STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Suite 965, 800 NE Oregon St., #28
Portland, Oregon 97232

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Earthquake Damage and Loss Estimate for Oregon

By
Yumei Wang
Oregon Department of Geology and Mineral Industries

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Yumei Wang, Oregon Department of Geology and Mineral Industries, 800 NE Oregon Street #28, Portland, OR 97232; 503-731-4100; meimei.wang@state.or.us.

Executive Summary

Oregon is especially vulnerable to earthquake hazards because of its plate tectonic setting on the Pacific ring of fire. Paleoseismic evidence for large magnitude prehistoric Cascadia subduction zone earthquakes associated with the Juan de Fuca and North American plates include buried marsh soils, forests drowned by coseismic subsidence, tsunami sand deposits, and liquefaction features. Japanese historic documents and Native American legends indicate the most recent subduction zone earthquake occurred on January 26, 1700. To better address public needs from future damaging earthquakes, the Oregon Department of Geology and Mineral Industries (DOGAMI) conducted a risk assessment that quantifies earthquake damage and losses. Expected ground motions, building damage, and social and economic losses are estimated for two scenarios, (1) a magnitude 8.5 Cascadia subduction zone earthquake off the coast of Oregon, and (2) statewide probabilistic (500 year return interval) ground motions developed by the U.S. Geological Survey. The analyses, conducted using geographic information system (GIS) based HAZUS97 software, include detailed geologic influence using a 1997 Uniform Building Code soil map. Ground motion maps for peak ground acceleration, peak ground velocity and spectral response are developed. Preliminary results for (1) the magnitude 8.5 earthquake show that over 30,000 buildings destroyed, over 10 billion dollars of building damage, and over 7,700 casualties. Expected losses from the 500-yr model are over 80,000 buildings destroyed, over $30 billion of building damage, and over 24,600 casualties. These preliminary results can be used to help increase earthquake awareness, stimulate mitigation and risk reduction action (e.g., strengthening facilities), support and set policies and legislation, and develop emergency response plans. To provide more accurate expected losses, future studies should incorporate hazards associated with tsunami inundation, coseismic landslides, liquefaction, and unreinforced masonry buildings. These losses are expected to be significantly higher than the preliminary results provided in this report.

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Introduction

Oregon is especially vulnerable to earthquake hazards because of its location on the Pacific "Ring of Fire" and its plate-tectonic setting. To better understand public needs that involve earthquake hazards and the health, safety, and welfare of the state's population, the Oregon Department of Geology and Mineral Industries (DOGAMI) has conducted earthquake damage and loss estimation studies for Oregon. Results from this study can be used to help increase earthquake awareness, stimulate mitigation and risk reduction action (e.g., strengthening facilities), support and set policies and legislation, and develop emergency response plans.

This paper reviews the modeling of estimated damage and losses and results for (1) a magnitude 8.5 (M8.5) subduction zone earthquake off the coast of Oregon and (2) 500-yr return interval probabilistic ground motions for the entire state. The two case studies included detailed geologic information contained in a statewide 1997 Uniform Building Code (UBC) soil map.

Statewide estimates indicate that a large subduction zone earthquake will cause over ten billion dollars of building damage alone. Losses from the 500-yr ground motions are almost three times the amount of the subduction zone earthquake. Most of the damage costs are located in western Oregon, where the expected ground motions and population density are higher than in eastern Oregon.

Background

Recent earthquakes have caused damage in Oregon, and future damaging earthquakes are inevitable. Damage and losses from recent worldwide earthquakes have devastated local communities due to the vulnerable developments in those areas. The earthquakes of Kobe, Japan (1995, M6.9); Northridge, California (1994, M6.7); and Loma Prieta, California (1989, M7.1), caused about 100, 42, and 10 billion dollars, respectively, in direct economic losses.

Oregon has numerous potential earthquake sources that can produce strong ground shaking and damage to the communities. The Cascadia subduction zone fault, which lies just offshore, can produce a M8.5 earthquake or perhaps even larger (Yamaguchi and others, 1997). Inland faults, such as the Mount Angel fault that triggered the M5.6 Scott Mills ("Spring Break") quake in 1993 and the West Klamath Lake fault zone that, during the same year, triggered the two Klamath Falls main shocks of magnitudes 5.9 and 6.0, are examples of crustal earthquake sources. About 30 and 10 million dollars in damage were inflicted by the Scotts Mills and Klamath Falls earthquakes, respectively. As a result of growing awareness of earthquake hazards in Oregon, steps are being taken to better understand and prepare for the threat of a large-magnitude Cascadia subduction zone earthquake as well as for inland earthquakes. The present study is one such example. Another example is that more stringent building code requirements have been adopted. In 1993, the Seismic Zone designation for western Oregon was raised from 2B to 3 in the Uniform Building Code (UBC); in October 1998, the central and south coast area was raised from Zone 3 to Zone 4.

Balancing the public safety benefits with limited funds can be more effective with a better understanding of the economics at stake, that is, the possible damage and losses. With these estimated losses, planners and policy makers have useful information to guide public policy issues to reduce future loss of life and property. Various interest groups can reduce the possible impact in specific areas by targeting information in the predicted damage and loss estimates. Although loss estimations have inherent uncertainties and limitations, the results can be viewed as important information. Both regional and local mitigation can be implemented based on these results. For example, this work may help formulate state legislation that focuses on improving the state's building inventory database and furthering the state's risk reduction efforts. Or, this work may help instigate or substantiate the seismic evaluation or strengthening of older school buildings in a local school district.

Method

The damage and loss estimates for future earthquake ground shaking were obtained using HAZUS97 software produced by the Federal Emergency Management Agency (FEMA) (National Institute of Building Sciences, 1997; Risk Management Solutions, Inc., 1997). HAZUS97 has recently become available to the public and operates through a geographic information system (GIS) to display earthquake hazard information, inventory data, and estimated losses in the form of both maps and tables. This software was developed through a cooperative agreement between FEMA and the National Institute of Building Sciences (NIBS). Risk Management Solutions, Inc., of Menlo Park, California, developed the software under the oversight of a panel of recognized experts in their respective fields. The software was calibrated with past earthquakes and pilot-tested in two communities in the nation, one of them Portland, Oregon The estimates discussed here are only samples of the possible types of damages and losses that can be modeled with this software.

The method involves modeling an earthquake source and attenuation relationships or ground motions, determining the damage based on fragility curves, which indicate the probable degree of damage, and then quantifying the losses on the basis

of the inventory database. The procedure yields quantitative estimates of losses in terms of direct costs for repair and replacement of damaged buildings, direct costs associated with loss of function (e.g., loss of business revenue, relocation costs), casualties, displacement of people from residences, and removal of debris generated. In addition, functionality losses for emergency and essential facilities and components of transportation and utilities are quantified.

In HAZUS97, the ground motions are characterized by spectral response based on a standard spectrum shape, peak ground acceleration (PGA), and peak ground velocity (PGV). Elastic response spectra (5-percent damping) are used to characterize ground shaking. The spectra have the same standard shape defined by a PGA value at zero period, spectral response at a 0.3-second period in the acceleration domain, and spectral response at a 1.0-second period in the velocity domain. The shape is adjusted for site amplification and distance from the source to the site.

Building damage is estimated by applying fragility curves, capacity curves, building type, seismic design level, and ground response. Owing to the limited amount of building inventory data and the regional approach of this method, model groups of buildings (or population groups) are evaluated on a census tract basis. Single buildings at specific locations are not evaluated. The damage functions include (1) building fragility curves that describe the probability of reaching or exceeding different damage states at a given peak building response; and (2) building capacity ("pushover") curves that are used with damping-modified demand spectra to determine peak building response. The damage state probabilities are used as inputs to estimate induced physical damage and direct economic and social loss, such as casualties, monetary losses, and shelter needs. For this study, all buildings were placed at low seismic design level.

Loss estimates are based on (1) structural repair costs depending on extent of damage, model building types and occupancy classes; (2) nonstructural repair costs for all occupancy classes, both acceleration-sensitive damage (from the shock waves themselves) and drift-sensitive damage (from the structure's deformation in response to the shock waves); (3) value of building contents as a percentage of building replacement value for all occupancy classes; (4) contents damage as a function of damage state; (5) annual gross sales or production for agricultural, commercial, and industrial occupancy classes; (6) business inventory as a percentage of gross annual sales for agricultural, commercial and industrial occupancy classes; and (7) business inventory damage as a function of damage state for agricultural, commercial and industrial occupancy classes. A large amount of default economic data is included in the method to develop the direct economic losses.

Discussion of method

From a user's standpoint, HAZUS97 is a powerful tool to assess earthquake losses. A user can obtain a sense of the order of magnitude of damage and loss for the items reported in Table 1, such as casualties and building losses. HAZUS97 has a number of limitations. A notable example of a limitation is that HAZUS97 evaluates most building losses on a census tract basis. However, many geologic hazards are not easily portrayed and represented by a single census tract value. Other geology-related limitation examples are, e.g., that user-supplied ground motion models are not able to incorporate user-specified soil maps and that certain specifics of fault ruptures, such as fault dip and oblique senses of motion, cannot be modeled.

One significant limitation is that the default inventory database is incomplete. Thus, the estimated losses are necessarily in error. For example, although there are numerous unreinforced masonry structures (URMs) in Oregon, the currently available default building database does not include any URMs. Thus, the reported damage and loss estimates may seriously under-represent the actual threat. In studies that incorporate URMs in the inventory, the death and injuries toll is likely to increase significantly due to the nature of catastrophic failure of URMs.

Other examples of incomplete building inventory involve schools and emergency facilities. A simple case study for Klamath County shows the default inventory to have eight schools and five emergency facilities. The actual count is 34 schools and 35 emergency facilities (William Thompson, Klamath County Emergency Services, personal communication, 1998). For emergency facilities, a simple statewide assessment was made. The default database includes 438 emergency facilities, whereas the assessment shows 792. Thus, assuming the counts were approximated in a similar manner, the default database underestimated the emergency facility count by almost a factor of two. An underrepresentation of schools and emergency facilities could produce erroneously results, especially involving damage and functionality. The default lifeline inventory also appears to be seriously incomplete and requires user input to achieve a sense of damage and loss values.

HAZUS97 has several programming errors, which are being corrected in later versions. One example is obtaining a probability of 1 when summing the computed damage states for buildings by building type in the summary reports. Also, the summary reports, at times, failed to print the results from several counties. In addition, conducting successive runs without creating a new scenario is problematic in that previously calculated numbers are reported as the new calculations. A related problem seems to arise with the export function for individual study regions.

Study region and source data

The study region is the state of Oregon (Figure 1), with a population of just over 3 million people. The highest population concentration is in the western part of the state, especially in the Willamette Valley.

HAZUS97 evaluates the study region by census tracts. Oregon has a total of 727 census tracts. HAZUS97 includes numerous databases from a variety of sources, including information on geography, demographics, economics, buildings, and lifelines. Demographics and residential buildings are obtained from the 1990 data of the United States Census Bureau. Nonresidential data, such as commercial and industrial structures, are obtained from 1995 reports by Dunn and Bradstreet. HAZUS97 estimates a total building exposure (i.e., replacement value, not market value) of about $160 billion for the state.

The soil map (Figure 2) includes the six soil categories defined in the 1997 Uniform Building Code (UBC) (Wang and others, 1998). UBC soil types were estimated on the basis of published digital regional geologic and agricultural soil maps, previously mapped material properties, and shear-wave velocities measured on the unit or similar units. In order to conduct the HAZUS97 analyses, soil profile type S_F (soil requiring site-specific evaluation) has been reclassified into type S_E (soft soil). Also, the soil map is modified within HAZUS97 to a census tract basis for analyses of most buildings.

Except for the soil data, this study has relied on the HAZUS97 default databases. Therefore, the results provide relative, not absolute, estimates of losses. Statistical uses, for example at the county level, are appropriate.

Earthquake scenarios

Two earthquake types were evaluated: (1) a (deterministic) M8.5 Cascadia subduction zone earthquake and (2) 500-yr return interval probabilistic bedrock ground motions.

M8.5 Cascadia earthquake

The M8.5 earthquake is produced by a rupture along the Cascadia margin that lies generally parallel to Oregon's coastline (Figure 2). The M8.5 model assumes a rupture length of 480 km and a hypocentral (or focal) depth of 10 km. The fault is modeled as a low-angle reverse (or thrust) fault with an equal bi-directional rupture pattern (i.e., a rupture extending equally in both directions from the center of the quake). For this model, we used the Project 97 Pacific Northwest attenuation relationship available in HAZUS97, which is based on earlier work by Frankel and others (1996). This relationship applies to rock sites and uses 50 percent each of (1) the attenuation curves for deep and subduction zone earthquakes by Youngs, Chiou, Silva and Humphrey (1997) and (2) the attenuation curves by Sadigh, Chang, Abrahamson, Chiou, and Power (1993). Attenuation ("lessening") relationships are used to calculate the peak ground acceleration (PGA) which decreases with distance from the earthquake.

After the PGA is calculated, deterministic ground motions (time domain and spectral responses) are calculated from algorithms stored in HAZUS97 relational databases. Those values are then amplified by factors based on local soil conditions as determined by the soil map described earlier. The ground motions in the general building damage analyses are computed at the centroid (the mathematical "middle") of a census tract.

Output ground motions for PGA, peak ground velocity (PGV), and spectral velocity (S_V) at periods of 0.3 and 1.0 seconds are provided on contour maps (Figures 3 to 6). Output ground motions for PGA, PGV, and spectral acceleration (S_A), S_V, and spectral displacement (S_D) at periods of 0.3 and 1.0 seconds are provided on a census track basis (Figures 7 to 14). The maps include soil influence and thus represent motions at the ground surface.

500-yr return interval ground motions

The ground motions modeled are taken from the U.S. Geological Survey (USGS) earthquake ground motion hazard map with a 10-percent probability of exceedance in 50 years (Frankel and others, 1996). These ground motions represent single median ground motions for the region over the next 475-year period, commonly referred to as the "500-year" return interval. These probabilistic ground motions include peak ground acceleration (PGA), peak ground velocity (PGV), and spectral velocity (S_V) at 0.3 seconds and 1.0 seconds.

The USGS probabilistic maps, which were used as the basis for design value maps of the 1997 *NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures* (Building Seismic Safety Council, 1997), show the ground motion levels with specified probabilities of being exceeded in a 500-yr return interval. Ground shaking motions with a 500-yr return interval are equivalent to a 10-percent probability of being exceeded in 50 years or, in other terms, an annual frequency of exceedance of 0.002. The probabilistic approach incorporates all fault sources capable of generating earthquake ground shaking and includes earthquake wave propagation from the sources to include all areas of Oregon. Thus, for each

given site, the ground motion levels (peak ground accelerations) for numerous earthquake locations and magnitudes in the vicinity are represented. Probabilistic maps provide an equal representation of likelihood of various levels of ground motions across the state.

Output ground motions for PGA; PGV; and S_A, S_V, and S_D at periods of 0.3 and 1.0 seconds are provided on a census track basis (Figures 15 to 22). These maps include soil influence and thus represent motions at the ground surface.

The damage and loss estimate from the 500-yr model does not represent a single earthquake occurrence nor does it provide an uppermost estimate of losses. This is because the 500-yr map does not represent a single earthquake event. Also, smaller earthquakes that produce lower levels of ground shaking and are not represented on the probabilistic map are expected to occur and produce additional damage and loss not estimated in this study. Thus, if all expected earthquakes were included, the cumulative losses over the next 500 years would be higher than the estimated losses reported in this study.

Results

The statewide results from the two modeled earthquakes, the M8.5 Cascadia earthquake (referred to below briefly as "the M8.5") and the probabilistic 500-yr return interval ground motions (referred to below briefly as "the 500-yr") are summarized in Table 1. Estimates include social losses (deaths and injuries, displaced households, short-term shelter needs) (Tables 2a and 3a), monetary building losses (Tables 2b and 3b) and number of buildings damaged (Tables 2c and 3c). Also discussed below are the functionality of emergency facilities, schools, transportation systems (highway and airport economic loss and bridges damage state and functionality), and communication facilities; and the debris generated.

The method used generates estimated loss results for both the direct physical damage and the direct economic loss resulting from damage to the inventory in the study region. Expected damage and loss results are reported for each census tract and may be viewed as maps or tables produced by HAZUS97. Certain results from the 500-yr ground motion model are not discussed here (but are provided in Table 1 and Appendix B for advanced users), because they are not appropriately applied to real-world conditions: they cannot be experienced in a single event. Thus, for example, the functionality of schools, emergency facilities, transportation systems, and the like is not reported for the probabilistic model.

Social losses

Social losses including casualties, displaced households, and short-term shelter needs are reported below. The census data are used to help estimate these losses.

Deaths and injuries

Deaths and injuries are estimated at 7,700 and 24,600 for the M8.5 and 500-yr, respectively (Tables 2a, 3a, A-1 and B-1). These values are divided into four severity levels: Severity 1 is described as "Injuries requiring only basic medical aid but no hospitalization"; severity 2 is described as "Injuries requiring a greater degree of medical care and hospitalization, but not expected to progress to a life-threatening status"; severity 3 is described as "Injuries that pose an immediate life-threatening condition if not treated adequately and expeditiously. The majority of these injuries are a result of structural collapse and subsequent collapse [trapping -*ed.*] or impairment of the occupants." Severity 4 is described as "Instantaneously killed or mortally injured."

For the M8.5, about 6,300 are estimated at severity 1; 1,200 at severity 2; 200 at severity 3, and 100 at severity 4. For the 500-yr, about 19,700 are estimated at severity 1; 3,800 at severity 2; 600 at severity 3; and 500 at severity 4.

For both models, estimated casualties are highest for a 2 p.m. earthquake. These casualties can be attributed mostly to damages of commercial and industrial buildings. The number of casualties varies depending upon time of day of the earthquake, building type, occupancy class, and traffic pattern. Casualties in residential buildings are higher at 2 a.m. and 5 p.m. earthquake events.

Displaced households

The displaced households are estimated at 17,300 and 47,400 for the M8.5 and 500-yr, respectively (Tables 2a, 3a, A-2 and B-2).

Short-term shelter needs

The short-term shelter needs are estimated at 12,400 and 32,700 for the M8.5 and 500-yr, respectively (Tables 2a, 3a, A-2 and B-2).

Buildings

Building damage

States of structural and acceleration-sensitive and drift-sensitive nonstructural damage to the general building stock are generated for each occupancy class and for each building type according to five damage states: None, Slight, Moderate, Extensive, and Complete. Reported values include: (1) building damage by count by general occupancy, (2) building damage by general occupancy, and (3) building damage by building types for low seismic design level.

(1) *Building damage by count by occupancy class.* For the M8.5, the building damage by count of buildings is estimated at 717,000, 130,000, 75,000, 35,000, and 19,000 for damage states None, Slight, Moderate, Extensive, and Complete, respectively (Tables 2c and A-4). From these damage state results, about 885,000 buildings are estimated to be green-tagged (i.e., the building has been inspected, and there are no restriction on use or occupancy), 55,000 are estimated to be yellow-tagged (i.e., off limits to unauthorized personnel), and 37,000 are estimated to be red-tagged (i.e., unsafe, not to be entered or occupied). For the 500-yr, the building damage by count of buildings is estimated at 425,000, 253,000, 182,000, 75,000, and 41,000 for damage states None, Slight, Moderate, Extensive, and Complete, respectively (Tables 3c and B-4). From these results, about 769,000 buildings are estimated to be green-tagged, 129,000 are estimated to be yellow-tagged, and 79,000 are estimated to be red-tagged.

(2) *Building damage by percent by occupancy class.* For the M8.5, building damage by general occupancy is estimated at 51, 11, 13, 9, and 5 percent for damage states None, Slight, Moderate, Extensive, and Complete, respectively (Table A-5). For the 500-yr, building damage by general occupancy is estimated at 24, 13, 19, 18, and 16 percent for damage states None, Slight, Moderate, Extensive, and Complete, respectively (Table B-5).

(3) *Building damage by percent by building type.* For the M8.5, the building damage by building types assuming low seismic design levels for all buildings were estimated at 41, 10, 15, 12, and 7 percent for damage states None, Slight, Moderate, Extensive, and Complete, respectively (Table A-6). For the 500-yr, the building damage by building types assuming low design levels for all buildings were estimated at 18, 10, 19, 20, and 19 percent for damage states None, Slight, Moderate, Extensive, and Complete, respectively (Table B-6).

