
State of Oregon
Department of Geology and Mineral Industries
Vicki S. McConnell, Acting State Geologist

Open File Report

OFR-03-05

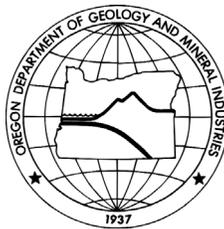
**Development in Oregon's
Tsunami Inundation Zone:**

**Information Guide for
Developers and Local Government**

by

Dennis Olmstead

Oregon Department of Geology and Mineral Industries



2003

For copies of this publication or other information about Oregon's geology and natural resources, contact:

Nature of the Northwest Information Center

800 NE Oregon Street #5

Portland, Oregon 97232

(503) 872-2750

<http://www.naturenw.org>

Contents

1.0 The Tsunami Hazard in Oregon	1
1.1 What is the tsunami hazard?	1
1.2 Where is the tsunami inundation zone?	1
2.0 Development restrictions in the tsunami inundation zone	2
2.1 The statute and rule	2
2.2 What tsunami restrictions mean	2
2.3 Exemptions from the restrictions	2
2.4 Exceptions to the restrictions	2
3.0 The Step by Step Process	3
3.1 Application for permit to build.....	3
3.2 Local government role	3
3.3 Department of Geology and Mineral Industries role	3
3.4 Appeals of decisions	6
3.5 Permit process	6
4.0 Summary	7
5.0 Hypothetical Case Histories	9
5.1 Examples.....	9
6.0 Additional information	11
6.1 Map availability	11
6.2 Consultations or requests for exceptions.....	11
7.0 Appendix A: Oregon Revised Statute 455.446 and 455.447: Building Codes	12
8.0 Appendix B: OAR Ch. 632, Div. 05: Tsunami Inundation Zone	14
Figure 1. Schematic for screening of proposed facilities and structures	4
Table 1. Summary of requirements of SB 379 (1995) on new construction	8

1.0 The Tsunami Hazard in Oregon

1.1 What is the tsunami hazard?

Oregon has a tsunami hazard. Tsunamis are large sea waves triggered by undersea earthquakes or landslide activity and can travel thousands of miles in a matter of hours. The Pacific Ocean has several possible sources for these waves and waves from any of the sources can reach the shores of the state. The major 1964 Alaska earthquake sent a tsunami to Oregon that killed four citizens. Other sources are Chile, Japan and offshore Oregon itself.

The Oregon continental shelf off the coast is the site of the convergence of two crustal plates. Earthquakes along the boundary, called subduction earthquakes, can be of magnitude 9 and can cause major tsunamis.

Geological and archaeological evidence tells us that the last great subduction earthquake took place in 1700 and that intervals between the quakes are as little as 200 years and as much as 1000 years, averaging about 500 to 600 years. The waves could be tens of feet high.

Tsunamis travel at high speeds in the open sea and increase in height as they enter shallow water. Tsunami warning centers announce tsunamis that pose a hazard around the Pacific Ocean. Warnings relayed through the media may be possible for tsunamis from great distances, but may not be in time for evacuation of certain structures when the source is only a hundred miles off our coast. For such an earthquake near the coast, a tsunami could come onshore in 10 to 30 minutes. The only warning may be the earthquake shaking itself.

People most in danger of the waves are those on beaches and tidal flats or near bays and river mouths. Avoiding the danger means moving to high ground, safely above the possible water height. Certain structures are difficult to evacuate, so these buildings should not be placed in the expected tsunami inundation zone. That is the premise for restrictions on certain buildings in the zone.

1.2 Where is the tsunami inundation zone?

As a requirement of Senate Bill 379 (1995 legislative session) the Oregon Department of Geology and Mineral Industries (DOGAMI) published a series of maps designating the tsunami inundation zone for the coast of Oregon. The maps were released in the Open File Report format, numbered O-95-09 to O-95-38, O-95-43 to O-95-66, and O-97-31 to O-97-32, and on a CD as Open-File Report O-00-05. When using maps from the CD, remember that the only maps that are official are the original open-file maps released in 1995 and 1997. These maps show the zone. They are available from the Nature of Oregon Information Center in Portland (503-872-2750 or www.oregongeology.com).

Additional, more detailed inundation maps have also been released for several communities, but the maps cited above are to be used for determining building restrictions.

2.0 Development restrictions in the tsunami inundation zone

2.1 The statute and rule

Senate Bill 379 has been entered into the law books in Oregon Revised Statute (ORS) 455.446 and 455.447 (Appendix A). To make the statute easier to interpret and apply, the Department of Geology and Mineral Industries has prepared Oregon Administrative Rule (OAR) Chapter 632 Division 005 (Appendix B). This information guide will use the statute and rule as a base and present a layman's explanation and application of the zone and the building restrictions.

2.2 What tsunami restrictions mean

Senate Bill 379 restricts the construction of certain **essential facilities, hazardous facilities, major structures and special occupancy structures** in the tsunami inundation zone. Some of these require special evacuation or other mitigation techniques, while others are prohibited. The prohibition on certain kinds of construction by the legislature was designed to be a safety net for situations where evacuation strategies do not work.

The following restrictions apply to specific types of structures:

A. Consultation is required for:

- Emergency-preparedness centers,
- Structures housing, supporting or containing hazardous materials (toxic or explosive),
- Major structures over six stories with an aggregate floor area of 60,000 square feet, buildings over ten stories and parking structures,
- Covered structures whose primary occupancy is public assembly, with a capacity greater than 300 persons,
- Medical facilities with 50 or more residents,
- All structures with a capacity greater than 5,000 persons.

These structures, if proposed for sites in the tsunami inundation zone, require the applicant to consult with DOGAMI before proceeding to the permit stage. The consultation is for assistance in determining the impact of possible tsunamis on the proposed development and for assistance in preparing methods to mitigate the risk.

B. New construction is prohibited for:

- Hospitals and other medical facilities having surgery and emergency treatment areas,
- Fire and police stations,
- Government communication centers and other facilities required for emergency response,
- Buildings with capacity greater than 50 individuals for public, private or parochial school through secondary level, or child care centers,
- Buildings for colleges or adult education schools with a capacity greater than 500 persons,
- Jails and detention facilities.

