructure, and dedicated population. The association will implement its mitigation strategy over the next five years primarily through the annual RIIA budget process and varying grant application processes. All programs and entities identified in the Capability Identification Section will serve as the implementing mechanisms within those processes.

The Board of Directors will work in conjunction with those committees/individuals identified in both the Capability Identification Section and under each mitigation measure to initiate the mitigation strategy. For example, any infrastructure-related measures will be implemented through the jurisdiction infrastructure related plan, such as the Capital Facilities Plan, and the various committees and/or individuals involved through the normal budget schedule. Regulatory and land use measures will continue to be implemented through collaboration with the County's Planning and Land Services Department and its updates of the County Comprehensive Plan. Other measures will be implemented through collaboration with the identified jurisdictions/departments listed under each measure's evaluation and through the mechanisms and funding sources identified in the Capability Identification Section.

These efforts fall under a broader implementation strategy that represents a county-wide effort. This strategy must be adaptable to change while being consistent in its delivery.

The mitigation implementation strategy is a three-tiered method that emphasizes localized needs and vulnerabilities while addressing RIIA as well as multi-jurisdictional policies and programs. The first tier is implementation through individual citizen level—Public Education Programs already existing in the RIIA such as information provided to citizens through bills and assessments. The second is the Association-wide mechanism for implementation, in this case the RIIA in conjunction with Pierce County Emergency Management. The third tier is a more external and multi-jurisdictional mechanism, the Hazard Mitigation Forum (HMF).

This method ensures that implementation speaks to unique vulnerabilities at the most local level, allows for coordination among and between levels, and promotes collaboration and innovation. Further, it provides a structured system of monitoring implementation. Finally, it is a method that can adapt to the changing vulnerabilities of the RIIA, the region, and the times. These three levels and their means of implementation and collaboration are described below.

Public Education Programs

At the individual citizen level, public education programs provide the RIIA with a localized mechanism for implementation. This approach to mitigation can adapt to the varying vulnerabilities and needs within the growing Association. Public education programs are also a means for involving the public in mitigation policy development. Committees conducting mitigation-related programs will provide the existing targeted neighborhoods and special-needs populations a catalogue of mitigation measures from which individuals can choose those that would be most effective in their neighborhood.

Jurisdiction-Wide: Board of Directors

The Board of Directors will be responsible for determining the direction of the plan's implementation. The Board is responsible for the day-to-day operations of the RIIA, the annual budget, and personnel. The Board of Directors is responsible for the selection, evaluation, and training of all of its officers and representatives. It oversees, coordinates, and manages the activities of all committees and offices in carrying out the requirements of covenants, ordinances, laws, rules and regulations.

Initially, the Board of Directors will be responsible for the overall review of the plan and will designate mitigation measures to those committees responsible for their implementation. The Emergency Committee will address the plan on an annual basis during the Month of September. The Board of Directors will monitor the plan's implementation throughout the year and report to the RIIA membership at its Annual meeting. Evaluation and updates will be completed at this meeting. Recommendations will be made to coincide with the normal budgeting processes and provide an ample time period for review and adoption of any necessary changes to the implementation schedule.

Hazard Mitigation Forum

The PC Hazard Mitigation Forum (HMF) represents a broader and multi-jurisdictional approach to mitigation implementation. The PC HMF will be comprised of representatives from unincorporated Pierce County and all jurisdictions, partially or wholly, within its borders that have undertaken mitigation planning efforts. The PC HMF will serve as coordinating body for projects of a multi-jurisdictional nature and will provide a mechanism to share successes and increase the cooperation necessary to break the disaster cycle and achieve a disaster resistant Pierce County. Members of the PC HMF will include the following jurisdictions who have completed, or who have begun the process of completing, DMA 2000 compliant plans:

- City of Bonney Lake
- City of Puyallup
- City of Roy
- City of Sumner
- City of Tacoma
- City of University Place
- Puyallup Tribe of Indians
- Pierce County
- 48 Jurisdictions in Region 5
- Pierce County Fire District #3
- Pierce County Fire District #14
- Pierce County Fire District #17
- Pierce County Fire District #22
- Firgrove Mutual Water Company
- Bethel School District
- Clover Park School District
- Sumner School District
- City of Fircrest
- The 16 participants in this plan

Coordinated by the PC DEM, the PC HMF will meet annually in August. The RIIA will be an active participant in the PC HMF, and will be represented by the Board of Directors or their representative. Only through this level of cooperation can these jurisdictions meet all of their mitigation goals.

Plan Evaluation and Update

It should be noted this planning process began in early 2009 following the then current CFR 201.6 Hazard Mitigation Planning Requirements. Based on new requirements in the Stafford Act put forth in the summer of 2008, The RIIA will evaluate and update the plan to incorporate these new requirements as necessary. Furthermore, if there are additional Stafford Act changes affecting CFR 201.6 in the coming years, the planning process will incorporate those as well.