Direct economic losses to buildings

The total direct economic losses to buildings are estimated at $11.8 and $31.6 billion for the M8.5 and 500-yr, respectively. These losses include both capital stock losses and income losses.

For the M8.5, capital stock losses are $2.03 billion for structural damage, $4.31 billion for nonstructural damage, $0.95 billion for contents, and $0.03 billion for inventory damage. Income losses are $1.21 billion for relocation, $1.35 billion for capital-related loss, $1.20 billion for wages, and $0.73 billion for rental income (Table 3c and Table A-3)).

For the 500-yr, capital stock losses are $5.05 billion for structural damage, $12.22 billion for nonstructural damage, $2.76 billion for contents, and $0.06 billion for inventory damage. Income losses are $3.04 billion for relocation, $3.76 billion for capital-related loss, $2.94 billion for wages, and $1.80 billion for rental income (Table 4c and Table B-3).

Essential facilities

In HAZUS97, police stations, fire stations, and emergency operation centers are considered to be essential facilities (Figure 23). These are facilities that provide services to the community and should be functional after an earthquake.

The functionality of emergency facilities and schools is estimated for the day following the earthquake. For the M8.5, functionality of 65 percent for emergency facilities and 66 percent for schools is estimated (Tables A-7 and A-8). As mentioned above, because the 500-yr ground motions cannot be experienced in a single event, the functionality of essential facilities for the entire state is not reported (Tables B-7 and B-8).

Transportation

Transportation include highway, railway, light rail, bus, port, ferry, and airport systems (Figure 24). Selected results are provided for highways, including major and urban roadways and bridges; airports, which consists of control towers, runaways, terminal buildings, parking structures, fuel facilities, and maintenance and hangar facilities; and bridges.

Direct economic loss for transportation

For the M8.5, the direct economic loss is estimated at $0.37 billion for highways and $0.12 billion for airports (Table A-9). For the 500-yr, the direct economic loss is estimated at $1.26 billion for highways and $0.32 billion for airports (Table B-9).

Damage states and functionality for bridges
For the M8.5, the highway bridge damage is estimated at 67, 21, 9, 1, and 7 percent for damage states None, Slight, Moderate, Extensive, and Complete, respectively (Table A-10). The estimated functionality on the day of the earthquake is 72 percent (Table A-11). For the 500-yr, the highway bridge damage is estimated at 31, 32, 26, 4, and 6 percent for damage states None, Slight, Moderate, Extensive, and Complete, respectively (Tables B-10 and B-11).

Utilities
Utility systems include potable water, wastewater, oil, natural gas, electric power, and communication systems. Results are provided for the communication systems, which consist of broadcasting stations from the default inventory (Figure 25). For the M8.5 and 500-yr, expected losses are $0.10 and $0.21 billion, respectively (Tables A-12 and B-12). For the M8.5, the estimated functionality for communication systems is 71 percent (Tables A-13 and B-13).

Debris
The total amount of debris generated is estimated for the M8.5 at 9.3 million tons and for the 500-yr at 23.3 million tons (Tables A-14 and B-14). The debris is categorized under two types: The first type of debris is easily movable with bulldozers and includes brick, wood, glass, building contents, and other materials. The second type of debris falls in large pieces, such as steel members or reinforced concrete elements.

County Rankings
To better understand the relative risks of the building losses in the state, the 36 counties have been ranked. Table 4 shows rankings by economic exposure. Tables 5a and 6a shows rankings by losses. Tables 5b and 6b shows the rankings by loss ratios, which are which are losses divided by exposure. Tables 5c and 6c shows the counties in graph form by losses and loss ratios.

For the M8.5 and the 500 year models, the top ten counties with highest economic exposure of buildings are the same. They are Multnomah, Washington, Lane, Clackamas, Marion, Jackson, Linn, Deschutes, Douglas and Benton (Table 4).

For the M8.5, the highest economic losses are projected for Multnomah, Lane, Coos, Washington, Marion, Benton, Lincoln, Josephine, Clatsop and Jackson counties (Table 5a). The counties with the highest loss ratios are Coos, Curry, Clatsop, Lincoln, Josephine, Benton, Tillamook, Polk, Lane, and Linn counties; thus, are expected to have the highest "relative" impact to the county (Table 5b).

For the 500-yr model, the highest economic losses are projected for Multnomah, Washington, Lane, Marion, Clackamas, Coos, Jackson, Benton, Linn and Klamath counties (Table 6a). The counties with the highest loss ratios are Coos, Curry, Clatsop, Klamath, Lincoln, Benton, Josephine, Tillamook, Polk and Yamhill; thus, are expected to have the highest "relative" impact to the county (Table 6b).

In order to evaluate the combined impact of both the losses and the loss ratios, these factors were graphed. Each graph was divided into four equal quadrants (using the centroid) to better characterize the counties. The upper quadrants represent the counties with the highest loss ratios; the right hand quadrants represent the counties with the highest losses. Thus, the upper right hand quadrant represents the counties with the highest losses and loss ratios. These may be considered the counties at highest risk due to losses and loss ratios. Counties with losses less than 20 million dollars and loss ratios less than 1.0 are considered to have high uncertainty in the results and have limited application.

For the M8.5, the counties at highest risk due to losses and loss ratio are Lane, Coos, Benton, Lincoln, Josephine, Clatsop, Linn, and Curry (Table 5c). Harney, Gilliam, Grant, Union, Wheeler, Wallowa, Baker, and Sherman counties have losses less than $20 million and loss ratios of less than 1.0; thus, have limited application.

For the 500-yr, the counties at highest risk due to losses and loss ratio are Multnomah, Washington, Lane, Marion, Coos, Jackson, Benton, Linn, and Klamath (Table 6c). Harney, Grant, Gilliam, Union, Crook, Wheeler, Sherman, Baker, and Wallowa counties have losses less than $20 million and loss ratios of less than 1.0; thus, have limited application.

Future Studies
Future studies for Oregon may involve modeling additional earthquake scenarios (e.g., local faults), colateral hazards (e.g., tsunami inundation, liquefaction, and coseismic landslides), expanded inventory data and focused study regions (e.g., counties). Modeling colateral hazards would increase the expected losses. Expanded inventory data may include unreinforced masonry structures, which are currently not included in the default database, or a more accurate inventory of schools or emergency facilities. A more complete inventory would also provide more accurate damage and loss estimates.

Summary

The preliminary results from this study suggest that there is a serious risk in Oregon from both a M8.5 Cascadia event and 500-yr probabilistic ground motions. Studies of the M8.5 event indicate that over 10 billion dollars of building damage and about 7,000 casualties or more will be inflicted. The 500-yr ground motion studies indicate losses of more than 30 billion dollars and over 24,600 casualties, which is considerably higher than the M8.5 model. The 500-yr study produces higher losses because the modeled hazards span the entire state (i.e., offshore subduction zone and local inland earthquakes).

The counties have been ranked according to the combined effects of the expected losses and loss ratios (which is the loss with respect to the total dollar value). For the M8.5, the counties at highest risk due to losses and loss ratio are Lane, Coos, Benton, Lincoln, Josephine, Clatsop, Linn, and Curry. For the 500-yr, the counties at highest risk are Multnomah, Washington, Lane, Marion, Coos, Jackson, Benton, Linn, and Klamath.

Results from this preliminary study can be used to help increase earthquake awareness, stimulate mitigation and risk reduction action (e.g., strengthening facilities), support and set policies and legislation, and develop emergency response plans. Additional studies that include significant hazards, such as tsunami inundation, coseismic landslides, liquefaction, and unreinforced masonry buildings, should be conducted to provide more accurate estimates. Such estimates may be substantially higher than these reported preliminary values.

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Tables

	OFR, Wang,11/18/98		Table 1. Summary of Damage and Loss Estimates		
			Cascadia M8.5 earthquake		**USGS 500-yr return interval**
Table	**Description of damage and loss estimates**		w/UBC soils		w/UBC soils
	(all costs in thousands)				
A1, B1	Deaths and injuries (2 pm scenario)		7,700		24,600
A2, B2	Displaced households		17,300		47,400
A3, B3	Short term shelter needs		12,400		32,700
A4, B4	BUILDINGS- total direct economic losses		$11,802,000		$31,642,000
	Capital stock losses				
	structural damage		$2,025,000		$5,051,000
	non-structural damage		$4,307,000		$12,216,000
	contents damage		$954,000		$2,762,000
	inventory loss		$25,000		$60,000
	Income losses				
	relocation loss		$1,211,000		$3,044,000
	capital related loss		$1,351,000		$3,764,000
	wages losses		$1,199,000		$2,943,000
	rental income loss		$729,000		$1,802,000
	Building damage:				
A5, B5	By count by general occupancy		717k 130k 75k 35k 19k		425k 253k 182k 75k 41k
A6, B6	By general occupancy for 5 states (none-complete)(%)		15 4 5 3 2		24 13 19 18 16
A7, B7	By building type for 5 states (none-complete)(%)		41 10 15 12 7		18 10 19 20 19
A8, B8	Emergency (fire, police, EOC) 438 facilities				
	Functionality (%) at day 1		65		39
A9, B9	Schools, 1314 facilities				
	Functionality (%) at day 1		66		36
A10, B10	Transportation				
	Highway		$366,000		$1,258,000
	Airport		$121,000		$324,000
A11, B11	Bridges, 2811 structures, function @ day 0		72		41
A12, B12	average for 5 damage states (%)		67 21 9 1 7		31 32 26 4 6
A13, B13	Communication, 656 facilities		101,000		$208,000
	Functionality (%) at day 0		71		43
A14, B14	Debris (thousand-tons)		9,300		23,300