2.3 Exemptions from the restrictions

Certain structures have been granted exemption from the tsunami inundation zone restrictions. These include:

- Fire or police stations where there is a need for strategic location to serve its function,
- Public schools, if there is a need for the school to be within the boundaries of the school district,
- Water-dependent and water-related facilities, including but not limited to docks, wharves, piers and marinas.

2.4 Exceptions to the restrictions

In addition to the requirement of releasing tsunami inundation zone maps, the statute gives authority to DOGAMI to provide exceptions to the restrictions under certain conditions. The process for an exception is spelled out in ORS 455.446 (1)(d) and OAR 632, Div 005, Rule 0080 and includes:

- Requirement for a public hearing,
- Requirement that applicant address the relative risks within the zone,
- Applicant must balance competing interests,
- Applicant must consider construction strategies that mitigate the hazard,
- Applicant must consider terrain modification that mitigates the hazard,
- DOGAMI Board must conclude that the applicant has demonstrated that the safety of the building occupants will be ensured.

An exception, if granted, merely provides that the prospective developer is free to proceed with the normal permitting processes already in place and administered by local government.

3.0 The Step by Step Process

3.1 Application for permit to build

Anyone proposing to build an essential facility, hazardous facility, major structure or special occupancy structure in Oregon's tsunami inundation zone will need to look at the restrictions and prohibitions to determine if the proposed structure is legal in the zone. This is done with the building codes official in the jurisdiction where the structure will be built. **This is the first step in all cases: Go to your local building codes official for an interpretation of the rules and regulations.** Also refer to the schematic in this guide (Figure 1). This is a screening process that occurs before the project is proposed to the planning department or commission of the jurisdiction. This process could involve a consultation with DOGAMI if the proposed structure is eligible for an exception as explained above.

After this step is taken, and the structure is determined to be out of the zone or without restriction within the zone, the applicant can go to the planning department for permits.

Developers of new essential facilities, hazardous facilities, major structures, and special occupancy structures in the tsunami inundation zone are advised to develop evacuation procedures and routes to elevations higher than tsunami evacuation zones established by the local community. Many communities are working with the State to produce official evacuation map brochures that establish evacuation areas and routes. Please consult these brochures and the responsible local officials.

3.2 Local government role

Each county or city has a building codes enforcement process. Some jurisdictions have a staff member to serve this function; some rely on the state Building Codes Division of the Department of Business and Consumer Affairs. This is the person or agency to address the tsunami inundation zone restrictions. Senate Bill 379 was designed to give maximum local control, so the

local building codes administrator is in first position with respect to interpretation and enforcement.

This person at the local government or Building Codes Division level determines whether the proposed structure is in the inundation zone and whether it is restricted or prohibited. The building codes official will, if appropriate, direct prospective developers of facilities restricted in the tsunami inundation zone to approach DOGAMI early in the application process for consultations or requests for exceptions. This should take place prior to proceeding with permitting.

3.3 Department of Geology and Mineral Industries role

If the proposed structure fits a category that requires consultation, the applicant works with DOGAMI to discuss mitigation methods. This is explained in OAR 632-005-0060 (Appendix B) and includes submitting a written request for a consultation to the department before submittal of design plans to the building official.

If the proposed structure fits a category that is eligible for an exception, the applicant may prepare a written request for an exception, using the process in OAR 632-005-0080 (Appendix B). This includes a written submittal showing a site map and demonstrates how the safety of building occupants will be assured. Several other topics need to be addressed, as listed in OAR 632-005-0080. The applicant may be charged a fee for the consultation. The granting of an exception by DOGAMI does not compel the local building code administrator to allow the structure to be constructed. Basis for exception includes:

- A. Adequate evacuation plans and escape routes,
- B. Mitigation by construction or foundation techniques (structural mitigation),
- C. Demonstration that the safety of occupants will be ensured to the maximum reasonable extent.

DOGAMI also provides advice about geologic hazards as a routine function of the agency, but this advice is not a land use regulatory function.

Step A: Proponent develops a proposal and approaches local Building Codes official