The RIIA Plan will guide the RIIA's mitigation efforts for the foreseeable future. The RIIA representatives on the Planning Team have developed a method to ensure that regular review and update of the plan occur within a five year cycle. The Emergency Management Division will coordinate any reviews through September meeting noted above.

PC DEM will collaborate with RIIA and the PC HMF to monitor and evaluate the mitigation strategy implementation. PC DEM will track this implementation through Pierce County's GIS database. Findings will be presented and discussed at the annual meeting.

The Board of Directors will provide a report of the plan's implementation to RIIA Membership at the annual meeting. This report will drive the meeting agendas and will include the following:

- Updates on implementation throughout the Association;
- Updates on the PC HMF and mitigation activities undertaken by neighboring jurisdictions;
- Changes or anticipated changes in hazard risk and vulnerability at the county, regional, State, FEMA Region X, and Homeland Security levels;
- Problems encountered or success stories;
- Any technical or scientific advances that may alter, make easier, or create measures.

The Board will decide on updates to the plan's strategy based on the above information and a discussion of:

- The various resources available through budgetary means as well as any relevant grants;
- The current and expected political environment and public opinion;
- Meeting the mitigation goals with regards to changing conditions.

PC DEM will work with the RIIA to review the Risk Assessment Section to determine if the current assessment should be updated or modified based on new information. This will be done during the regularly scheduled reviews of the Hazard Identification and Vulnerability Analysis and the Comprehensive Emergency Management Plan.

Additional reviews of this plan will be required following disaster events and will not substitute for the annual meeting. Within ninety days following a significant disaster or an emergency event impacting the RIIA, the Board will provide an assessment that captures any "success stories" and/or "lessons learned." The assessment will detail direct and indirect damages to the RIIA and its infrastructure, response and recovery costs, as part of the standard recovery procedures that use EMD Forms 129, 130, and 140. This process will help determine any new mitigation initiatives that should be incorporated

into the plan to avoid or reduce similar losses due to future hazard events. In this manner, recovery efforts and data will be used to analyze mitigation activities and spawn the development of new measures that better address any changed vulnerabilities or capabilities. Any updates to the plan will be addressed at the annual September meeting.

As per 44 CFR 201.6, the RIIA must re-submit the plan to the State and FEMA with any updates every five years. This process will be coordinated by PC DEM through the Pierce County Hazard Mitigation Forum. In 2013 and every five years following at the Hazard Mitigation Forum, the RIIA will submit the updated plan to PC DEM. PC DEM's Mitigation and Recovery Program Manager will collect updates from the Region 5 Plan jurisdictions and submit them to the State EMD and FEMA.

Continued Public Involvement

The RIIA is dedicated to continued public involvement and education in review and updates of this plan. The RIIA will retain copies of the plan and will make it available to the public.

Prior to submitting the plan to WA EMD and FEMA for the five year review, the RIIA will hold a public information and comment meeting. This meeting will provide citizens a forum during which they can express their concerns, opinions, or ideas about the RIIA Mitigation Plan. This meeting will be advertised by the Association through a variety of media, including the local newspaper and a posting on the website¹

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Endnotes

¹www.raftisland.org

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APPENDIX A

REGION 5 HAZARD MITIGATION PLAN RAFT ISLAND IMPROVEMENT ASSOCIATION

Plan Adoption

The “*Region 5 Hazard Mitigation Plan*” was adopted by the Raft Island Improvement Association Board of Directors on, _____ 2010 by resolution number _____. The following page shows a copy of that resolution.

The plan was reviewed and approved as follows:

AGENCY	REPRESENTATIVE	DATE
Washington State Military Dept., Emergency Management Division	Beverly O’Dea	Approved—
FEMA Region X	Mark Carey Mitigation Division Director	Approved—

FEMA Letter of approval follows below.

APPENDIX B

REGION 5 HAZARD MITIGATION PLAN RAFT ISLAND IMPROVEMENT ASSOCIATION

Region 5 Hazard Mitigation Planning Member

Raft Island Improvement Association

NAME	TITLE	JURISDICTION-DEPARTMENT
Lita-Dawn Stanton	Planner	Raft Island Improvement Association
Cathy Driscoll	Island Manager	Raft Island Improvement Association
Ted Smith	Bridge Chairman	Raft Island Improvement Association
Bob McCoy	Member	Raft Island Improvement Association
Doug Driscoll	Member	Raft Island Improvement Association
Trish Barnett	Member	Raft Island Improvement Association
Tom Straub	Member	Raft Island Improvement Association
Doug Fillback	Member	Raft Island Improvement Association
Jeff Davis	Member	Raft Island Improvement Association
John Shoemaker	Member	Raft Island Improvement Association

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APPENDIX C

**REGION 5 HAZARD MITIGATION PLAN
RAFT ISLAND IMPROVEMENT ASSOCIATION**

Plan Revisions

RECORD OF CHANGES			
Change Number	Description of Change (with page numbers)	Date	Authorized by:

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