Cascadia M8.5

with UBC soils

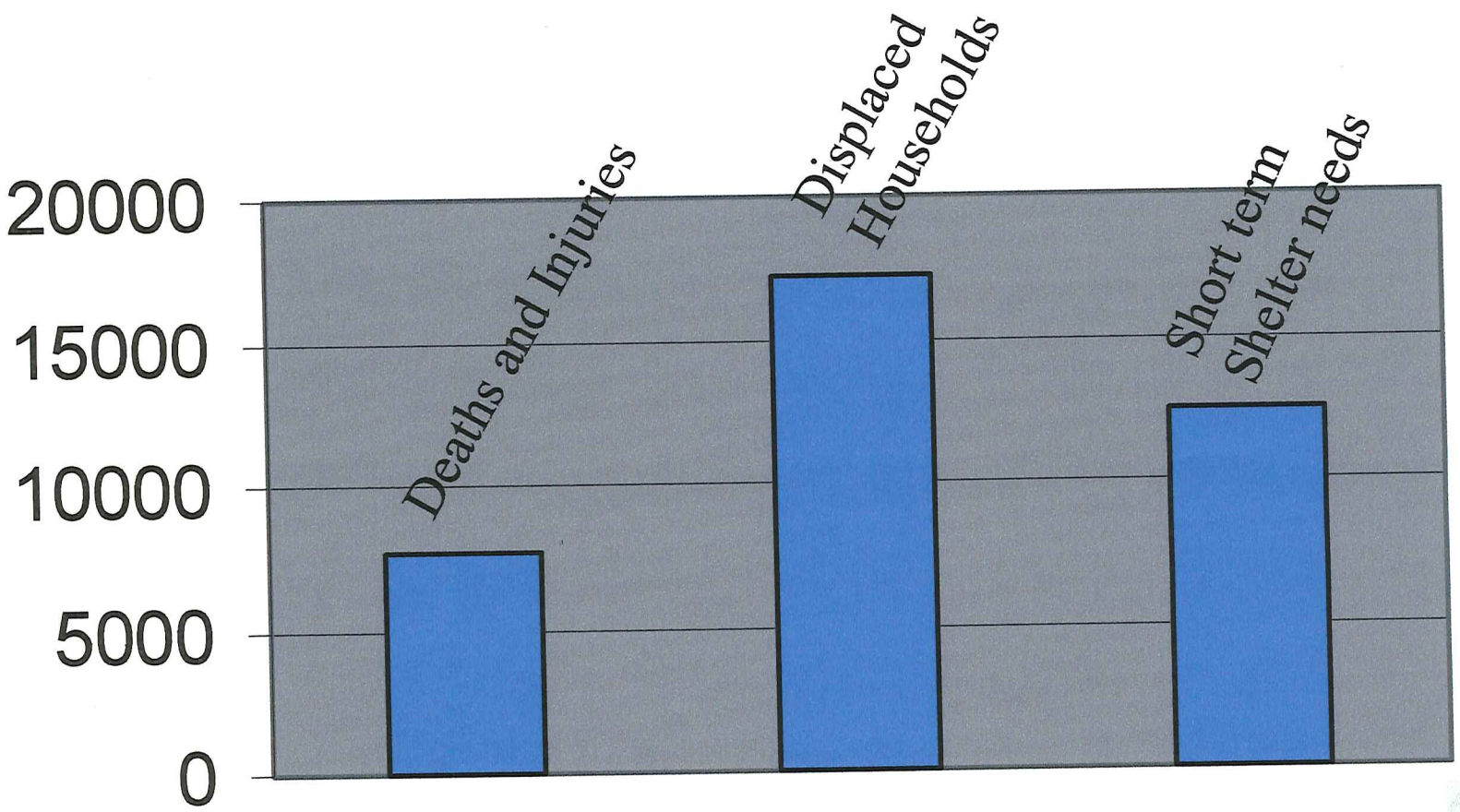


Table 2a - social losses

Cascadia M8.5

with UBC soils

Buildings - total direct losses (Capital Stock and Income) $11.8 billion

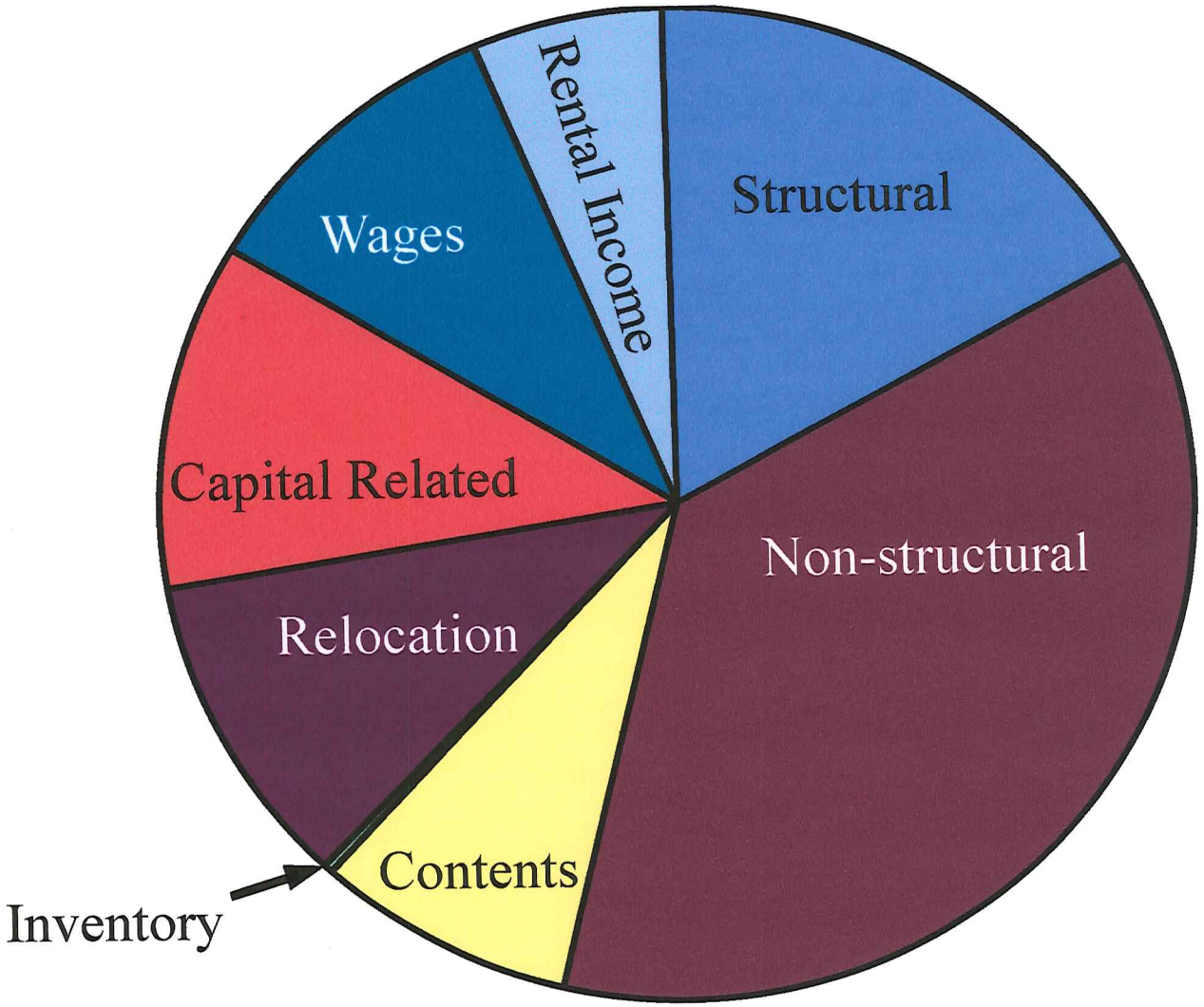


Table 2b - building losses

Cascadia M8.5

with UBC soils

Building Damage
by count by general occupancy

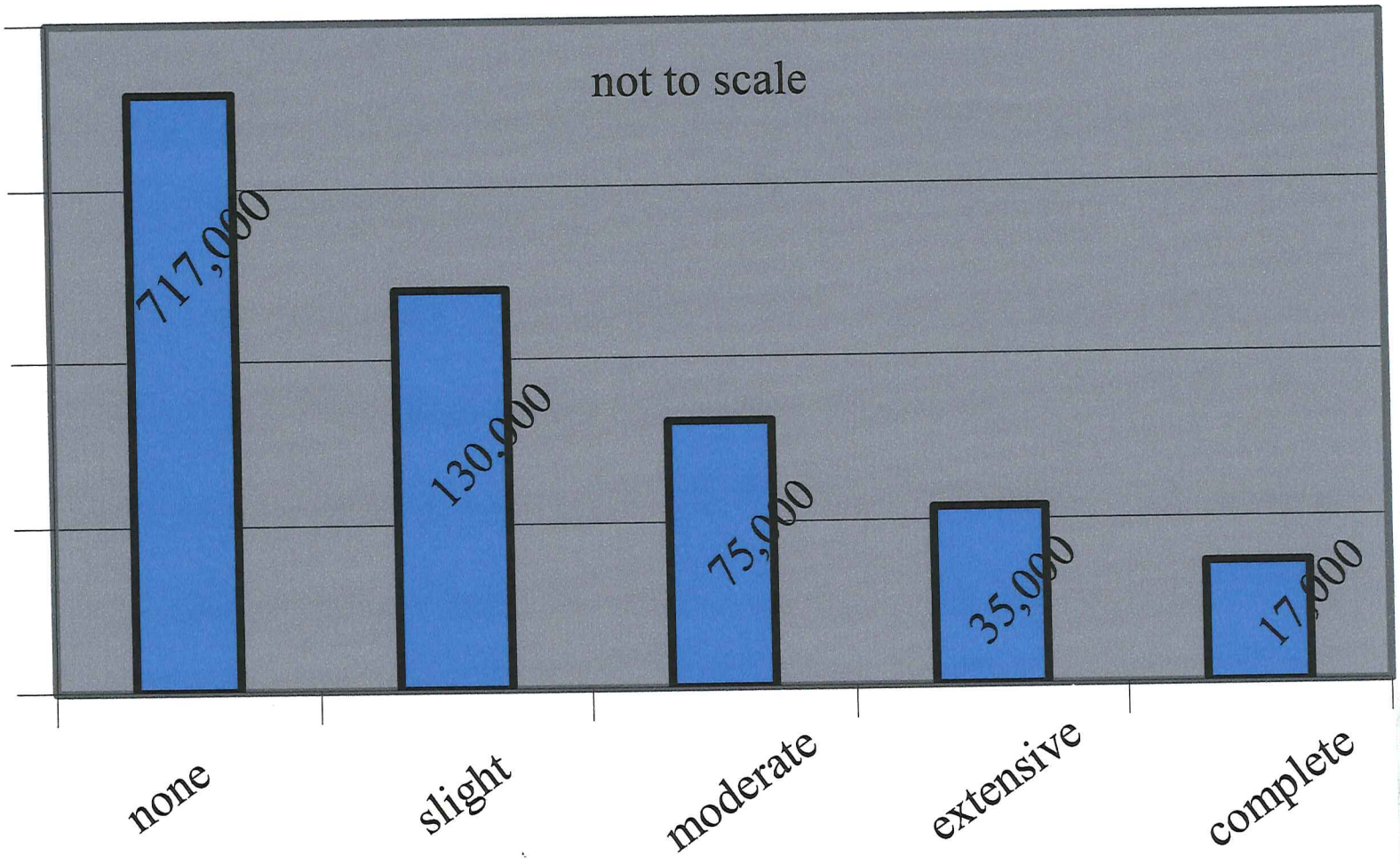


Table 2c - building damage

500-year Return Interval
with UBC soils

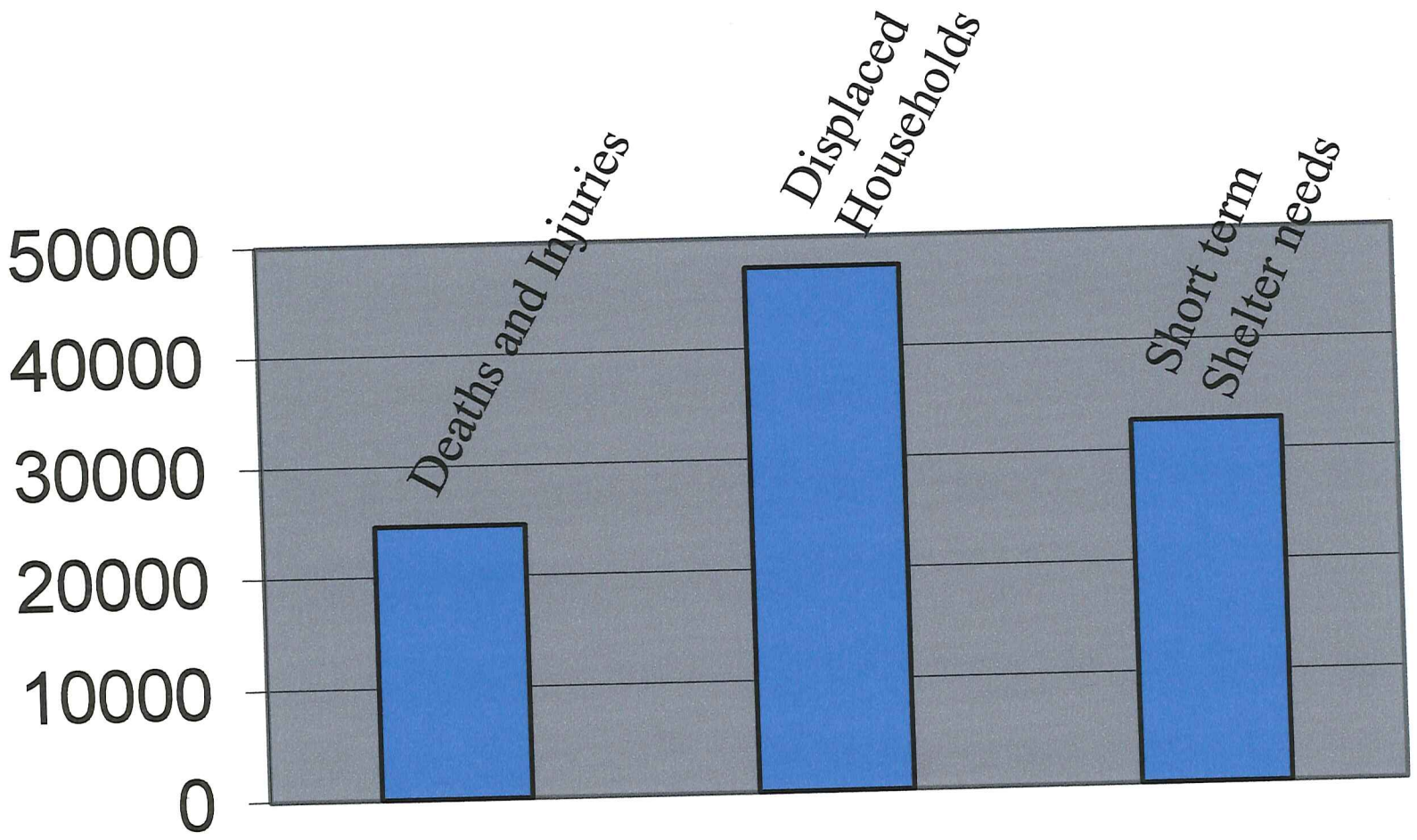


Table 3a - social losses

500-year Return Interval

with UBC soils

Buildings - total direct losses (Capital Stock and Income) $31.6 billion

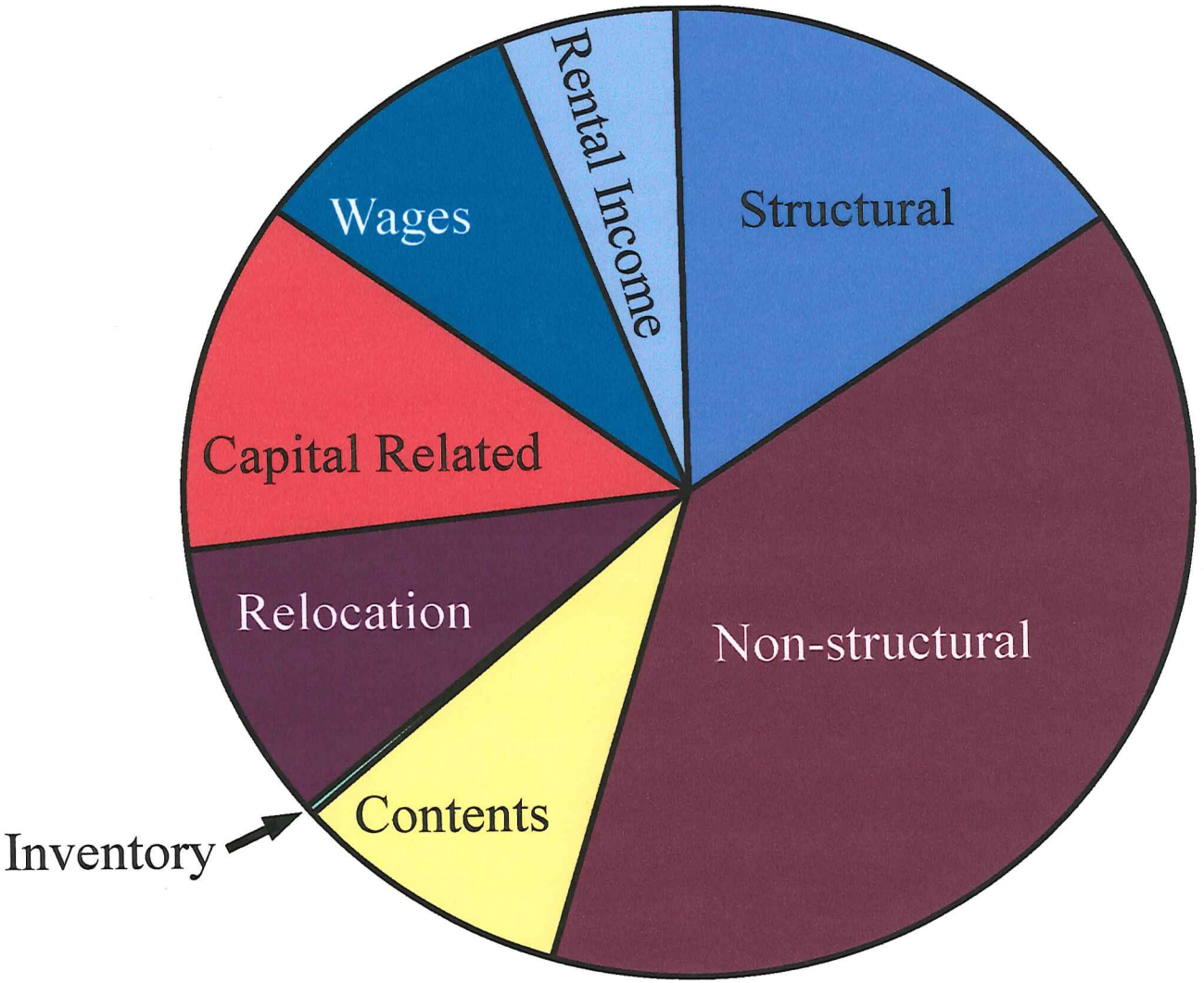


Table 3b - building losses

500-yr. Return Interval

with UBC soils

Building Damage
by count by general occupancy

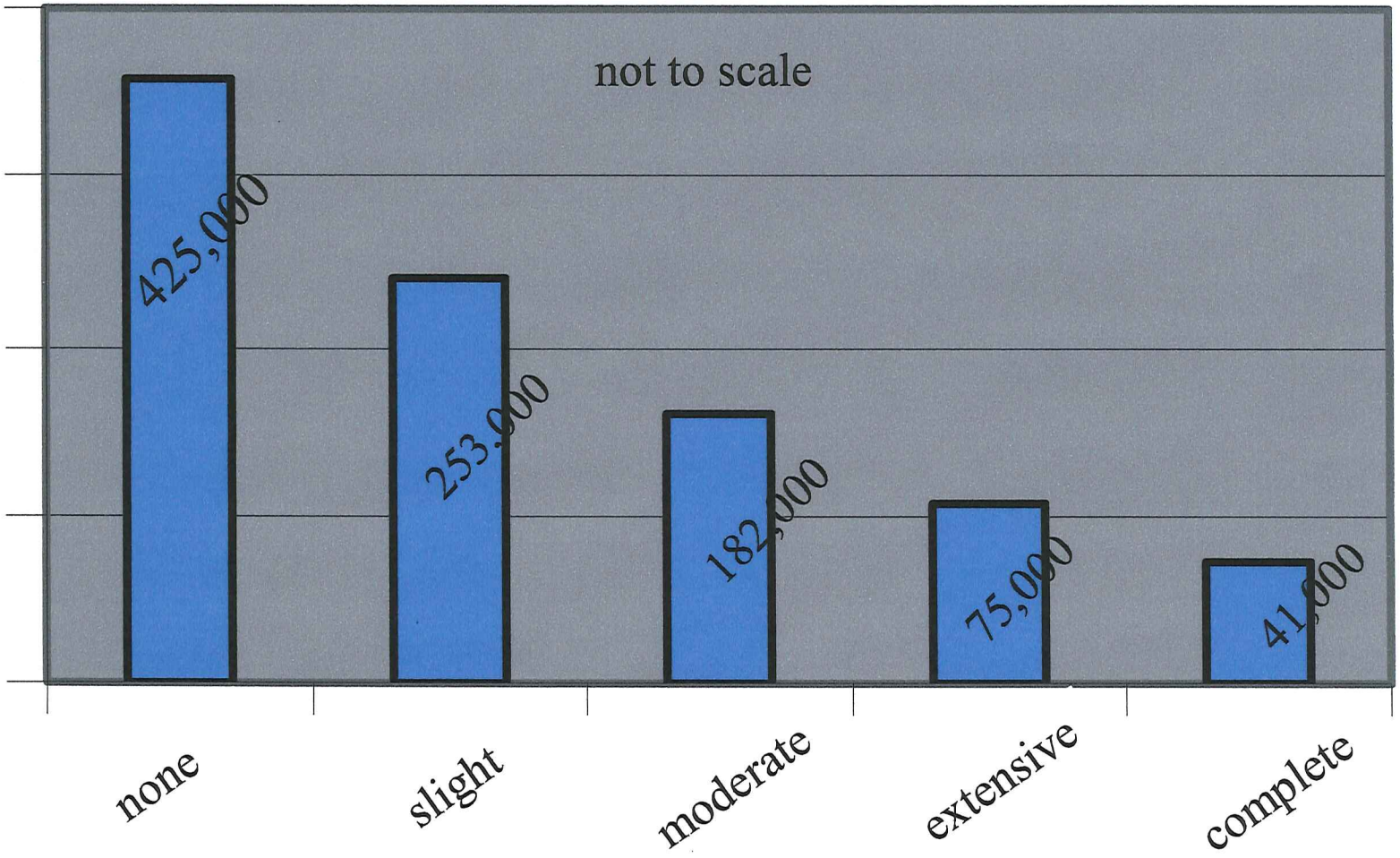


Table 3c - building damage

Table 4. County Rankings for Economic Exposure

County	Total Exposure (in $1000s)
Multnomah	37,264,000
Washington	16,552,000
Lane	15,418,000
Clackamas	14,279,000
Marion	11,812,000
Jackson	7,829,000
Linn	4,724,000
Deschutes	4,673,000
Douglas	4,631,000
Benton	3,693,000
Coos	3,263,000
Josephine	3,240,000
Klamath	3,134,000
Yamhill	3,038,000
Umatilla	2,998,000
Lincoln	2,668,000
Polk	2,330,000
Clatsop	2,198,000
Columbia	1,664,000
Tillamook	1,539,000
Malheur	1,356,000
Wasco	1,260,000
Union	1,237,000
Curry	1,093,000
Hood River	1,029,000
Baker	943,000
Crook	733,000
Jefferson	707,000
Wallowa	444,000
Grant	415,000
Harney	401,000
Lake	393,000
Morrow	365,000
Gilliam	112,000
Sherman	97,000
Wheeler	82,000

County	Total Loss (in $1000s)
Multnomah	1,943,000
Lane	1,614,000
Coos	1,339,000
Washington	931,000
Marion	776,000
Benton	632,000
Lincoln	624,000
Josephine	593,000
Clatsop	549,000
Jackson	538,000
Linn	443,000
Curry	371,000
Clackamas	317,000
Douglas	275,000
Yamhill	259,000
Polk	249,000
Tillamook	226,000
Columbia	72,000
Klamath	41,000
Deschutes	5,000
Hood River	3,000
Jefferson	<1,000
Grant	<1,000
Gilliam	<1,000
Harney	<1,000
Lake	<1,000