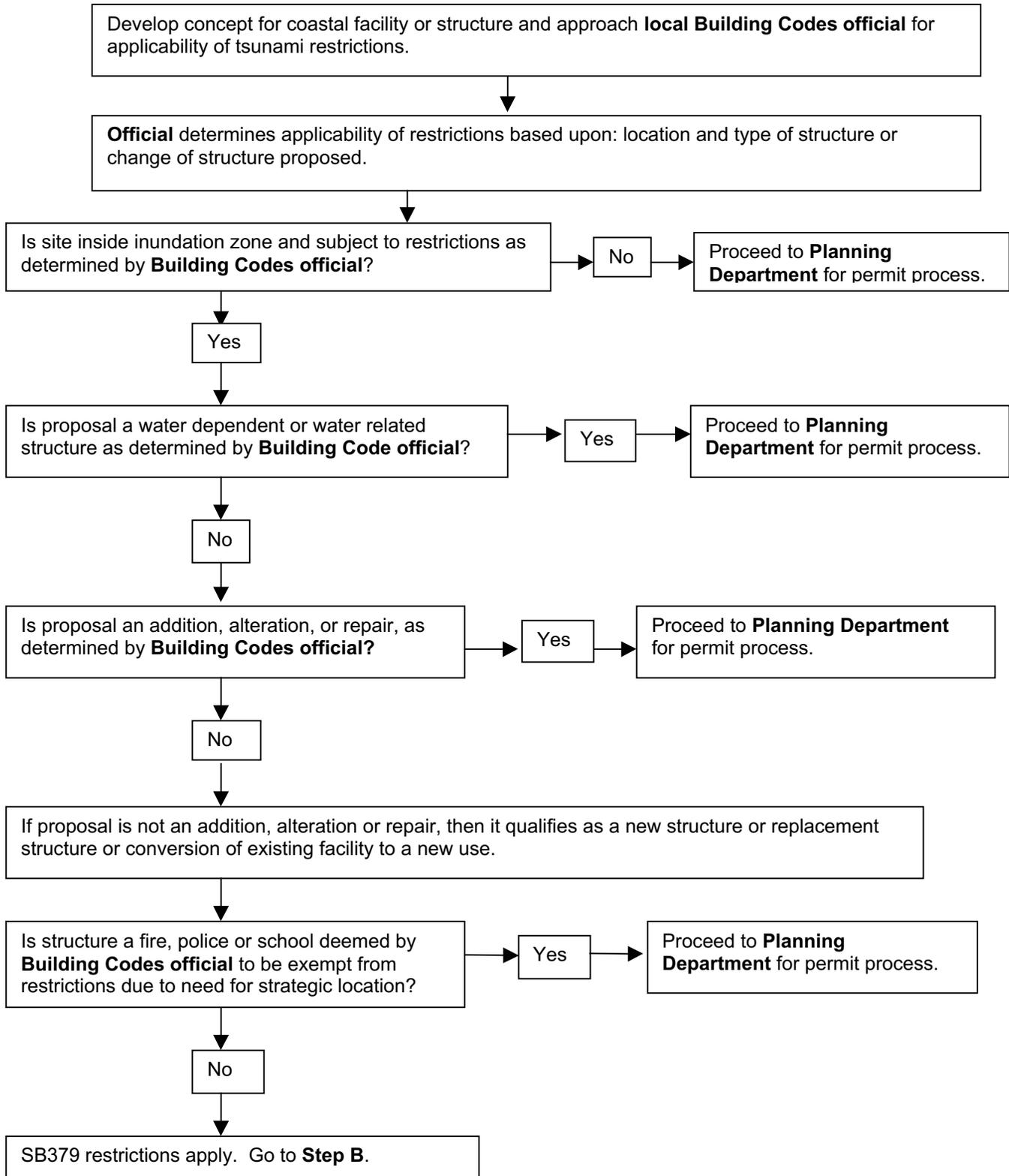


Figure 1. Schematic for tsunami hazard screening of proposed coastal facilities and structures (continued next page)

Step B: Comply with restrictions

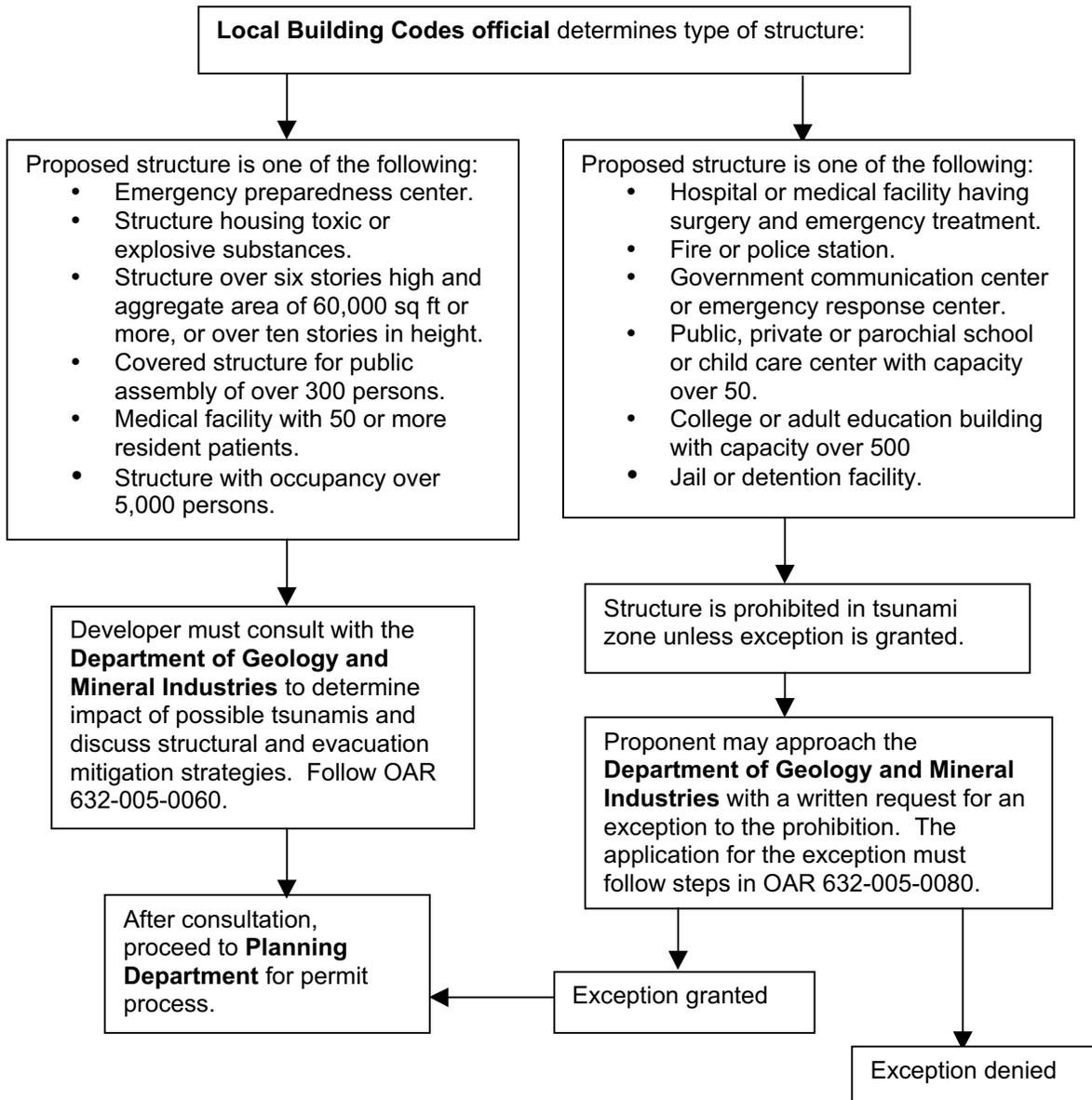


Figure 1. Schematic for tsunami hazard screening (continued from page 4)

3.4 Appeals of decisions

DOGAMI does not grant building or safety permits, and actions of the agency are not land use decisions. DOGAMI activity on tsunami issues does not constitute action significantly affecting land use. The Department instead develops scientific data, which is then applied by land use agencies.

Local government decisions may be appealed as directed by its staff. This may involve appeals to planning commissions or the Land Use Board of Appeals. However, remember that the tsunami inundation zone restrictions were specifically stated by

the legislature to not be a land use decision. The restrictions are a legislative restriction applied as a public safety screening tool before the permit process takes place.

3.5 Permit process

After a decision has been made by the local building codes official to determine if the restrictions apply to the proposed structure, and after any consultations with DOGAMI have been conducted, the applicant then is free to go to the land use planner of the jurisdiction for permits

4.0 SUMMARY

PURPOSE OF SENATE BILL 379

1. To screen before land use permit process.
2. Apply a public safety screen to situations where evacuation from tsunamis is not a viable risk reduction option.
3. Restrictions apply mainly to buildings that are public or semi-public.

AUTHORITY

1. Definitions, restrictions, and exemptions are set in statute and rule.
2. Authority to restrict or prohibit construction is not given to state agencies; decisions are local.
3. The screening process takes place before the land use process and is not part of the land use decision.

SCIENCE

1. The Department of Geology and Mineral Industries sets the inundation zone line for the entire coast.
2. The line was established based on best available science and modeling.
3. Knowledge of the hazard will be applied in the case of exception requests.

EXEMPTIONS

1. Exemptions are listed in the statute; check with the local building codes administrator to decide if an exemption applies.
2. Exemptions include some schools, fire and police stations, and water-dependent and water-related facilities.
3. Decisions on eligibility are made at the local level.

EXCEPTIONS

1. Exceptions are granted by DOGAMI and are possible for any new construction; check with the local building codes official to decide if an exception is worth pursuing.
2. Requests are brought to DOGAMI by the applicant and must include extensive documentation of the hazard and proposed mitigation methods. This is not a land use or building codes decision.
3. This process precedes the land use process.
4. Building Codes and land use processes remain unchanged.
5. Even if DOGAMI grants an exception, the local building code administrator is not compelled to allow the structure to be constructed.

Table 1. Summary of the requirements of SB 379 (1995) on new construction in the official tsunami inundation zone. See DOGAMI Open-File Report O-00-05 on CD or individual maps O-95-09 to O-95-38, O-95-43 to O-95-66, and O-97-31 to O-97-32.

Type of construction: Essential and special occupancy structures as treated in ORS 455.477(1) (Specific applications of definitions to specific structures under consideration is determined locally)	In SB 379 ORS 455.47	Local exemptions	Prohibited but with provisions for DOGAMI exceptions	Must consult with DOGAMI
aA Hospitals and other medical facilities with surgery and emergency treatment areas	X		X	
aB Fire and police stations	X	X	X	
aC Tanks and other structures containing, housing or supporting water or fire suppression materials or equipment required for the protection of essential or hazardous facilities or special occupancy structures				
aD Emergency vehicle shelters and garages				
aE Structures and equipment in emergency-preparedness centers	X			X
aF Standby power generating equipment for essential facilities				
aG Structures and equipment in government communication centers and other facilities required for emergency response	X		X	
b Hazardous facility means structures, housing supporting or containing sufficient quantities of toxic or explosive substances to be of danger to the safety of the public if released	X			X
c Major structure means a building over six stories in height with aggregate floor area of 60,000 square feet or more, every building over 10 stories in height and parking structures as determined by Department of Consumer and Business Services	X			X
eA Covered structures whose primary occupancy is public assembly with a capacity of greater than 300 persons	X			X
eB Buildings with a capacity greater than 50 individuals for every public, private or parochial school through secondary level or child care centers	X	X	X	
eC Buildings for colleges or adult education schools with a capacity greater than 500 persons	X		X	
eD Medical facilities with 50 or more resident, incapacitated patients not included in subparagraphs A to C above	X			X
eE Jails and detention facilities	X		X	
eF All structures and occupancies with a capacity greater than 5,000 persons	X			X

Provisions do not apply to water-dependent and water-related facilities, including but not limited to docks, wharves, piers.

5.0 Hypothetical Case Histories: Stepwise procedure for common developments

In all the examples below, the first step for the proponent of the structure is to determine if the site is in the tsunami inundation zone and subject to the restrictions. If this is not obvious to the proponent from the appropriate map (see “Where is the tsunami inundation zone?” on page 1) and statutory definitions, the authority enforcing the Oregon Structural Specialty Code (local building codes official) will make the determination. The examples below assume the proposed site is within the zone.

If the proposed site is not in the zone, the proposal can move through the building permit and land use planning processes without tsunami restriction.

5.1 Examples

5.1.1 New Fire or police station

The “developer” or proponent of the project is normally a local government or fire or police district. Such a project is an “essential facility.” This type of structure is normally prohibited in the tsunami inundation zone. However, some such structures may be exempt from the prohibition:

Possible exemption: If the station needs to be at the proposed location to properly serve its district, then the authority enforcing the Oregon Structural Specialty Code may declare it exempt from the prohibition and it may be located at the proposed site (ORS 455.446 (1)(e)(A)).

5.1.2 Hospital or medical facility having surgery and emergency treatment areas

This type of structure is an “essential facility.” It is prohibited in the tsunami inundation zone.

5.1.3 Medical facility with 50 or more resident, incapacitated patients

This is a “special occupancy structure” and before moving to the permitting stage, the proponent is

required to consult with DOGAMI to discuss mitigation methods for the structure. The coastal field office of the agency is in Newport and can be reached at 541-574-6642. The structure is not prohibited in the tsunami inundation zone.

5.1.4 Emergency preparedness centers

This typically includes structures for housing emergency vehicles or equipment. These structures are considered to be “essential facilities.” The proponent needs to consult with DOGAMI to explore mitigation strategies. The coastal field office of the agency is in Newport and can be reached at 541-574-6642. This type of structure is not prohibited in the zone.