Umatilla	<1,000
Baker	<1,000
Crook	<1,000
Malheur	<1,000
Morrow	<1,000
Sherman	<1,000
Union	<1,000
Wallowa	<1,000
Wasco	<1,000
Wheeler	<1,000

←5a - Total Loss

5b - Loss Ratio→

County	Loss Ratio (%)
Coos	23.78
Curry	20.33
Clatsop	13.87
Lincoln	12.99
Josephine	10.34
Benton	9.53
Tillamook	8.69
Polk	6.07
Lane	5.54
Linn	5.12
Yamhill	4.92
Jackson	3.6
Douglas	3.52
Marion	3.47
Washington	2.89
Columbia	2.64
Multnomah	2.41
Clackamas	1.17
Klamath	<1.0
Hood River	<1.0
Jefferson	<1.0
Deschutes	<1.0
Wasco	<1.0
Lake	<1.0
Crook	<1.0
Morrow	<1.0
Umatilla	<1.0
Malheur	<1.0
Sherman	<1.0
Wheeler	<1.0
Baker	<1.0
Wallowa	<1.0
Union	<1.0
Grant	<1.0
Gilliam	<1.0
Harney	<1.0

5c - M8.5 Loss ratio vs loss→

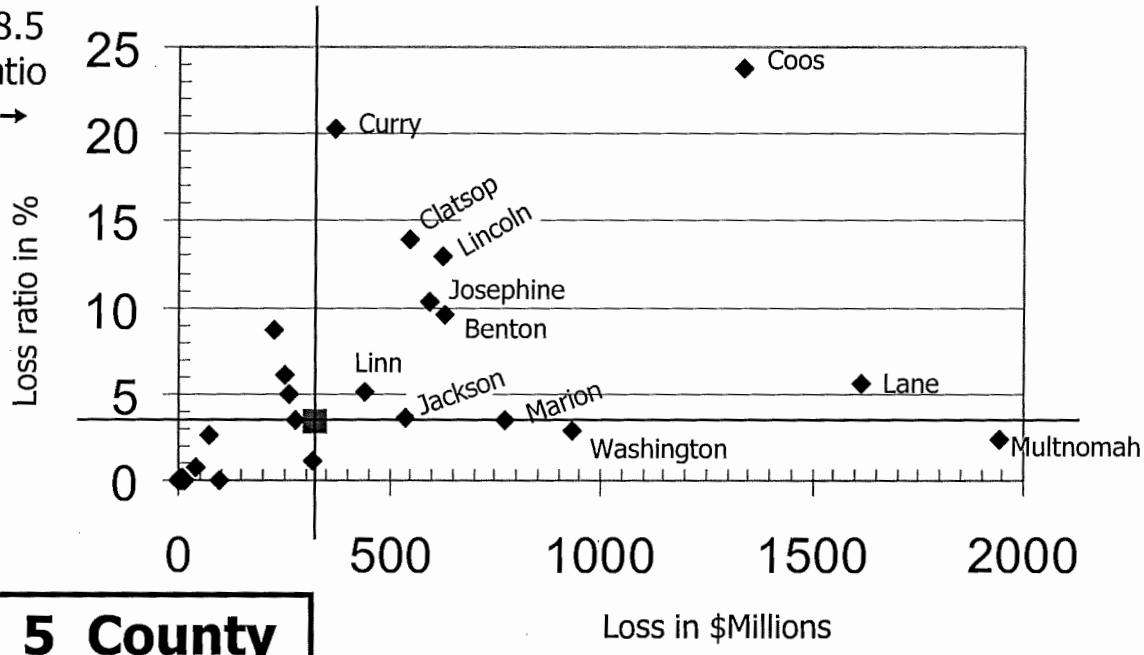


Table 5 County Rankings - M8.5

County	Total Loss (in $1000s)
Multnomah	9,219,000
Washington	3,779,000
Lane	3,044,000
Marion	2,342,000
Clackamas	2,099,000
Coos	1,429,000
Jackson	1,191,000
Benton	1,073,000
Linn	998,000
Klamath	939,000
Josephine	848,000
Lincoln	793,000
Clatsop	760,000
Yamhill	655,000
Douglas	546,000
Polk	529,000
Curry	388,000
Tillamook	364,000
Columbia	267,000
Deschutes	71,000
Umatilla	68,000
Hood River	62,000
Malheur	43,000
Lake	40,000
Wasco	25,000
Jefferson	14,000
Baker	13,000
Morrow	10,000
Union	9,000
Wallowa	8,000
Crook	6,000
Grant	3,000
Harney	2,000
Sherman	1,000
Wheeler	1,000
Gilliam	1,000

←6a - Total Loss

6b - Loss Ratio →

County	Loss Ratio %
Coos	25.89
Curry	21.44
Clatsop	19.95
Klamath	18.03
Lincoln	17.07
Benton	16.68
Josephine	15.07
Tillamook	14.43
Polk	13.68
Yamhill	12.90
Multnomah	12.50
Washington	12.44
Linn	12.00
Marion	11.04
Lane	10.70
Columbia	9.99
Jackson	8.11
Clackamas	7.87
Douglas	7.02
Lake	5.70
Hood River	2.68
Morrow	1.69
Malheur	1.61
Umatilla	1.25
Jefferson	1.18
Wasco	1.13
Wallowa	<1.00
Deschutes	<1.00
Baker	<1.00
Sherman	<1.00
Wheeler	<1.00
Crook	<1.00
Union	<1.00
Grant	<1.00
Gilliam	<1.00
Harney	<1.00

Table 6c - 500-yr. Loss Ratio vs Loss

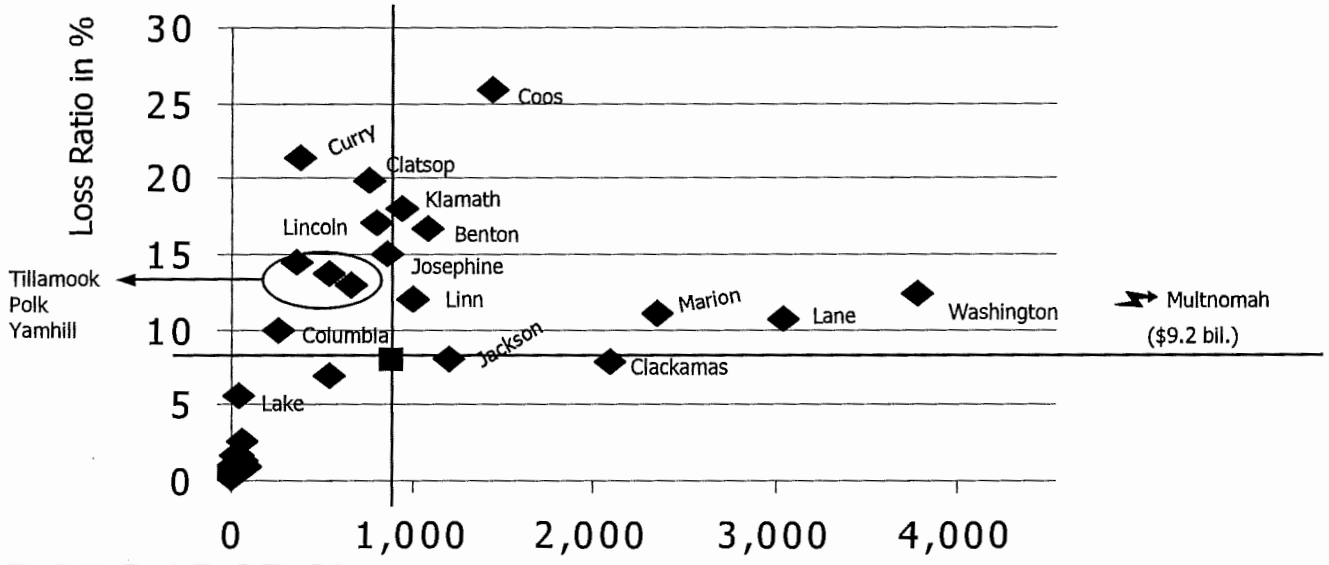


Table 6 County Rankings - 500 yr.