5.1.5 Government communication and emergency response centers

This type of structure is an “essential facility” and houses personnel or equipment for emergency communication or response. This structure is prohibited in the tsunami inundation zone. There is no provision for exemption or exception to this restriction.

5.1.6 School

The proponent is often a school district but could be a

private entity. Schools are considered to be “special occupancy structures.”

If the proposed structure has a capacity of greater than 50 individuals and is to be a public, private or parochial school through secondary level or a child-care center, it is prohibited in the tsunami inundation zone. Buildings for colleges or adult education with a capacity greater than 500 persons are also prohibited.

Possible exemption: If the proposed structure is a public school and there is a need for the school to be within the boundaries of a school district and this cannot otherwise be accomplished, the authority enforcing the Oregon Structural Specialty Code may declare it exempt from the prohibition and it may be located at the proposed site (ORS 455.446 (1)(e)(A).

5.1.7 Hotel or Convention Center

The proponent of such a structure is normally a private entity. This type of structure could be considered a “special occupancy structure” if its primary occupancy is public assembly of more than 300 persons or a capacity of greater than 5,000 persons. It could be a “major structure” if it is to be over ten stories in height or six stories in height with an aggregate floor area of 60,000 square feet. Some parking structures also fall into this category.

If it is a “special occupancy structure” or “major structure” as defined above and is in the tsunami zone, a consultation with DOGAMI is required before the proposal can move through the permit process. The coastal field office of the agency is in Newport and can be reached at 541-574-6642. The consultation consists of exploring structural, educational and evacuation techniques for the structure to reduce the risk to occupants.

5.1.8 Hazardous materials structure

This is a structure called a “hazardous facility” and housing quantities of toxic or explosive substances sufficient to be a public safety hazard. The proponent needs to consult with DOGAMI to explore mitigation

strategies. This type of structure is not prohibited in the zone. The coastal field office of the agency is in Newport and can be reached at 541-574-6642.

5.1.9 Jail or detention facility

This is a “special occupancy structure” and is prohibited in the tsunami inundation zone.

5.1.10 Dock or marina

This type of structure is considered water-dependent or water-related and is exempt from restrictions in the tsunami inundation zone. This category also includes wharves and piers. Not included in the category are residences, parking lots, dump sites, roads, restaurants, businesses, factories and trailer parks.

An overlap with another category, such as a marina with gasoline storage (hazardous materials) may occur. The authority enforcing the Oregon Structural Specialty Code will decide which category will be used for determining the restriction, if any.

5.1.11 Structure additions, alterations or repairs

For structures that fit the categories above, and are already in the tsunami inundation zone, there are no restrictions to making additions, alterations or repairs.

5.1.12 Replacement of existing structures

If a proponent seeks to replace an existing structure in a restricted category with a new structure fitting one of the restricted categories, the restrictions apply.

5.1.13 Conversion of use to a restricted category

If a proponent wishes to convert an existing structure to a restricted category use, the restrictions apply. For example, if a residence is proposed to be converted to an emergency response center, this may not be done in the tsunami inundation zone.

6.0 Additional information

6.1 Map availability

- DOGAMI coast-wide maps of the tsunami inundation zone are available from the Nature of the Northwest Information Center at 800 NE Oregon Street, Portland, OR, 97232, 503-872-2750 or www.oregongeology.com.
- Local libraries also have the inundation maps.
- Other tsunami inundation or evacuation maps are also available at the above sources but are not to be used to apply the tsunami inundation zone restrictions.
- Local emergency services offices also have copies of the maps.

6.2 Department of Geology and Mineral Industries consultations or requests for exceptions

Contact DOGAMI:

- In Newport at 541-574-6642, or
- In Portland at 503-731-4100.

7.0 Appendix A

Oregon Revised Statute 455.446 and 455.447: Building Codes

455.446 Construction of certain facilities and structures in tsunami inundation zone prohibited; establishment of zone; rules; exceptions. (1)(a) New essential facilities described in ORS 455.447 (1)(a)(A), (B) and (G) and new special occupancy structures described in ORS 455.447 (1)(e)(B), (C) and (E) shall not be constructed in the tsunami inundation zone established under paragraph (c) of this subsection. The provisions of this paragraph apply to buildings with a capacity greater than 50 individuals for every public, private or parochial school through secondary level and child care centers.

(b) The State Department of Geology and Mineral Industries shall establish the parameters of the area of expected tsunami inundation based on scientific evidence that may include geologic field data and tsunami modeling.

(c) The governing board of the State Department of Geology and Mineral Industries, by rule, shall determine the tsunami inundation zone based on the parameters established by the department. The board shall adopt the zone as determined by the department under paragraph (b) of this subsection except as modified by the board under paragraph (d) of this subsection.

(d) The board may grant exceptions to restrictions in the tsunami inundation zone established under paragraph (c) of this subsection after public hearing and a determination by the board that the applicant has demonstrated that the safety of building occupants will be ensured to the maximum reasonable extent:

(A) By addressing the relative risks within the zone.

(B) By balancing competing interests and other considerations.

(C) By considering mitigative construction strategies.

(D) By considering mitigative terrain modification.

(e) The provisions of paragraph (a) of this subsection do not apply:

(A) To fire or police stations where there is a need for strategic location; and

(B) To public schools if there is a need for the school to be within the boundaries of a school district and this cannot otherwise be accomplished.

(f) All materials supporting an application for an exception to the tsunami inundation zone are public records under ORS 192.005 to 192.170 and shall be

retained in the library of the department for periods of time determined by its governing board.

(g) The applicant for an exception to the tsunami inundation zone established under paragraph (c) of this subsection shall pay any costs for department review of the application and the costs, if any, of the approval process.

(2) The definitions in ORS 455.447 apply to this section.

(3) The provisions of this section do not apply to water-dependent and water-related facilities, including but not limited to docks, wharves, piers and marinas.