Figures

Oregon

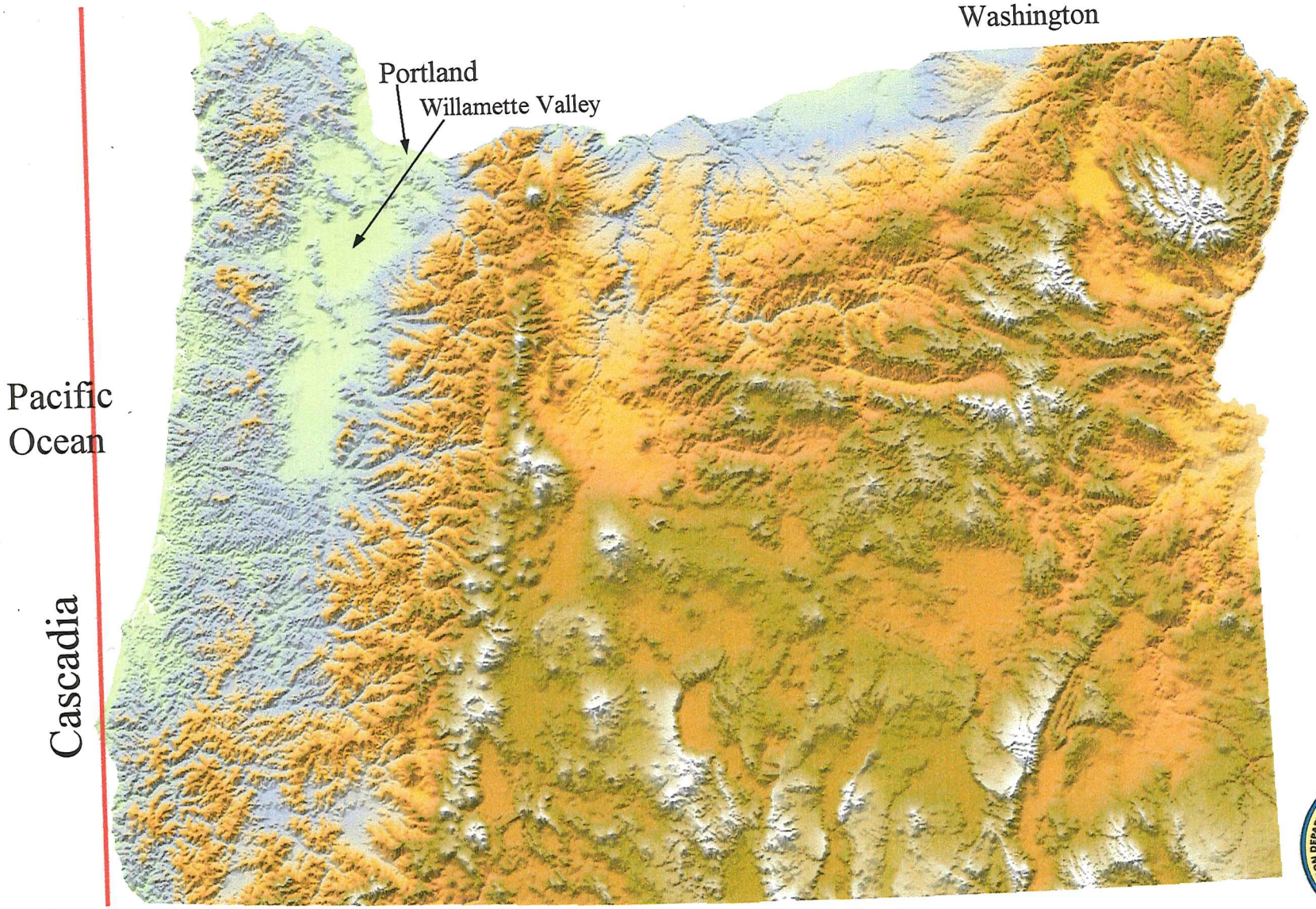


Figure 1

Magnitude 8.5 Cascadia Earthquake and Soils Map

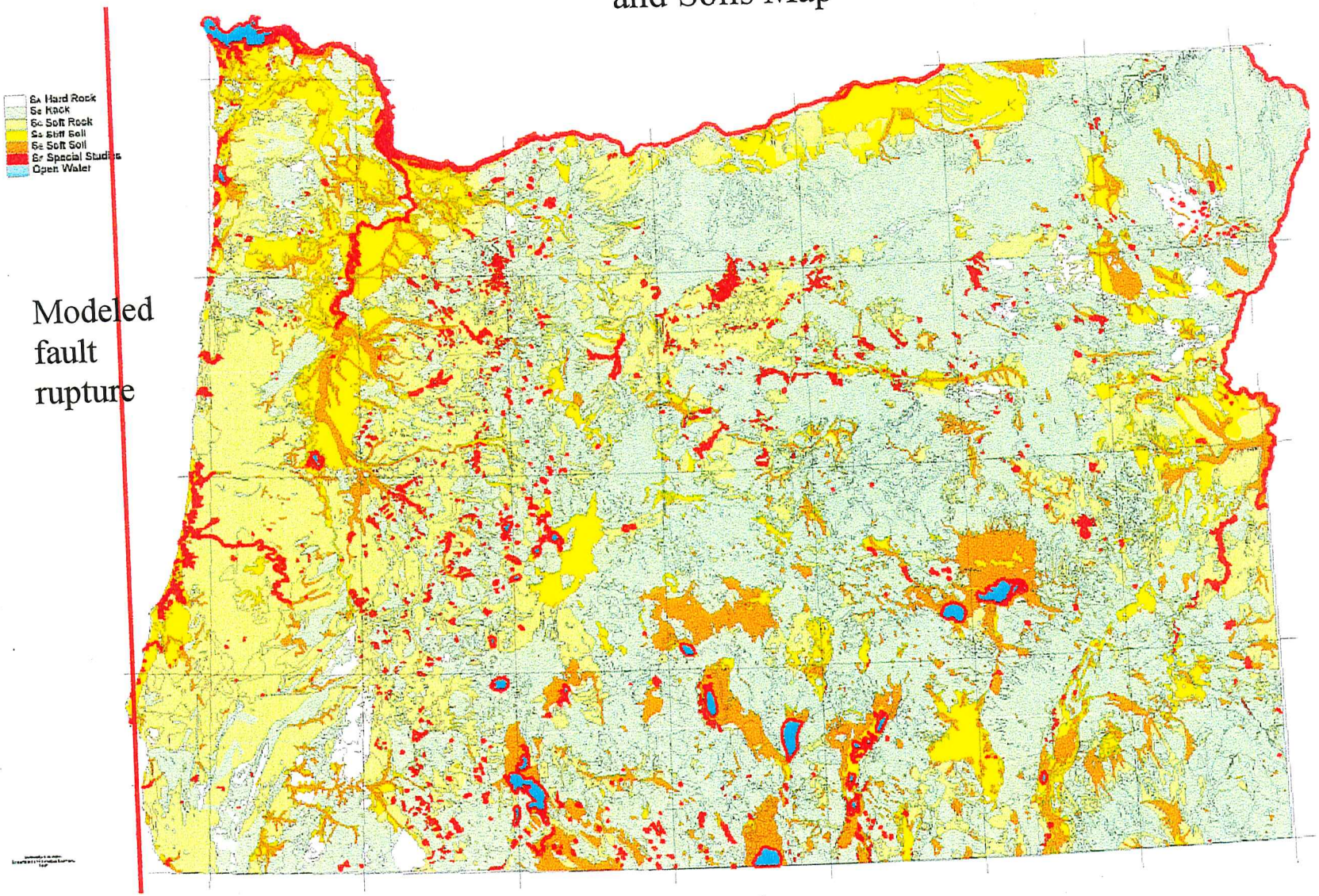
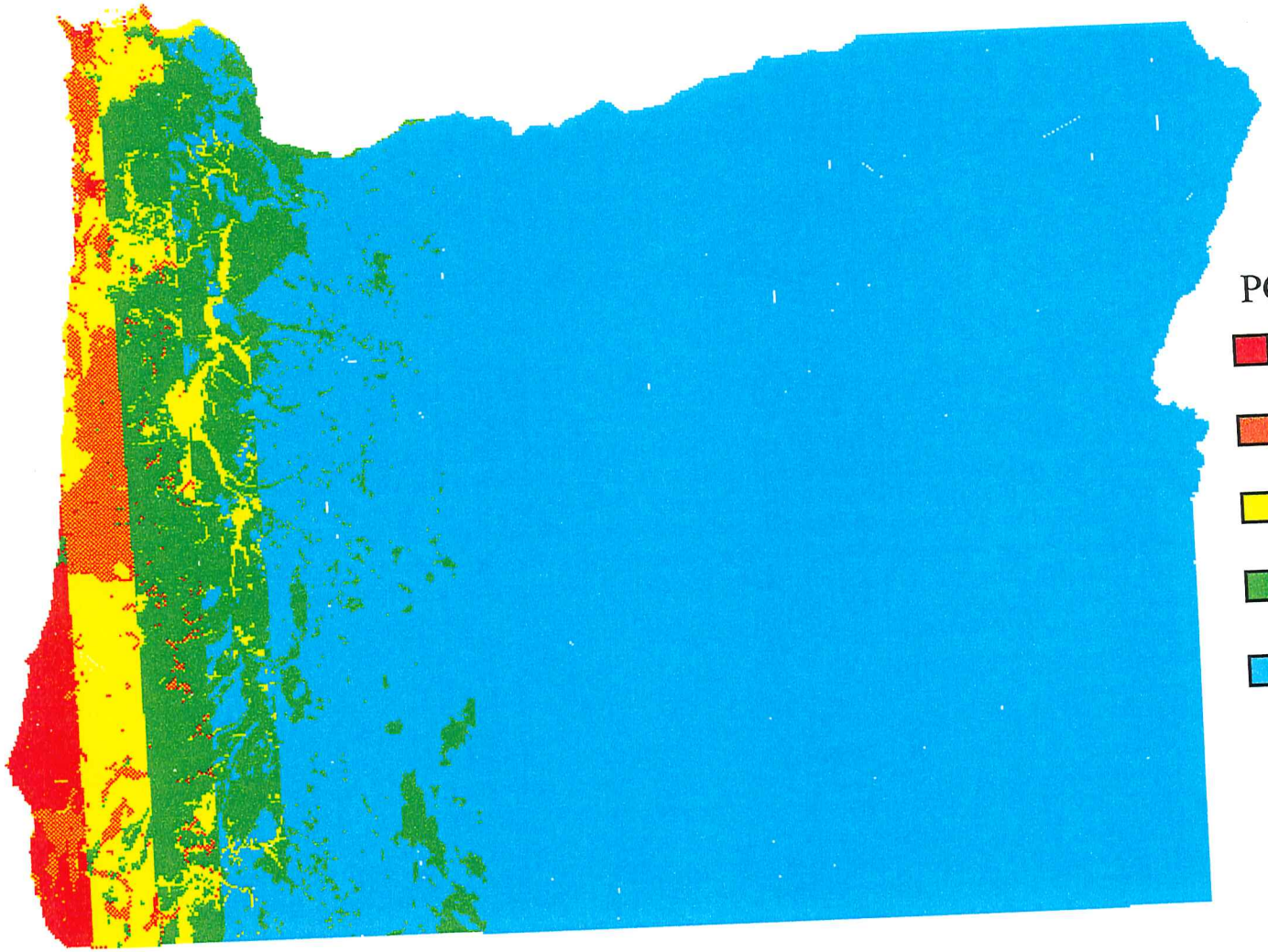


Figure 2

Peak Ground Acceleration
M8.5 Cascadia



PGA Contour

- 0.29 to 0.36 g
- 0.22 to 0.29 g
- 0.15 to 0.22 g
- 0.08 to 0.15 g
- 0 to 0.08 g

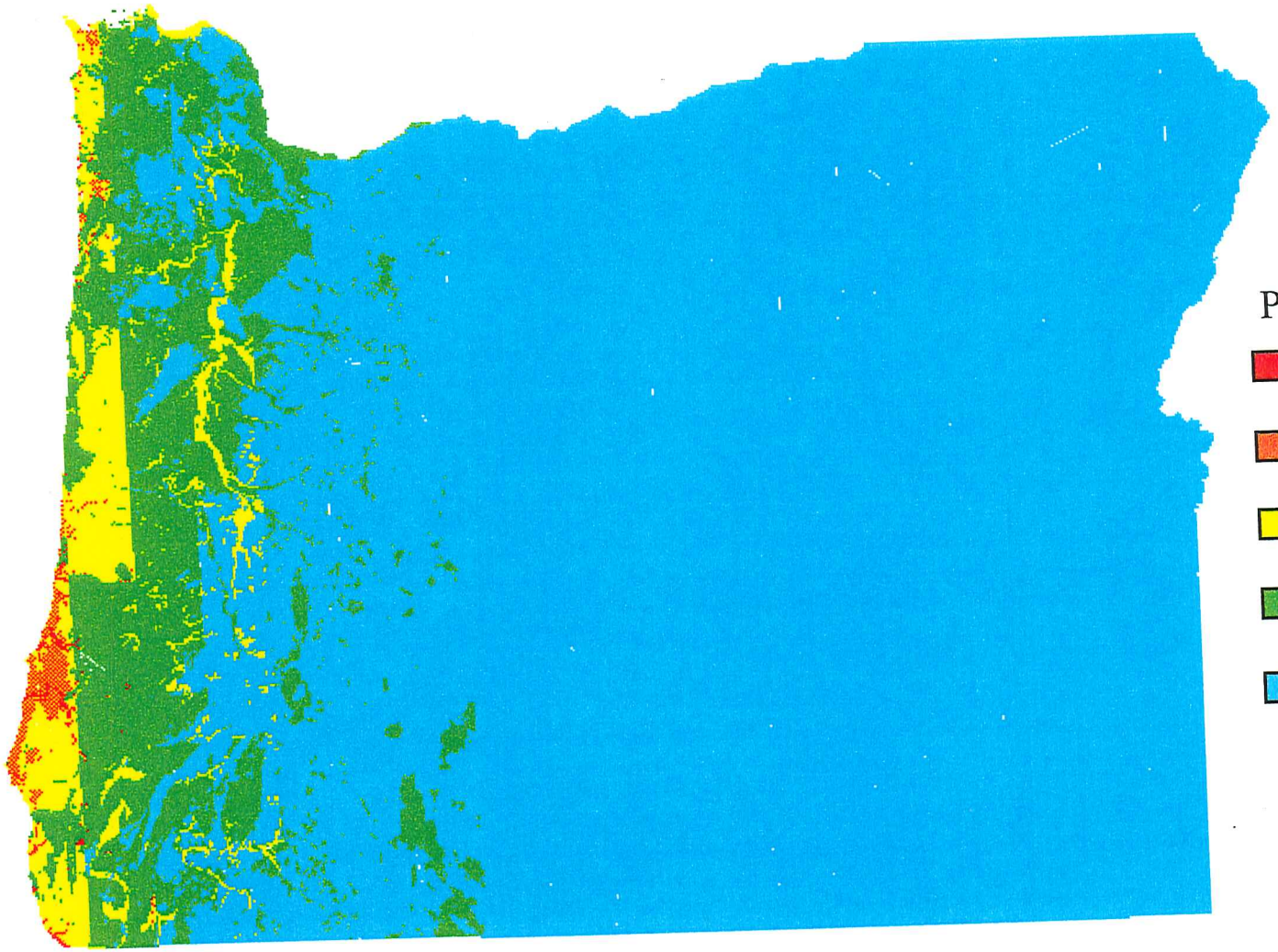
50 mi.

80 km.

Figure 3

OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES 1937

Peak Ground Velocity
M8.5 Cascadia



PGV Contour

- 24.16 to 30.09 in./sec.
- 18.24 to 24.16 in./sec.
- 12.32 to 18.24 in./sec.
- 6.40 to 12.32 in./sec.
- 0.47 to 6.40 in./sec.

50 mi.

80 km.

Figure 4

OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES 1937

Spectral Velocity at 0.3 seconds
M8.5 Cascadia

S_V Contour at 0.3 sec.

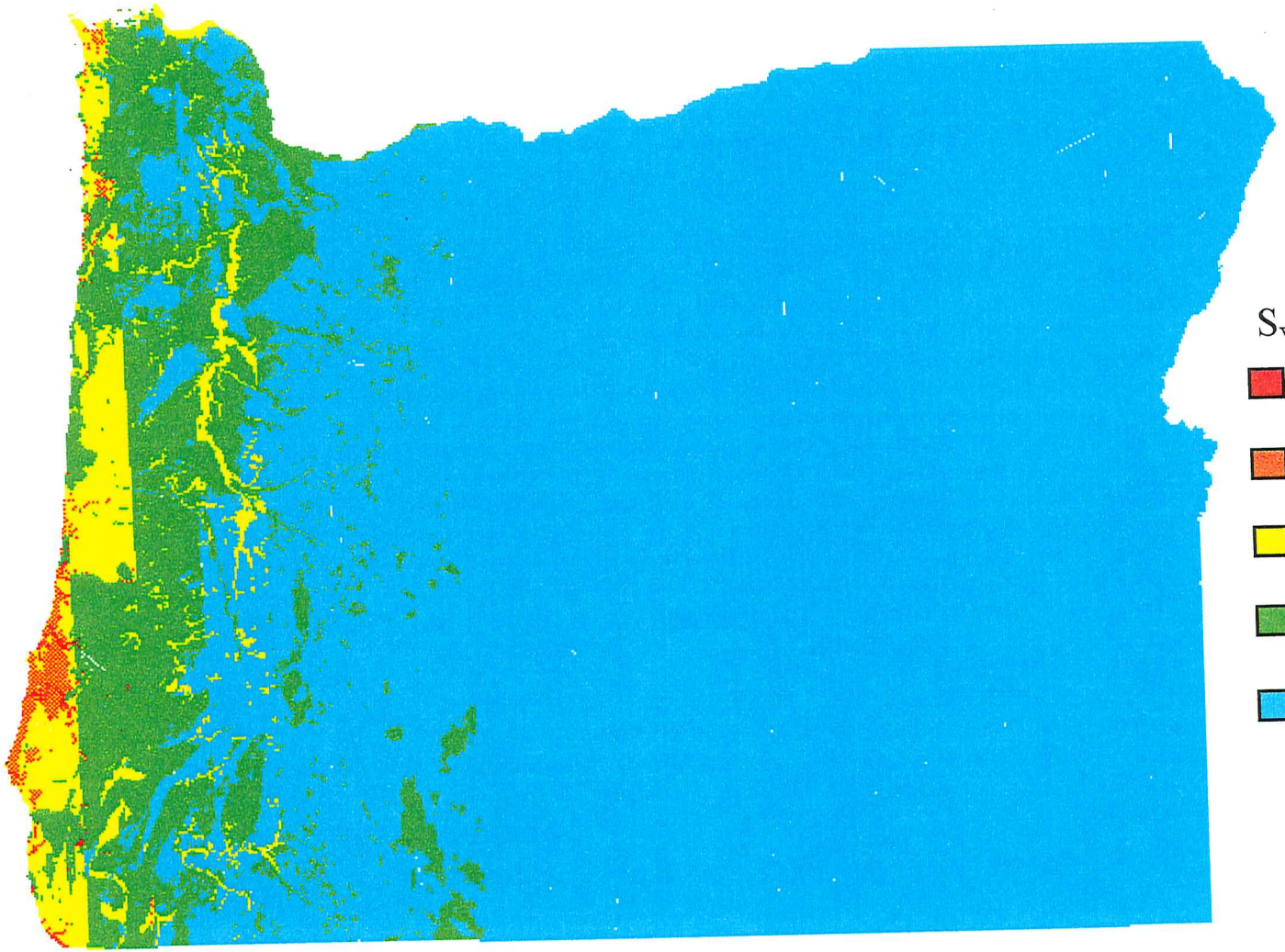
- 15.61 to 19.34 in./sec.
- 11.88 to 15.61 in./sec.
- 8.16 to 11.88 in./sec.
- 4.44 to 8.16 in./sec.
- 0.70 to 4.44 in./sec.