(4) Decisions made under this section are not land use decisions under ORS 197.015 (10). [1995 c.617 §2]

Note: 455.446 was enacted into law by the Legislative Assembly but was not added to or made a part of ORS chapter 455 or any series therein by legislative action. See Preface to Oregon Revised Statutes for further explanation.

455.447 Regulation of certain structures vulnerable to earthquakes and tsunamis; rules. (1) As used in this section, unless the context requires otherwise:

(a) "Essential facility" means:

(A) Hospitals and other medical facilities having surgery and emergency treatment areas;

(B) Fire and police stations;

(C) Tanks or other structures containing, housing or supporting water or fire-suppression materials or equipment required for the protection of essential or hazardous facilities or special occupancy structures;

(D) Emergency vehicle shelters and garages;

(E) Structures and equipment in emergency-preparedness centers;

(F) Standby power generating equipment for essential facilities; and

(G) Structures and equipment in government communication centers and other facilities required for emergency response.

(b) "Hazardous facility" means structures housing, supporting or containing sufficient quantities of toxic or explosive substances to be of danger to the safety of the public if released.

(c) "Major structure" means a building over six stories in height with an aggregate floor area of 60,000 square feet

or more, every building over 10 stories in height and parking structures as determined by Department of Consumer and Business Services rule.

(d) "Seismic hazard" means a geologic condition that is a potential danger to life and property that includes but is not limited to earthquake, landslide, liquefaction, tsunami inundation, fault displacement, and subsidence.

(e) "Special occupancy structure" means:

(A) Covered structures whose primary occupancy is public assembly with a capacity greater than 300 persons;

(B) Buildings with a capacity greater than 250 individuals for every public, private or parochial school through secondary level or child care centers;

(C) Buildings for colleges or adult education schools with a capacity greater than 500 persons;

(D) Medical facilities with 50 or more resident, incapacitated patients not included in subparagraphs (A) to (C) of this paragraph;

(E) Jails and detention facilities; and

(F) All structures and occupancies with a capacity greater than 5,000 persons.

(2) The Department of Consumer and Business Services shall consult with the Seismic Safety Policy Advisory Commission and the State Department of Geology and Mineral Industries prior to adopting rules. Thereafter, the Department of Consumer and Business Services may adopt rules as set forth in ORS 183.325 to 183.410 to amend the state building code to:

(a) Require new building sites for essential facilities, hazardous facilities, major structures and special occupancy structures to be evaluated on a site specific basis for vulnerability to seismic geologic hazards.

(b) Require a program for the installation of strong motions accelerographs in or near selected major buildings.

(c) Provide for the review of geologic and engineering reports for seismic design of new buildings of large size, high occupancy or critical use.

(d) Provide for filing of noninterpretive seismic data from site evaluation in a manner accessible to the public.

(3) For the purpose of defraying the cost of applying the regulations in subsection (2) of this section, there is hereby imposed a surcharge in the amount of one percent of the total fees collected under the structural and mechanical specialty codes for essential facilities,

hazardous facilities, major structures and special occupancy structures, which fees shall be retained by the jurisdiction enforcing the particular specialty code as provided in ORS 455.150 or enforcing a building inspection program under ORS 455.148.

(4) Developers of new essential facilities, hazardous facilities and major structures described in subsection (1)(a)(E), (b) and (c) of this section and new special occupancy structures described in subsection (1)(e)(A), (D) and (F) of this section that are located in an identified tsunami inundation zone shall consult with the State Department of Geology and Mineral Industries for assistance in determining the impact of possible tsunamis on the proposed development and for assistance in preparing methods to mitigate risk at the site of a potential tsunami. Consultation shall take place prior to submittal of design plans to the building official for final approval. [1991 c.956 §12; 1995 c.79 §229; 1995 c.617 §1; 2001 c.573 §12]

Note: 455.447 was added to and made a part of 455.010 to 455.740 by legislative action but was not added to any smaller series therein. See Preface to Oregon Revised Statutes for further explanation.

8.0 Appendix B:

OAR Chapter 632, Division. 05: Tsunami Inundation Zone

632-005-0000

Purpose

(1) The rules in this division implement the department's responsibilities under ORS 455.446 and 455.447 relating to the construction of specified facilities and structures within the specified tsunami inundation zones.

(2) The objective of the tsunami statutes and these implementing rules is to reduce the risk of loss of life. Risks will be reduced primarily by providing information and assistance to developers and by limiting where certain types of essential facilities or special occupancy structures may be located.

(3) ORS 455.446 and 455.447 and these rules:

(a) Establish a tsunami inundation zone;

(b) Require the developers of certain new essential facilities, hazardous facilities, major structures, and special occupancy structures which are regulated but not prohibited within the inundation zone under these rules to consult with the department before seeking land use or building permit or change in use approval;

(c) Prohibit the construction of certain new essential and special occupancy structures within the inundation zone;

(d) Provide a site-specific exception process for structures prohibited under subsection (3)(c). This process would consider relative risks, evacuation strategies, competing interests, construction strategies, terrain modifications, and other considerations; and

(e) Provide a general exemption for water-dependent and water-related structures and site-specific exemptions for certain essential facilities and special occupancy structures based upon the need for strategic location or school district boundaries.

(4) Evacuation is the preferred strategy for dealing with tsunami risk.

Stat. Auth.: ORS 516.090

Stats. Implemented: ORS 455.446 & ORS 455.447

Hist.: GMI 1-1996, f. & cert. ef. 1-31-96; GMI 1-1997, f. & cert. ef. 4-4-97

632-005-0010

Applicability to New Facilities and Structures

The authority enforcing the Oregon Structural Specialty Code shall determine whether a developer is proposing new construction, additions, alterations, repairs,

conversions, or replacements.

(1) The provisions of OAR 632-005-0000 to 632-005-0090 apply to facilities and structures for which applications for land use or building permit approval for new construction, including replacements of facilities or structures on the same site, were filed on or after the effective date of these rules.

(2) Replacement facilities and structures are also addressed in OAR 632-005-0080.

(3) Provisions do not apply to facility or structure additions, alterations, or repairs on the same site.

(4) Provisions do apply to conversions of an existing facility or structure if this places the facility or structure in a regulated category.

Stat. Auth.: ORS 516.090

Stats. Implemented: ORS 455.446 & ORS 455.447

Hist.: GMI 1-1996, f. & cert. ef. 1-31-96

632-005-0020

Definitions

(1) In addition to the definitions in ORS 455.447, the following definitions shall apply unless another definition is clearly indicated by context:

(a) "Board" means the Governing Board of the Department of Geology and Mineral Industries.

(b) "Capacity" means the maximum allowable occupants that may be served in the facility or structure in accordance with applicable laws or other authority.

(c) "Competing interests and other considerations" means any well-founded consideration that is reasonably related to balancing or management of tsunami risks. It includes, but is not limited to, scientific data regarding tsunami risks and mitigation measures such as evacuation strategies.

(d) "Consultation" means information provided by the department to a prospective developer during information transfer under ORS 455.447 and OAR 632-005-0060. It includes, but is not limited to, printed material; references to scientists, engineers, or others with expertise in matters relating to tsunami hazards; reports summarizing information known about the site or surrounding area; information derived from field visits; and recommendations regarding potential mitigation measures. Consultation is not binding.

(e) "Department" means the Oregon Department of Geology and Mineral Industries.

(f) "Developer" means local governments, districts, or other persons proposing to develop new essential facilities, hazardous facilities, major structures, or special occupancy structures that are addressed by ORS 455.446 to 455.447 and these rules.

(g) "Exception" means a board order under ORS 455.446(1)(d) and OAR 632-005-0080 allowing the siting of a facility or structure that would otherwise be prohibited by ORS 455.446(1)(a). An exception is not a land use or building codes approval.

(h) "Mitigative construction strategy" means a design plan that reasonably provides for evacuation to higher floors or unhindered site evacuation with a reasonable expectation of safety in the event of a tsunami.

(i) "Mitigative terrain modification" means landscaping that can reasonably be expected to mitigate tsunami risk for the site in question. It may include, but is not limited to, placement of fill on the site, berms or other protective features around the site, or ground armoring to limit tsunami erosion beneath or around facilities or structures. In this context, ground armoring does not necessarily include sea wall construction.

(j) "New," when referring to a facility or structure, means that application for land use or building permit or change in use approval was made on or after the effective date of these rules.

(k) "Risk" means the threat to people posed by a tsunami hazard for the proposed use of a site.

(l) "Tsunami hazard" means, as determined by scientific expectation, the size of the tsunami, the kind of tsunami action, including velocity, and the estimated recurrence frequency of the tsunami event for a given site.

(m) "Tsunami inundation zone" for the purpose of these rules means the area subject to tsunami inundation as depicted on maps adopted under OAR 632-005-0030 of these rules and intended for the implementation of ORS 455.446 and ORS 455.447.

(n) "Water-dependent" means a use or activity which can be carried out only on, in, or adjacent to water areas because the use requires access to the water body for water-borne transportation, recreation, energy production, or source of water.

(o) "Water-related" means uses which are not directly dependent upon access to a water body but which provide goods or services that are directly associated with water-dependent land or waterway use, and which, if not located adjacent to water, would result in a public loss of quality in the goods or services offered. Except as necessary for water-dependent or water-related uses or facilities, residences, parking lots, spoil and dump sites, roads and highways, restaurants,

businesses, factories, and trailer parks are not generally considered dependent on or related to water location needs.

(2) In addition, the definitions in the Oregon Structural Specialty Code of the Department of Consumer and Business Services shall apply unless a different meaning is clearly indicated by context.

Stat. Auth.: ORS 516.090

Stats. Implemented: ORS 455.446 & ORS 455.447

Hist.: GMI 1-1996, f. & cert. ef. 1-31-96; GMI 1-1997, f. & cert. ef. 4-4-97

632-005-0030

Adoption of Maps for the Purposes of Screening New Essential Facilities, Hazardous Facilities, Major Structures, and Special Occupancy Structures

(1) In implementing the provisions of ORS 455.446 and 455.447, decisions of the board may be based upon a tsunami produced by a Cascadia subduction zone earthquake event of reasonable size, using current earthquake science, geologic science and modeling techniques.

(2) In adopting maps of the tsunami inundation zone for the purposes of implementing ORS 455.446 and 455.447, making exceptions, and providing consultation, the board and department shall be guided by the principle of best available science.

Stat. Auth.: ORS 516.090

Stats. Implemented: ORS 455.446 & ORS 455.447

Hist.: GMI 1-1996, f. & cert. ef. 1-31-96; GMI 1-1997, f. & cert. ef. 4-4-97

632-005-0040

Tsunami Inundation Zone

(1) For the purposes of implementing these rules, the tsunami inundation zone is the area depicted as the tsunami inundation zone in Oregon Department of Geology and Mineral Industries Open-File Reports O-95-09 through O-95-38, O-95-43 through O-95-66 and O-97-31 through O-97-32.

(2) The board will consider revisions to the zone based upon scientific and engineering information supplied by the public and interested governmental entities. Modifications to the zone must be made by rule. Petitions for modifications should be filed under ORS 183.390 and OAR 137-001-0070.

(3) The tsunami inundation zone is designed specifically to assist the board in considering decisions of risk related to the construction of new essential facilities, hazardous facilities, major structures, and special occupancy structures. The tsunami inundation zone is not designed or intended to specifically support

building permit or land use planning decisions.

(4) Developers of new essential facilities, hazardous facilities, major structures, and special occupancy structures are advised to develop evacuation procedures and routes to elevations higher than tsunami runup lines on the current tsunami inundation zone maps.

Stat. Auth.: ORS 516.090

Stats. Implemented: ORS 455.446 & ORS 455.447

Hist.: GMI 1-1996, f. & cert. ef. 1-31-96; GMI 1-1997, f. & cert. ef. 4-4-97

632-005-0050

Referrals

(1) Local government planning offices, local emergency management offices, and local building department offices or alternative authorities are encouraged to direct prospective developers of facilities and structures regulated by these rules to approach the department at the earliest reasonable date for exceptions or consultation in advance of proceeding with permitting.