50 mi.

80 km.

Figure 5

Spectral Velocity at 1.0 second
M8.5 Cascadia



S_V Contour

- 39.87 to 49.64 in./sec.
- 30.10 to 39.87 in./sec.
- 20.33 to 30.10 in./sec.
- 10.56 to 20.33 in./sec.
- 0.78 to 10.56 in./sec.

50 mi.

80 km.

Figure 6

OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES 1937

Peak Ground Acceleration

M8.5 Cascadia

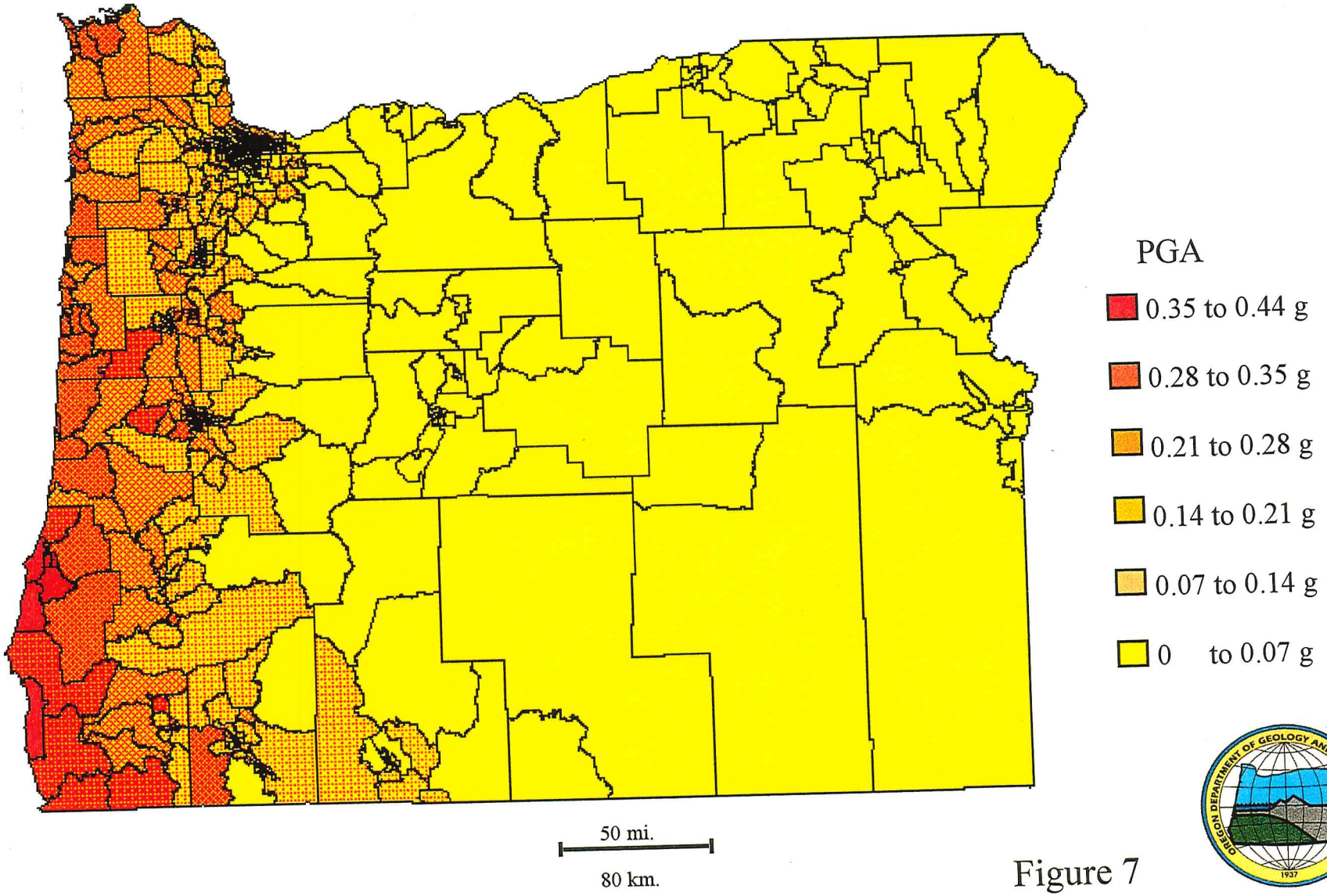


Figure 7

Peak Ground Velocity
M8.5 Cascadia

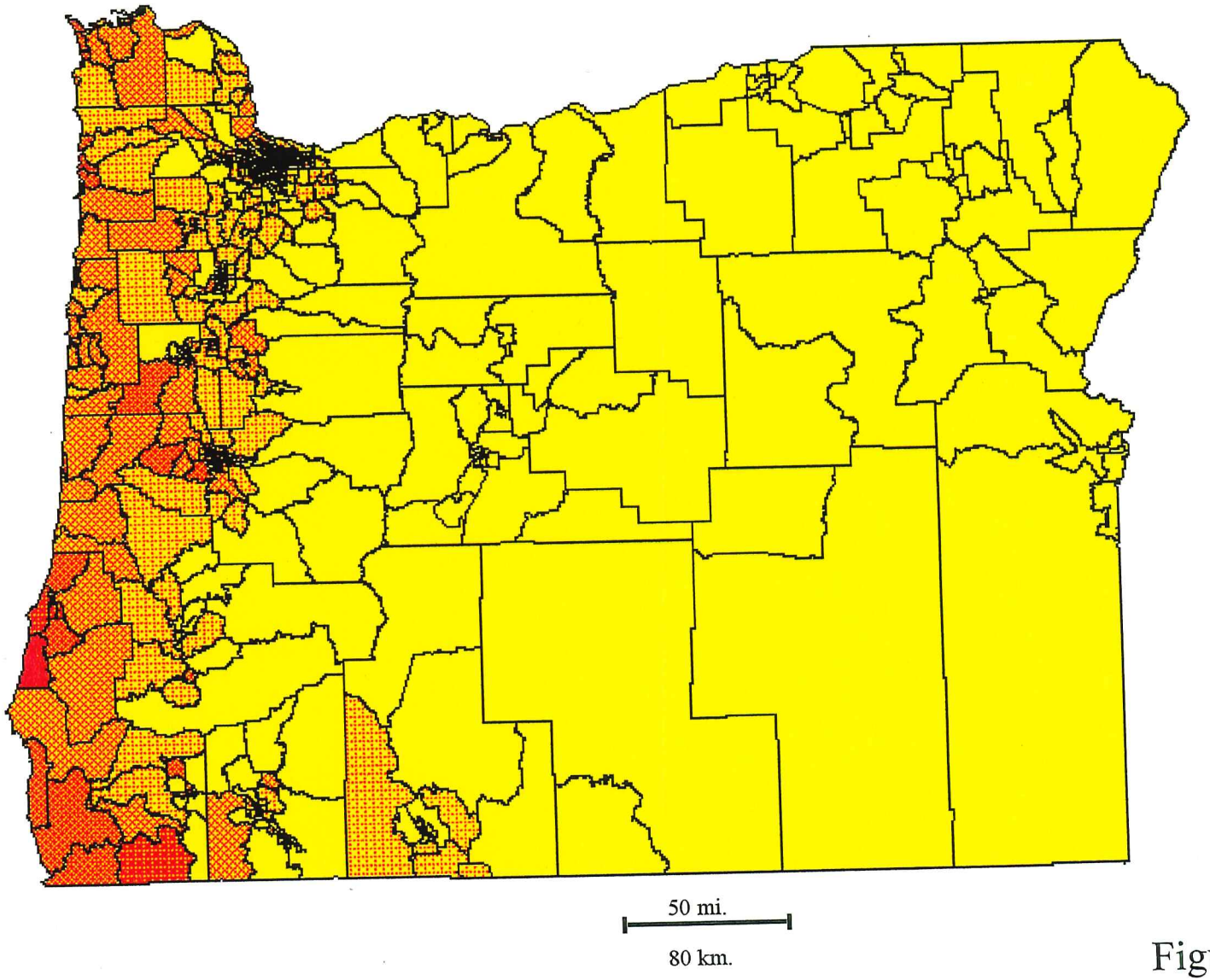


Figure 8

Spectral Acceleration at 0.3 seconds

M8.5 Cascadia

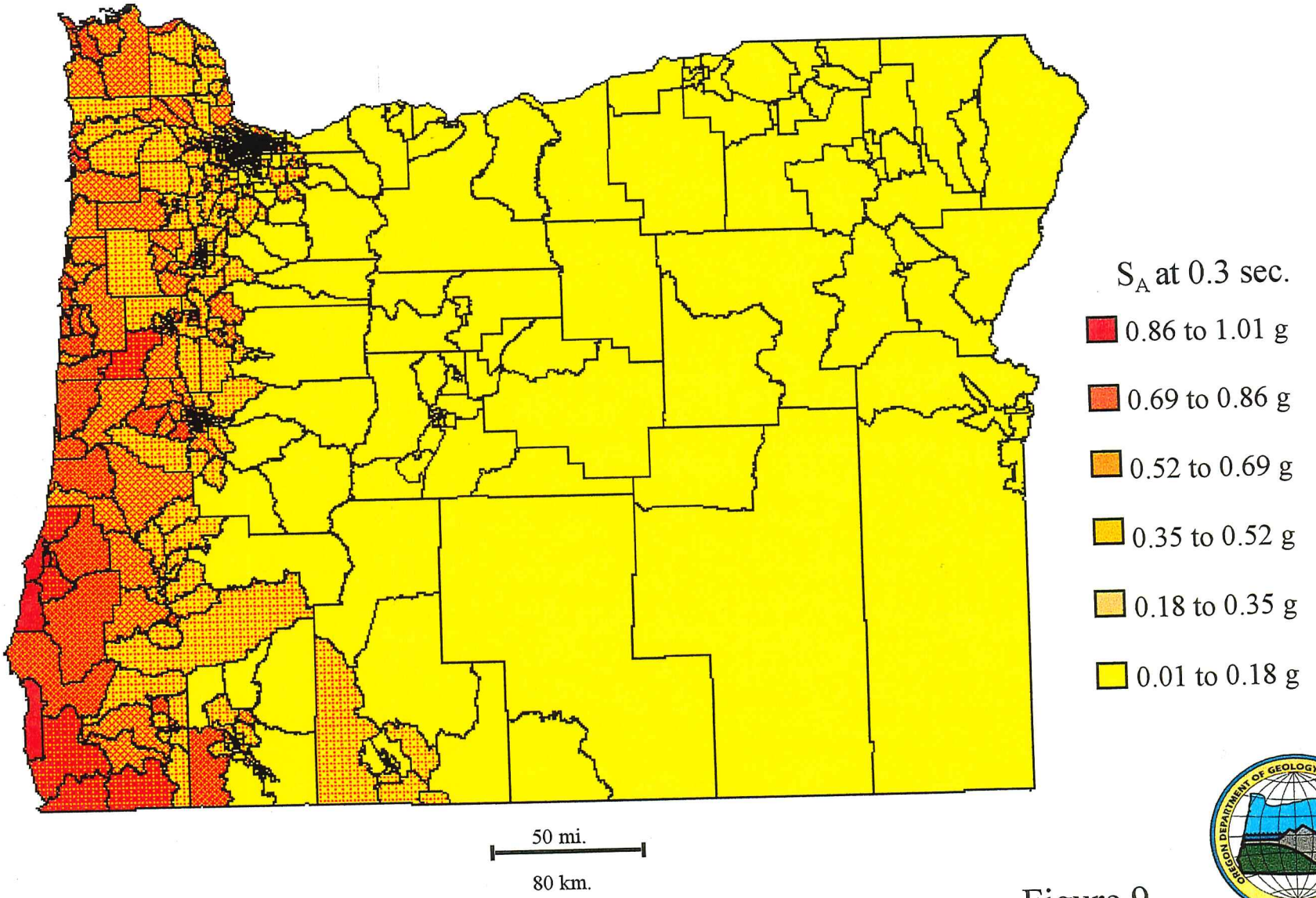


Figure 9

Spectral Acceleration at 1.0 second
M8.5 Cascadia

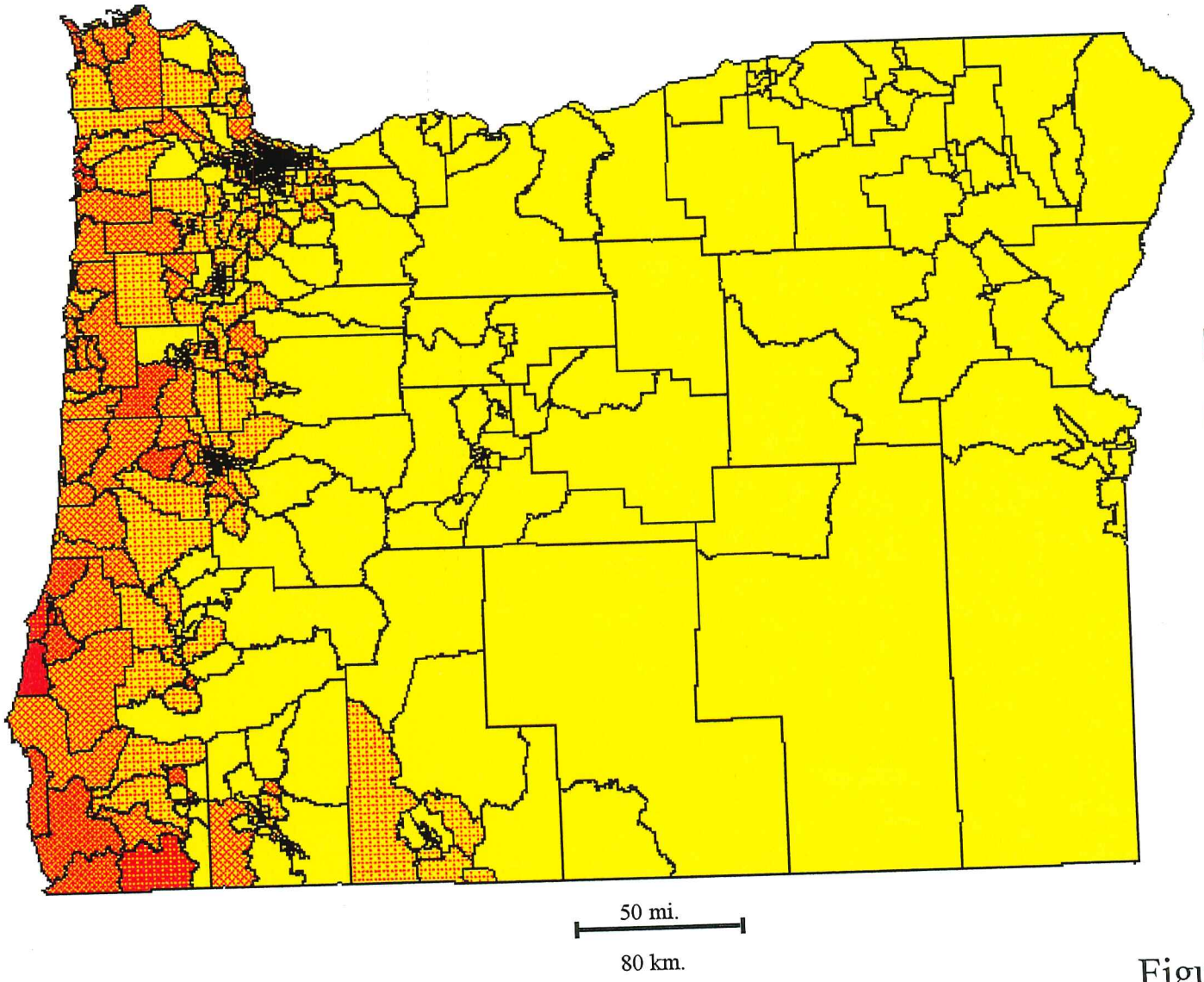


Figure 10

Spectral Velocity at 0.3 seconds
M8.5 Cascadia

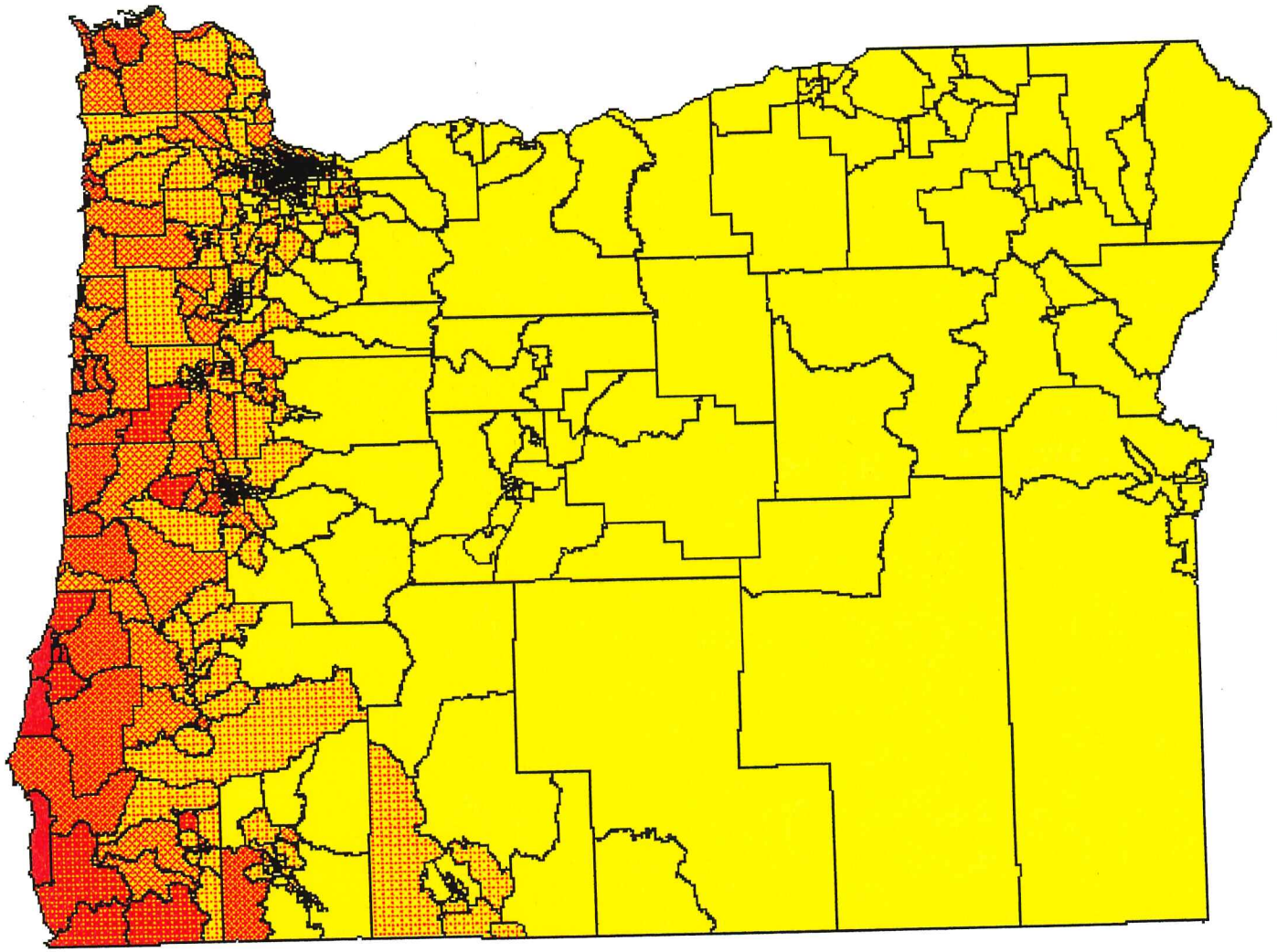


Figure 11

Spectral Velocity at 1.0 second

M8.5 Cascadia

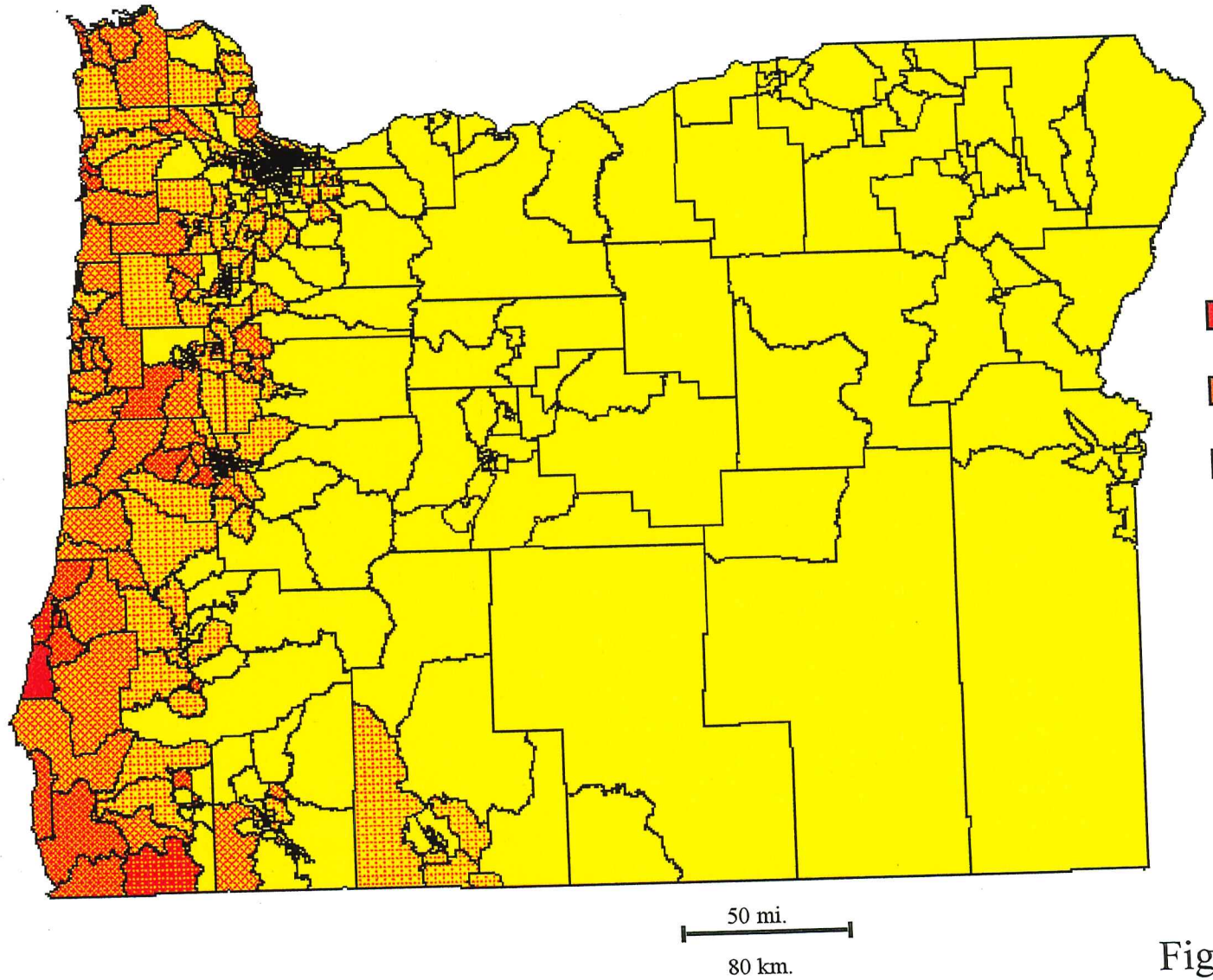


Figure 12

Spectral Displacement at 0.3 seconds
M8.5 Cascadia

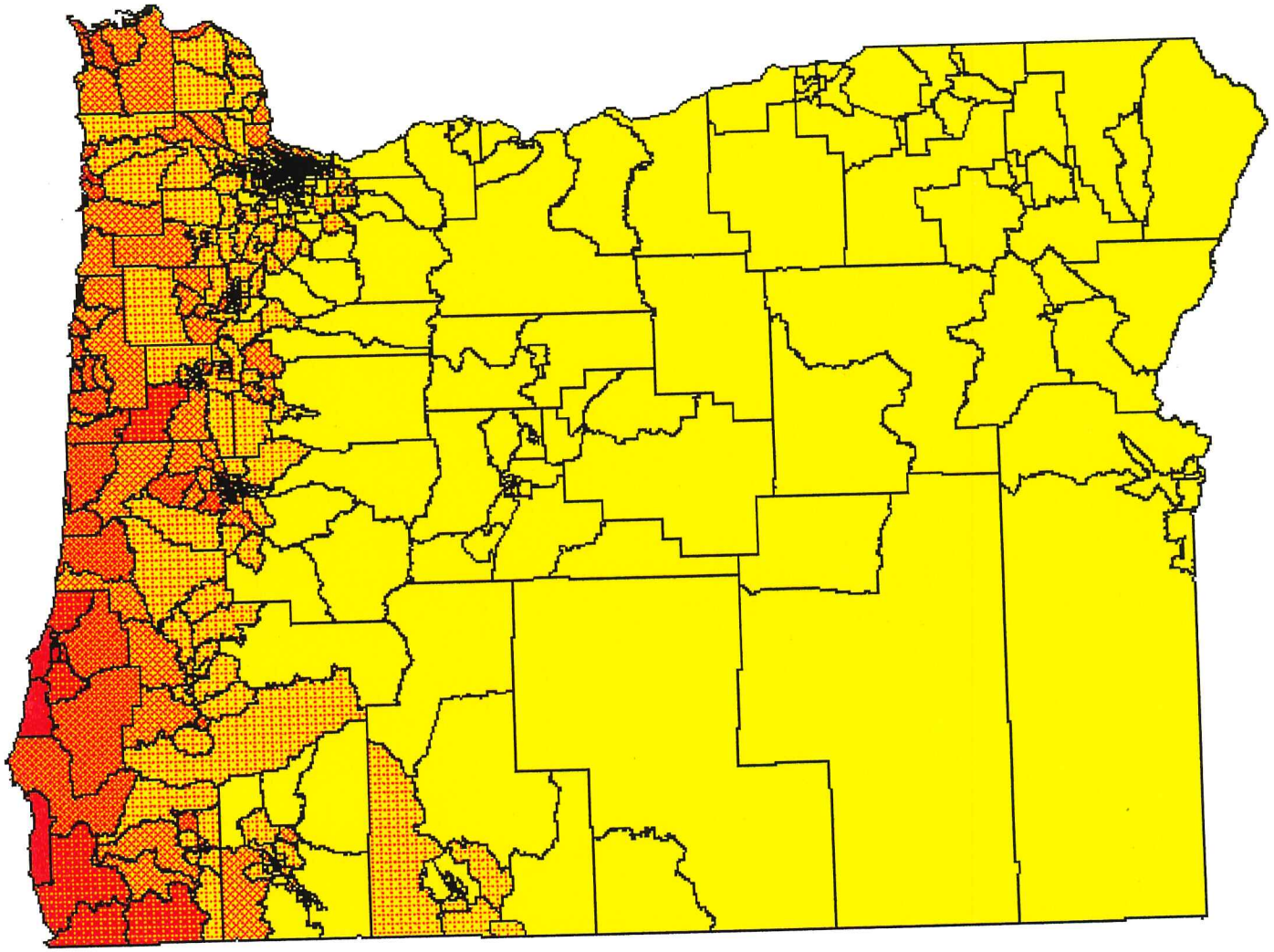
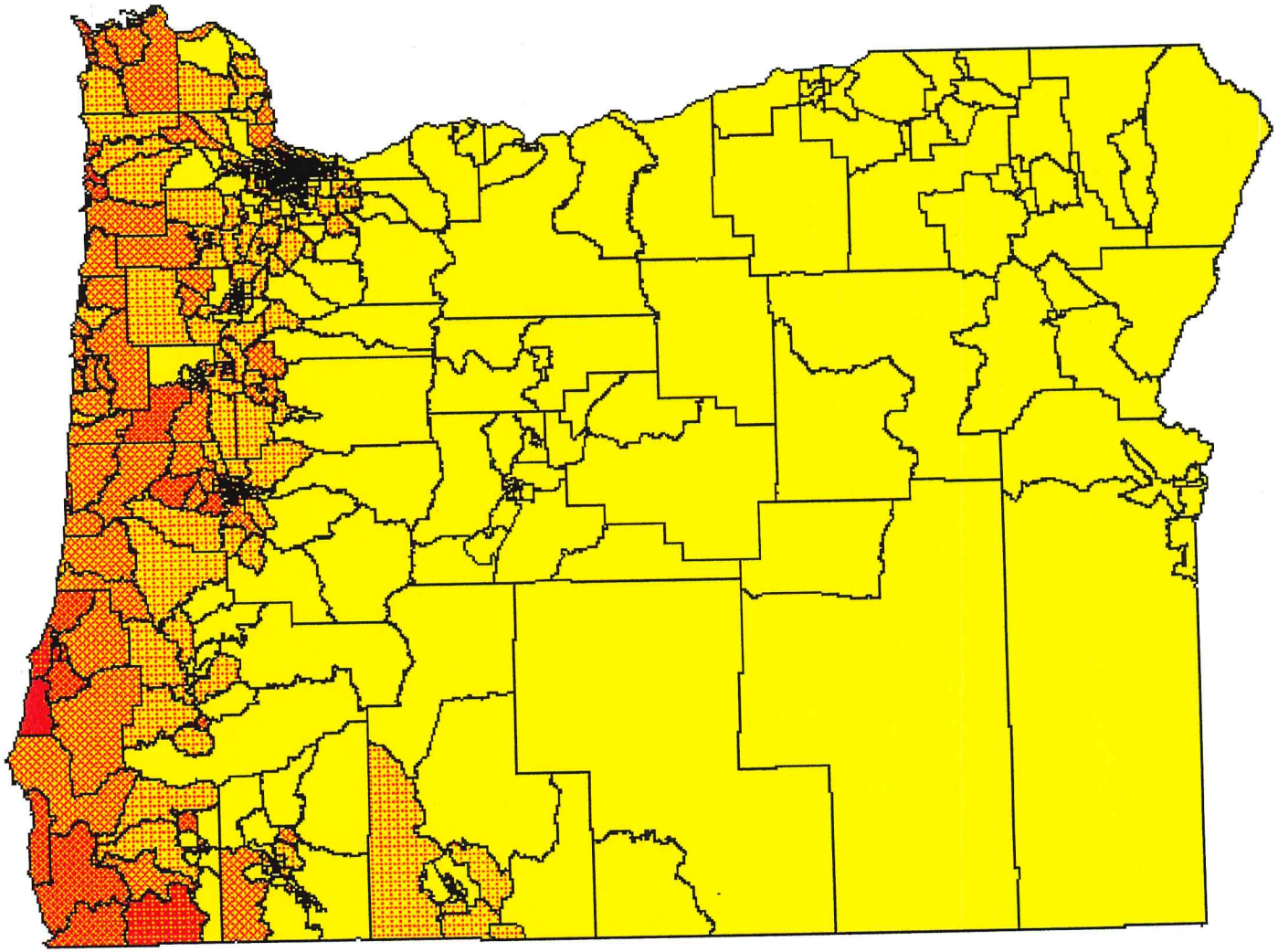


Figure 13

Spectral Displacement at 1.0 second
M8.5 Cascadia



S_D at 1.0 sec.

- 6.92 to 8.25 in.
- 5.56 to 6.92 in.
- 4.20 to 5.56 in.
- 2.84 to 4.20 in.
- 1.48 to 2.84 in.
- 0.12 to 1.48 in.