(2) Local governments and alternative authorities enforcing the Oregon Structural Specialty Code needing verification of an exception by the board or a consultation with the department may require such verification.

Stat. Auth.: ORS 516.090

Stats. Implemented: ORS 455.446 & ORS 455.447

Hist.: GMI 1-1996, f. & cert. ef. 1-31-96

632-005-0060

Consultations; Requirements; Timing

(1) For all new construction of or conversion to essential facilities, hazardous facilities, major structures, or special occupancy structures described in ORS 455.447(4), the developer must seek consultation from the department. However, no consultation is required to be obtained for exempted facilities or structures.

(2) Requests for consultation on methods to mitigate tsunami risk for the site in question shall be submitted in writing to the department with a clear statement of the type of facility or structure under consideration, the facility's or structure's expected capacity, size, elevation above mean sea level, and specific location. The request shall take place prior to submittal of design plans to the building official for final approval.

(3) The department will provide readily available consultation to the applicant. The form and extent of the consultation will be at the discretion of the department. The consultation will be nonbinding and will be considered public information. The developer may proceed with activities uninterrupted as soon as the request for consultation is made to the department.

Stat. Auth.: ORS 516.090

Stats. Implemented: ORS 455.446 & ORS 455.447

Hist.: GMI 1-1996, f. & cert. ef. 1-31-96

632-005-0070

Exemption Responsibility

(1) Local governments with authority to enforce the Oregon Structural Specialty Code (OAR 918-460-0010) in the tsunami inundation zone shall be responsible for determining whether a facility or structure is:

(a) Inside the inundation zone;

(b) Subject to these rules;

(c) Exempt due to the need based on strategic location or school district boundaries as described in ORS 455.446(1)(e); or

(d) Exempt due to water-dependent or water-related status as described in ORS 455.446(3) and as defined in OAR 632-005-0020(1)(m) and (n).

(2) Local governments with authority for enforcing the Oregon Structural Specialty Code determine the timing of this decision and what constitutes a need for strategic location. This determination is separate from any board exceptions decisions.

(3) If the local government does not have authority to enforce the Oregon Structural Specialty Code, the local government shall determine whether it makes the determinations referenced in sections (1) and (2) of this rule or whether the determinations are made by the alternative authority enforcing the Oregon Structural Specialty Code.

(4) Water-dependent and water-related facilities and structures in the tsunami inundation zone are exempt from restrictions under ORS 455.446.

Stat. Auth.: ORS 516.090

Stats. Implemented: ORS 455.446 & ORS 455.447

Hist.: GMI 1-1996, f. & cert. ef. 1-31-96

632-005-0080

Exceptions; Procedures; Timing; Appeals

(1) The board may grant exceptions to the restrictions in ORS 455.446(1)(a) on constructing certain facilities or structures, including replacement facilities and structures, in the tsunami inundation zone as provided in this Rule and ORS 455.446(1)(d).

(2)(a) An application for an exception must be made in writing and submitted to the department. The application must include a site map that shows elevations and the location and use of all proposed structures and facilities. The application also must demonstrate how the safety of building occupants will be assured as required by ORS 455.446(1)(d).

(b) To the extent the information is applicable and reasonably available, the application also must include the following information:

(A) Proposed mitigation that is the basis for the exception, such as evacuation or construction methods and the nearness and accessibility of evacuation sites that are clearly safe from tsunami inundation;

(B) Estimates of the anticipated amount of time between the earthquake event and the time the first tsunami strikes, and the ease with which the facility or structure can be evacuated;

(C) The name and source of any alternative tsunami model used, and a showing of whether the proposed facility or structure would be located outside the inundation zone and, if so, how far outside the zone;

(D) Citations to the sources of any geologic field data that were not used to establish the adopted inundation zone and a showing of whether the proposed facility or structure would be located outside the inundation zone identified by the new data and, if so, how far outside the zone;

(E) The structural ability of the proposed facility or structure to withstand the earthquake that precedes the tsunami;

(F) The structural ability of the proposed facility to withstand a tsunami;

(G) The needs being met by locating the facility or structure at a particular site;

(H) The lack of suitable alternatives for a facility or structure;

(I) Whether the proposed facility or structure is a replacement of a facility or structure that was used for the same use; and

(J) Other relevant information supporting the request for exception.

(c) The board or its delegate shall determine whether the application is complete and may require any additional information that is reasonably necessary for the evaluation of the request for an exception.

(d) The board or its delegate shall hold a public hearing for the purpose of informing the public about, and considering public comment on, the request for an exception.

(e) The board shall grant or deny the request for an exception within 60 days after the receipt of a complete application unless the developer agrees to an extension.

(f) The board may grant a request for an exception subject to conditions determined by the board to be

appropriate under ORS 455.446(1)(d).

(3) A hearing on an application for an exception is not a contested case hearing, and the board's order on an application for an exception is not a contested case order. An order may be appealed to the circuit court under ORS 183.484.

(4) Developers are encouraged to request an exception prior to seeking land use or building permit approvals. However, a decision to grant or deny an exception does not supersede any required land use, building permit, or change in use approvals nor is it intended to influence such approvals.

Stat. Auth.: ORS 516.090

Stats. Implemented: ORS 455.446 & ORS 455.447

Hist.: GMI 1-1996, f. & cert. ef. 1-31-96

632-005-0090

Exceptions; Fees

Developers seeking an exception may be billed for reasonable incurred costs up to a maximum of \$900 for department review and board consideration including, but not limited to, personnel expenses and indirect costs. An applicant for an exception may request additional services and waive the \$900 fee ceiling. An applicant may request an explanation of accounting practices used to determine costs, and the billing will be accompanied by a documentation of the expenses incurred by the department and board.

Stat. Auth.: ORS 516.090

Stats. Implemented: ORS 455.446 & ORS 455.447

Hist.: GMI 1-1996, f. & cert. ef. 1-31-96