Figure 14

Peak Ground Acceleration

500 year return interval

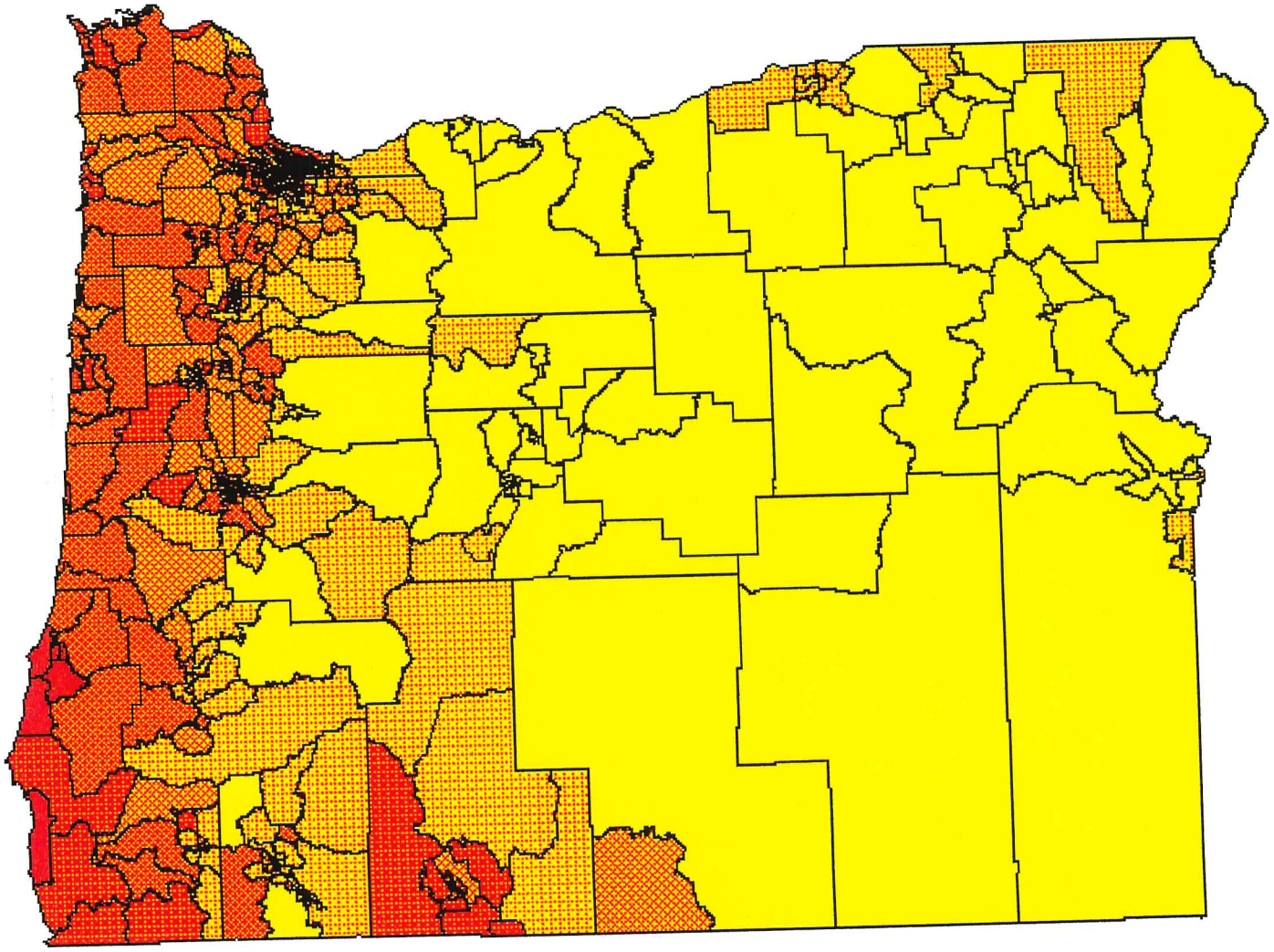


Figure 15

Peak Ground Velocity

500 year return interval

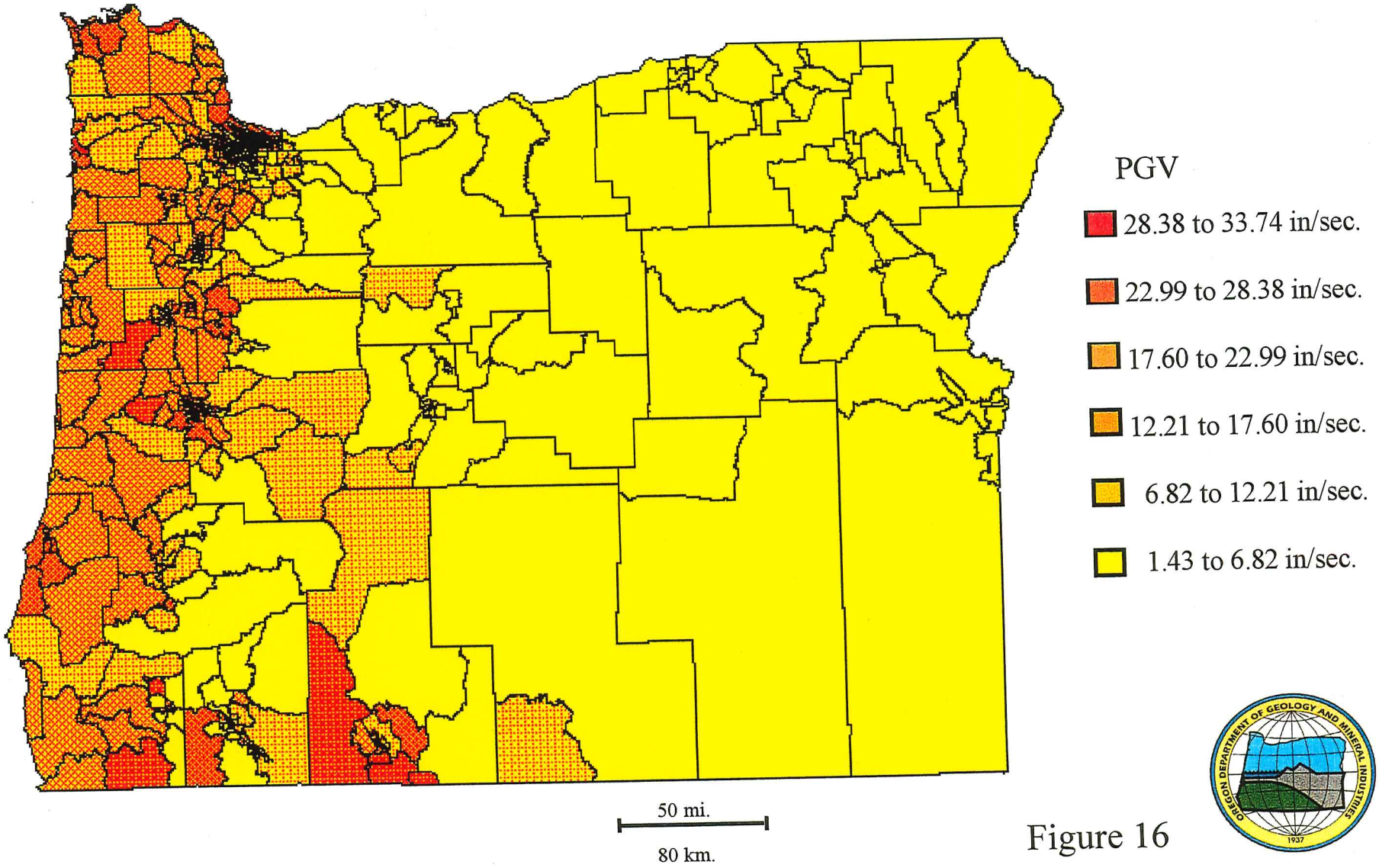


Figure 16

Spectral Acceleration at 0.3 seconds

500 year return interval

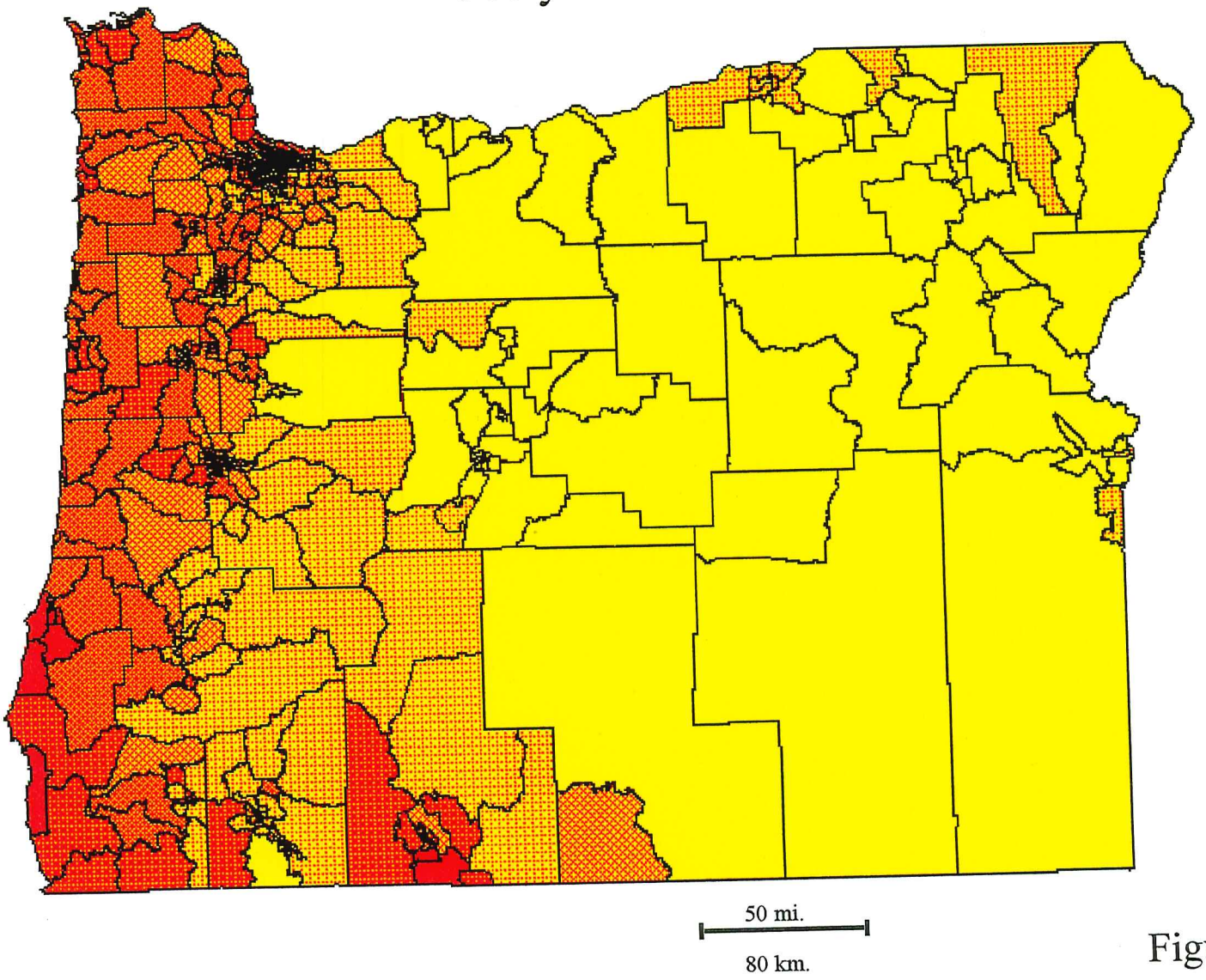


Figure 17

Spectral Acceleration at 1.0 second
500 year return interval

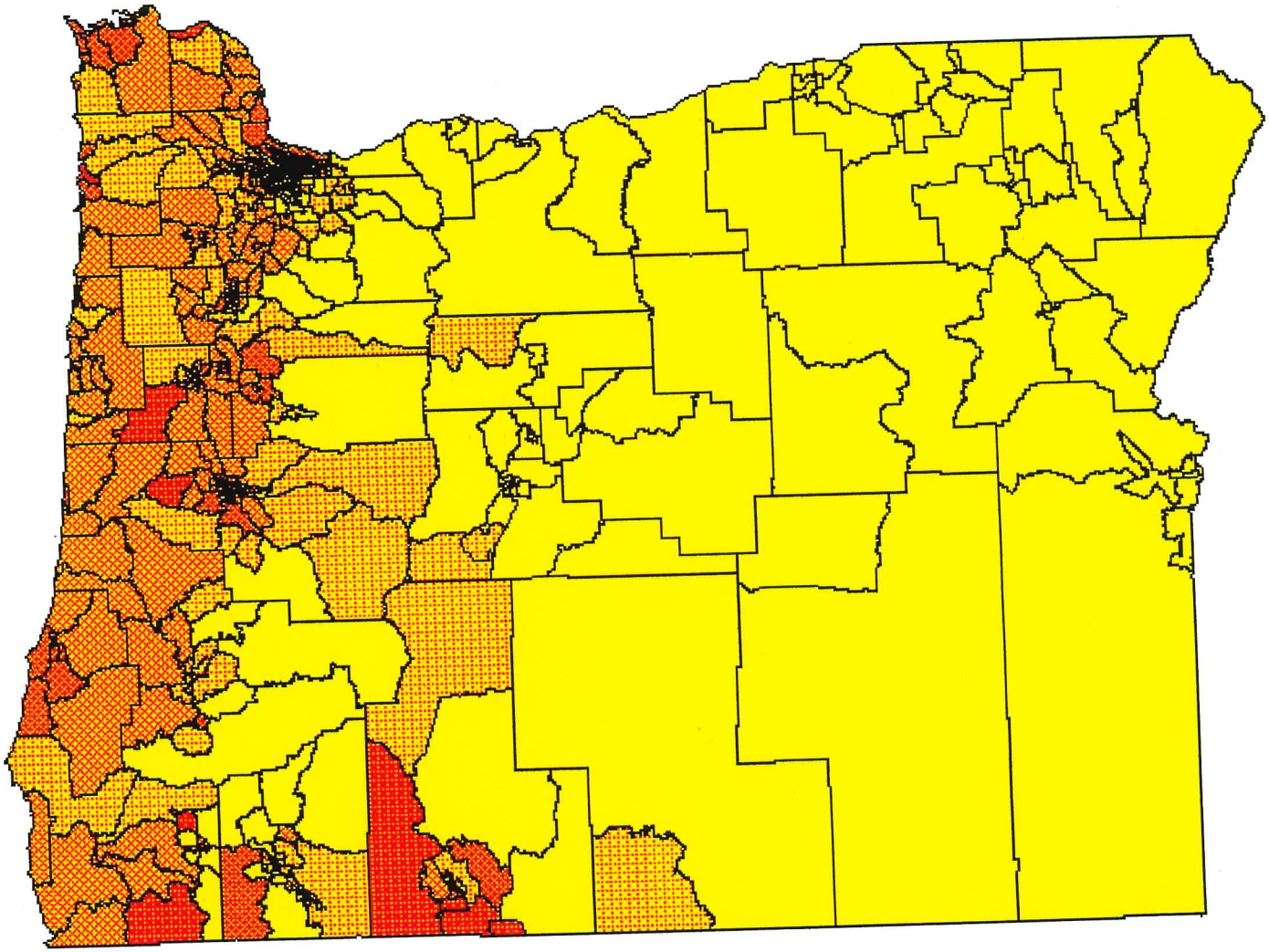


Figure 18

Spectral Velocity at 0.3 second
500 year return interval

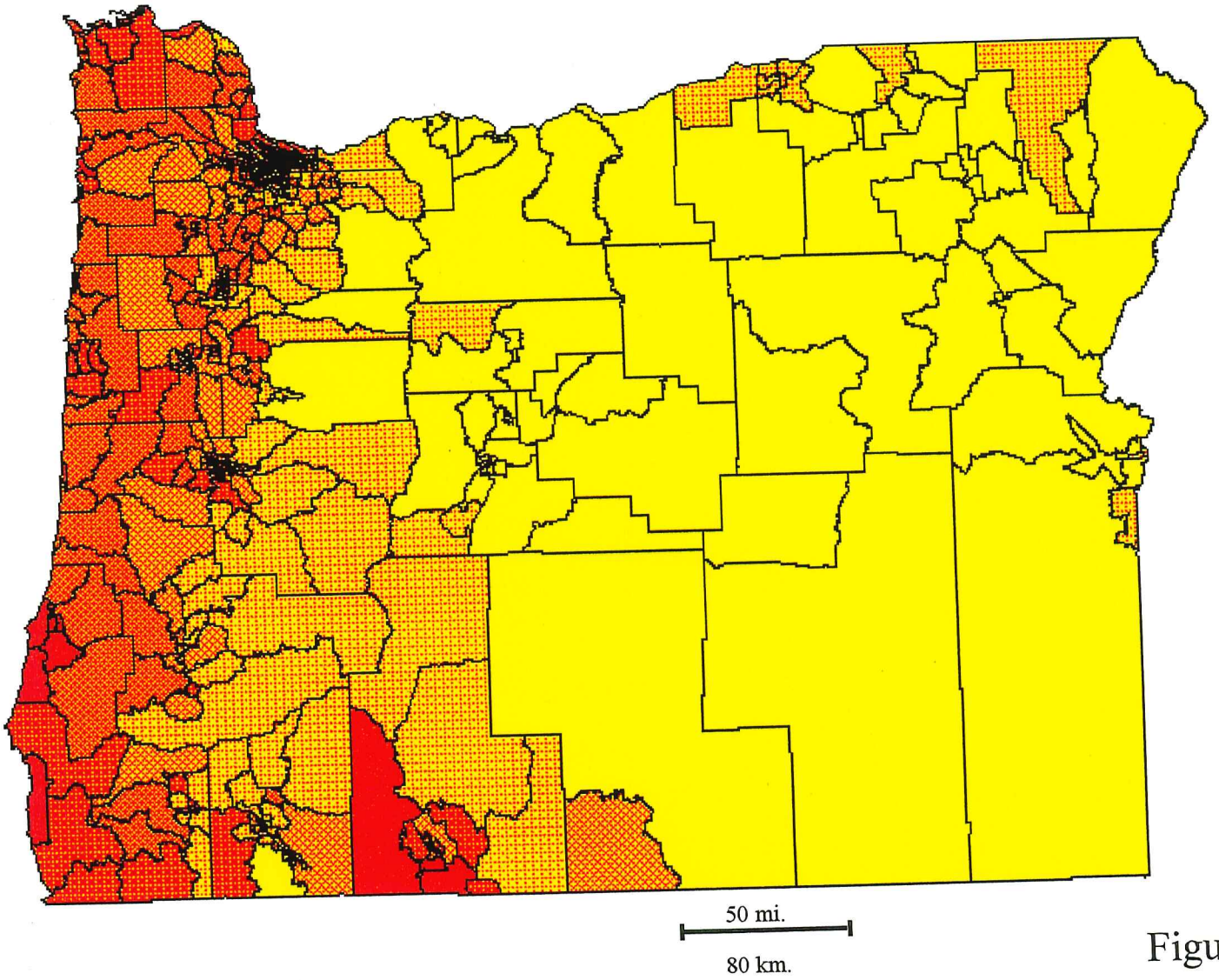


Figure 19

Spectral Velocity at 1.0 second
500 year return interval

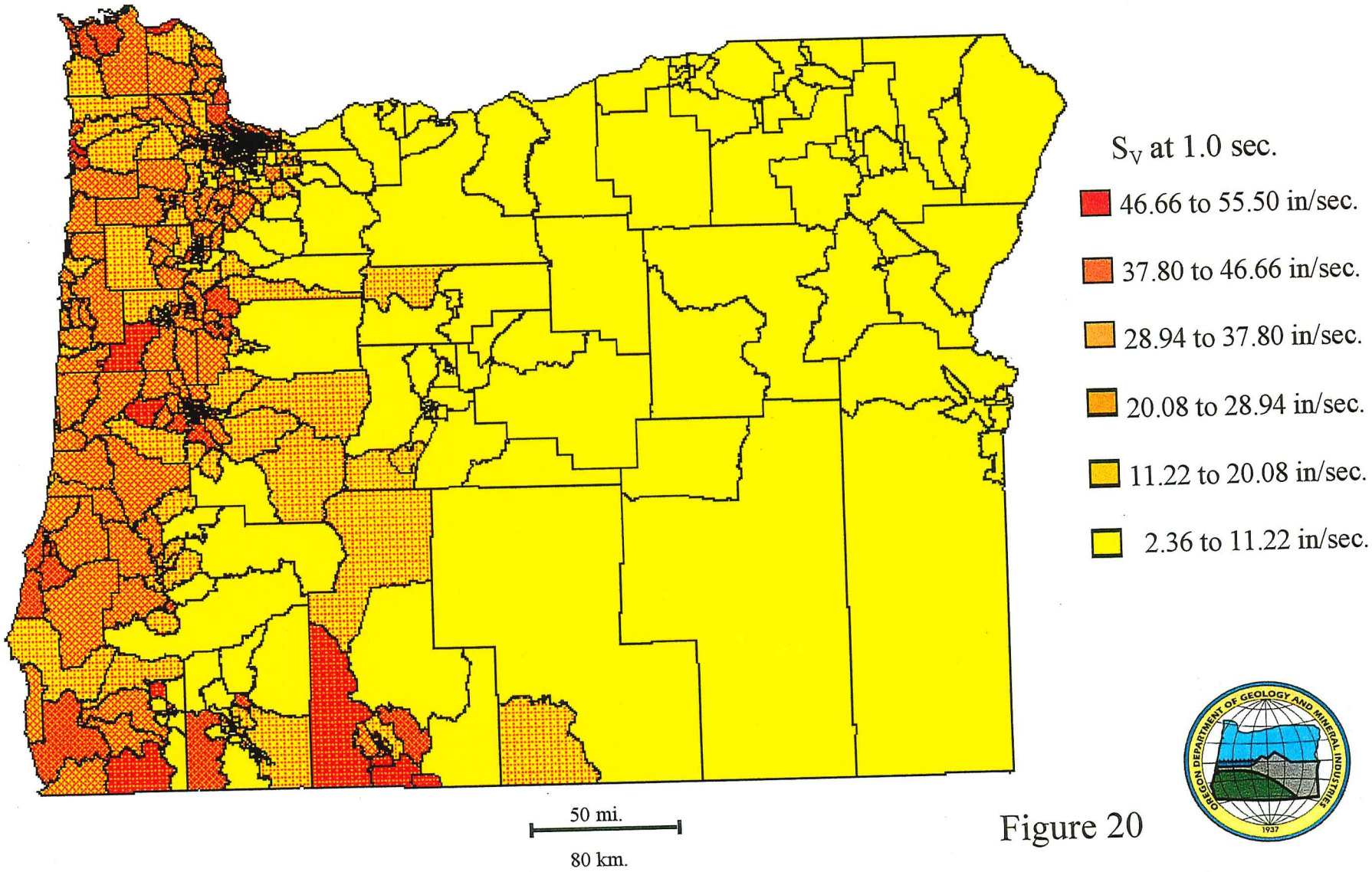


Figure 20

Spectral Displacement at 0.3 seconds
500 year return interval

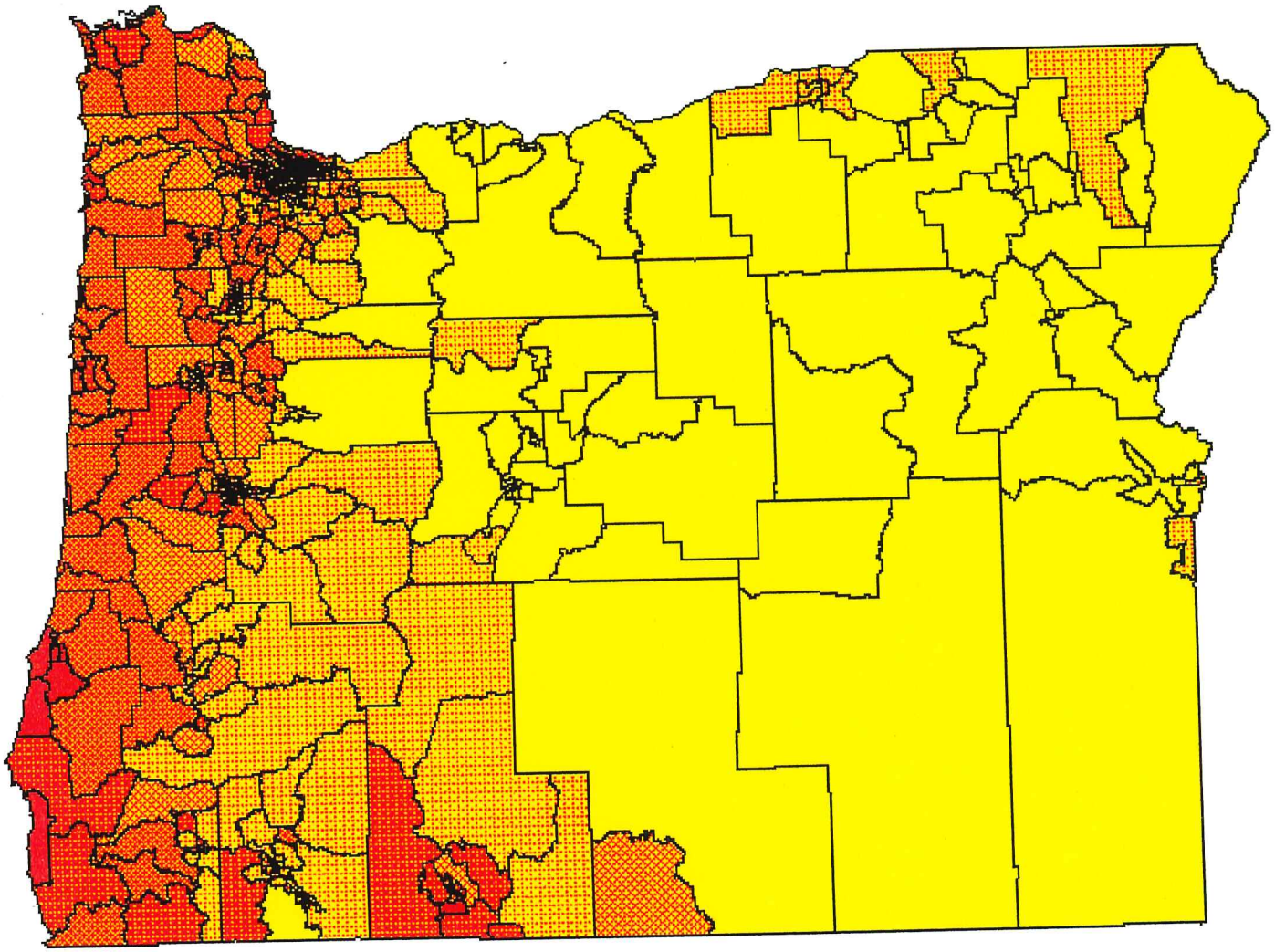


Figure 21

Spectral Displacement at 1.0 second
500 year return interval

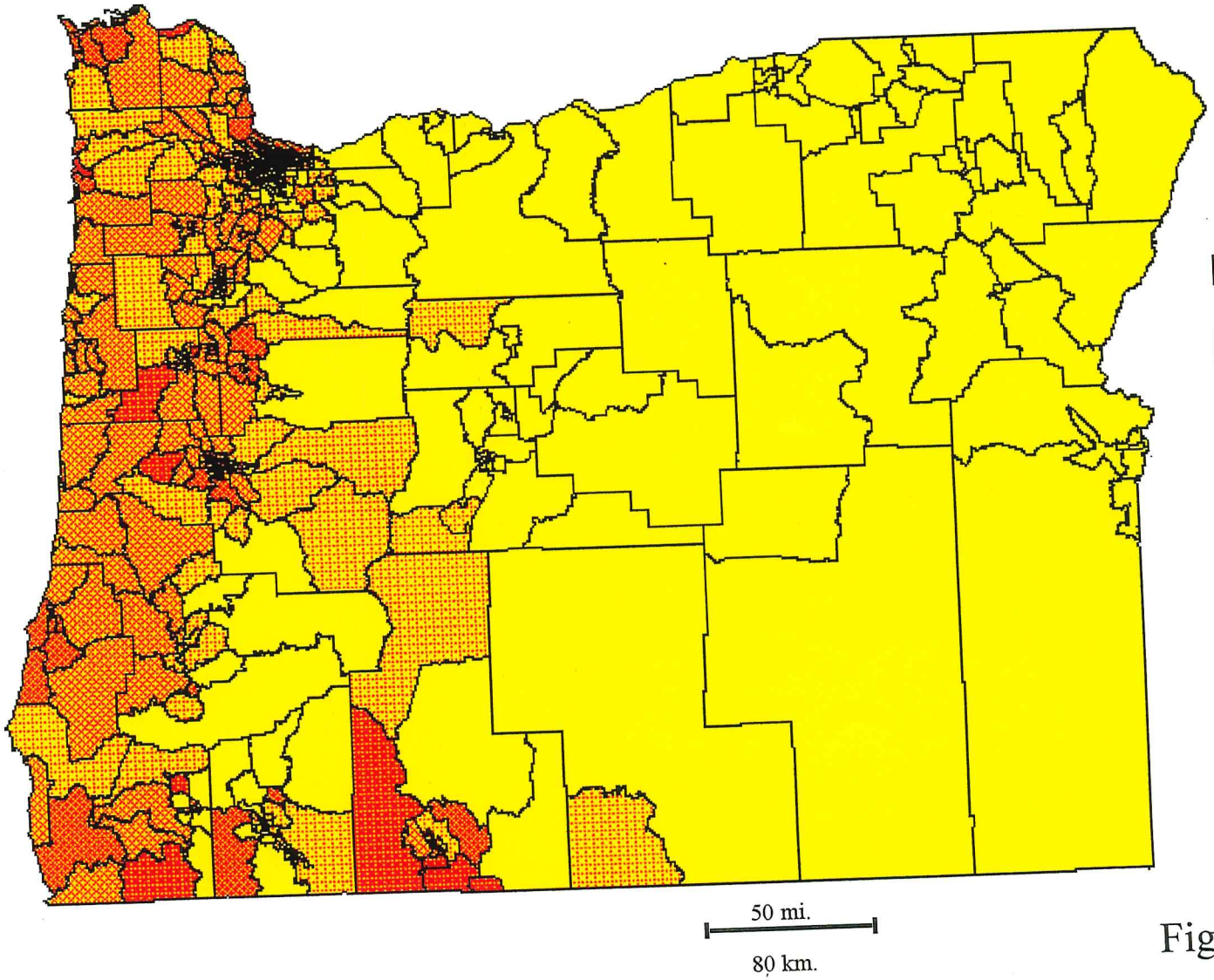


Figure 22

Essential Facilities

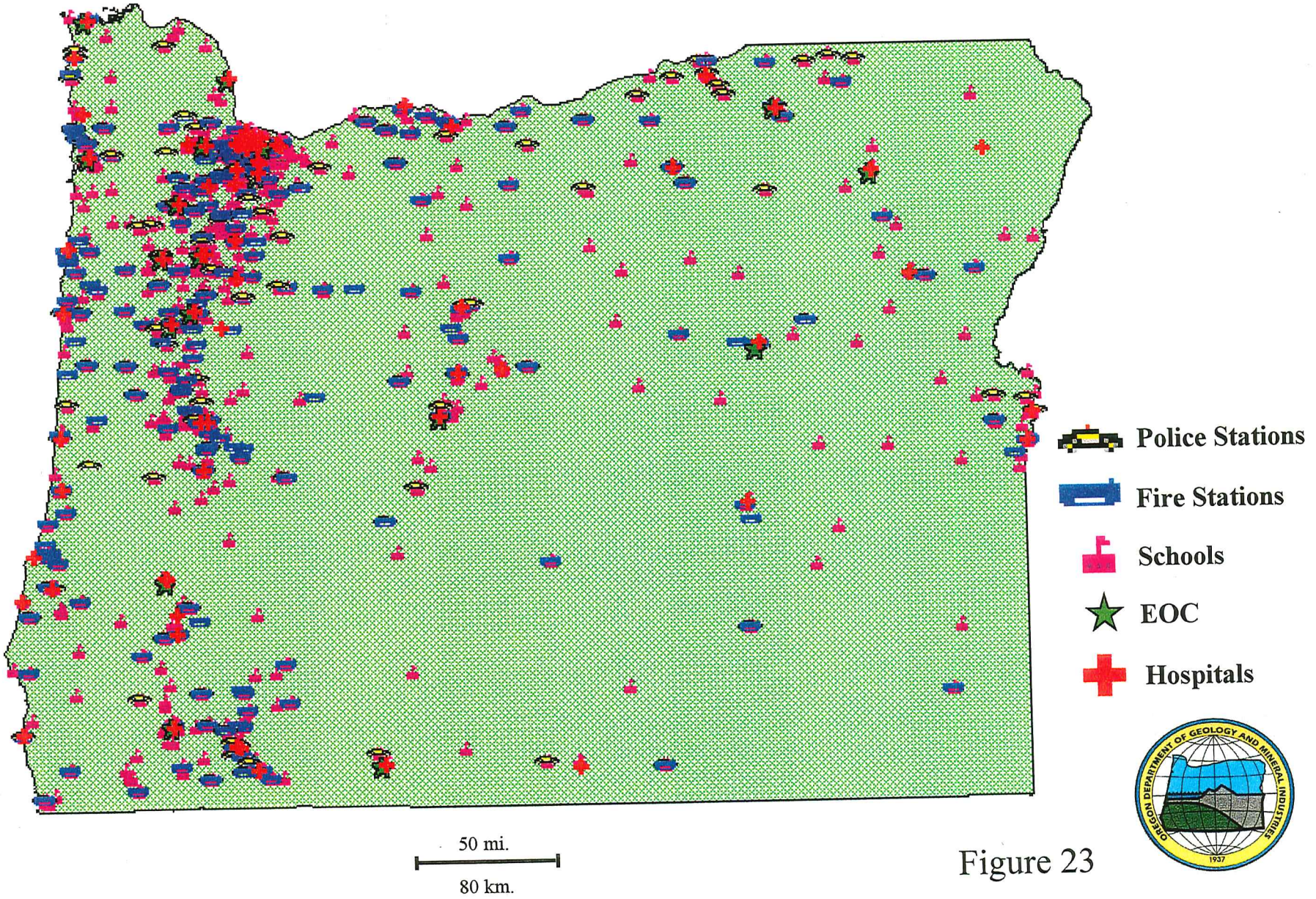


Figure 23

Transportation Systems

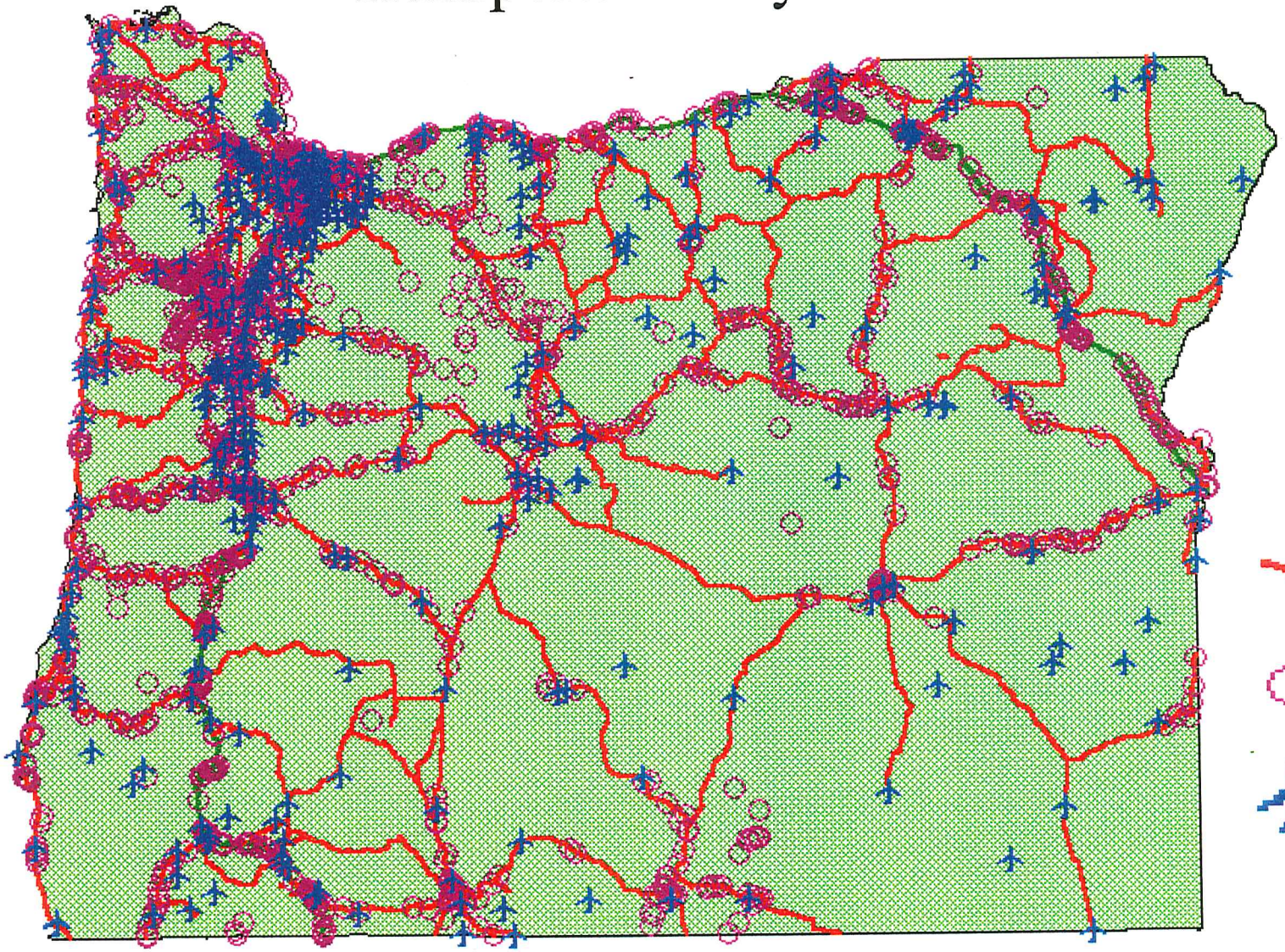
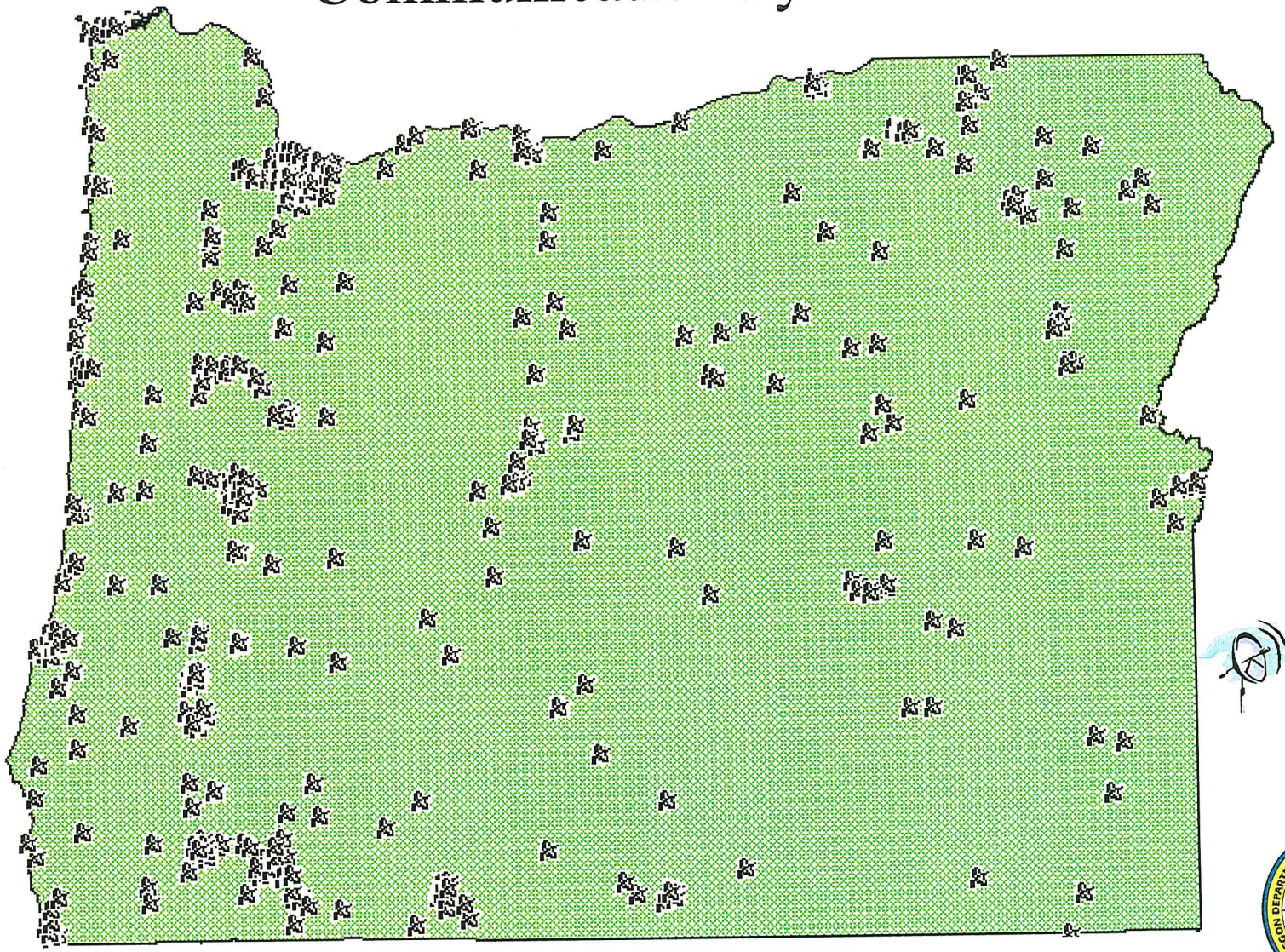


Figure 24

Communication Systems



Communication Systems

50 mi.

80 km.

Figure 25

Appendix A

Casualties Summary Report

August 26, 1998

	Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
Oregon												
Baker												
Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Benton												
Severity 1:	142	11	0	152	38	287	1	326	45	124	3	171
Severity 2:	25	2	0	27	7	55	1	63	8	24	3	35
Severity 3:	2	0	0	2	0	7	2	10	1	3	6	9
Severity 4:	2	0	0	2	0	7	0	8	1	3	1	5
Total:	**170**	**13**	**1**	**184**	**45**	**357**	**4**	**406**	**54**	**154**	**12**	**220**
Clackamas												
Severity 1:	73	2	0	75	22	86	0	109	26	34	1	61
Severity 2:	10	0	0	11	3	14	0	17	4	6	1	10
Severity 3:	0	0	0	1	0	1	1	2	0	1	1	2
Severity 4:	0	0	0	0	0	1	0	2	0	1	0	1
Total:	**84**	**3**	**0**	**87**	**26**	**103**	**1**	**130**	**30**	**41**	**3**	**75**
Clatsop												
Severity 1:	174	3	0	177	58	185	1	244	69	63	2	134
Severity 2:	31	1	0	32	10	36	1	47	12	12	3	27
Severity 3:	3	0	0	3	1	5	2	8	1	2	5	8
Severity 4:	3	0	0	3	1	5	0	6	1	2	1	4
Total:	**210**	**4**	**1**	**215**	**70**	**231**	**4**	**304**	**83**	**79**	**11**	**173**
Columbia												
Severity 1:	46	0	0	46	16	14	0	30	19	3	0	23

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Casualties Summary Report

August 26, 1998

		Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
		At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
	Severity 2:	8	0	0	8	3	2	0	5	3	1	1	4
	Severity 3:	0	0	0	0	0	0	0	1	0	0	1	1
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**54**	**0**	**0**	**55**	**19**	**16**	**1**	**36**	**23**	**4**	**2**	**29**
Coos													
	Severity 1:	591	7	0	598	234	461	2	697	278	141	6	424
	Severity 2:	107	1	1	109	43	90	3	136	51	28	8	86
	Severity 3:	7	0	1	9	3	13	5	20	3	4	13	20
	Severity 4:	7	0	0	8	3	13	1	16	3	4	3	10
	Total:	**714**	**8**	**2**	**724**	**282**	**577**	**11**	**870**	**335**	**176**	**29**	**541**
Crook													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Curry													
	Severity 1:	202	1	0	204	94	86	1	181	112	24	2	138
	Severity 2:	37	0	0	37	17	17	1	35	20	5	2	27
	Severity 3:	2	0	0	2	1	2	1	5	1	1	4	6
	Severity 4:	2	0	0	2	1	2	0	3	1	1	1	2
	Total:	**243**	**1**	**1**	**245**	**113**	**108**	**3**	**224**	**134**	**30**	**9**	**173**
Deschutes													
	Severity 1:	2	0	0	2	1	0	0	1	1	0	0	1
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**2**	**0**	**0**	**2**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**1**

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Casualties Summary Report

August 26, 1998

		Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
		At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
Douglas													
	Severity 1:	157	2	0	159	67	57	1	125	80	17	3	99
	Severity 2:	26	0	0	27	11	10	1	22	14	3	3	19
	Severity 3:	1	0	0	2	1	1	2	4	1	0	6	7
	Severity 4:	1	0	0	1	1	1	0	2	1	0	1	2
	Total:	**186**	**2**	**1**	**188**	**80**	**69**	**4**	**153**	**95**	**20**	**12**	**127**
Gilliam													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Grant													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Harney													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Hood River													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Casualties Summary Report

August 26, 1998

		Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
		At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**
Jackson													
	Severity 1:	196	5	0	201	76	278	0	355	91	111	1	202
	Severity 2:	34	1	0	35	13	52	0	65	16	21	1	38
	Severity 3:	2	0	0	2	1	7	1	9	1	3	2	6
	Severity 4:	2	0	0	2	1	7	0	8	1	3	0	4
	Total:	**234**	**6**	**0**	**241**	**91**	**343**	**2**	**436**	**108**	**137**	**5**	**250**
Jefferson													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Josephine													
	Severity 1:	263	4	0	266	114	230	0	344	135	70	1	206
	Severity 2:	47	1	0	48	20	44	0	65	24	13	1	39
	Severity 3:	3	0	0	3	1	6	1	8	1	2	2	5
	Severity 4:	3	0	0	3	1	6	0	7	1	2	0	4
	Total:	**316**	**5**	**0**	**321**	**137**	**287**	**2**	**425**	**162**	**87**	**4**	**253**
Klamath													
	Severity 1:	15	0	0	15	6	6	0	12	7	2	0	9
	Severity 2:	2	0	0	2	1	1	0	2	1	0	0	1
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**17**	**0**	**0**	**18**	**7**	**8**	**0**	**14**	**8**	**2**	**0**	**10**
Lake													

Casualties Summary Report

August 26, 1998

	Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Lane												
Severity 1:	515	15	0	530	180	676	2	857	214	259	4	477
Severity 2:	89	3	0	92	31	124	2	157	37	47	5	90
Severity 3:	6	0	1	7	2	16	3	21	2	6	9	17
Severity 4:	6	0	0	6	2	16	1	19	2	6	2	10
Total:	**615**	**18**	**1**	**635**	**215**	**832**	**7**	**1,055**	**256**	**319**	**20**	**594**
Lincoln												
Severity 1:	215	4	0	219	81	210	1	293	97	76	3	176
Severity 2:	38	1	0	39	14	41	1	56	17	15	4	36
Severity 3:	3	0	0	3	1	6	2	9	1	2	7	10
Severity 4:	3	0	0	3	1	6	0	7	1	2	1	5
Total:	**259**	**5**	**1**	**264**	**98**	**262**	**5**	**365**	**116**	**95**	**15**	**227**
Linn												
Severity 1:	153	5	0	158	56	175	1	232	67	60	2	129
Severity 2:	26	1	0	27	10	32	1	42	12	11	2	25
Severity 3:	2	0	0	2	1	4	1	6	1	1	4	6
Severity 4:	2	0	0	2	1	4	0	5	1	1	1	3
Total:	**183**	**6**	**1**	**189**	**67**	**216**	**3**	**286**	**80**	**74**	**9**	**163**
Malheur												
Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Casualties Summary Report

August 26, 1998

		Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
		At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Marion													
	Severity 1:	222	8	0	229	70	346	1	416	83	139	1	223
	Severity 2:	37	1	0	38	12	61	1	73	14	25	2	40
	Severity 3:	3	0	0	3	1	7	1	10	1	3	3	7
	Severity 4:	3	0	0	3	1	7	0	9	1	3	1	5
	Total:	**264**	**9**	**1**	**274**	**83**	**422**	**3**	**508**	**99**	**169**	**7**	**275**
Morrow													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Multnomah													
	Severity 1:	204	44	0	248	63	1,204	0	1,267	74	601	1	676
	Severity 2:	31	8	0	39	9	216	0	226	11	108	1	121
	Severity 3:	2	1	0	3	1	28	1	29	1	14	2	16
	Severity 4:	2	1	0	3	1	28	0	28	1	14	0	15
	Total:	**239**	**54**	**0**	**294**	**73**	**1,475**	**1**	**1,549**	**87**	**737**	**4**	**828**
Polk													
	Severity 1:	115	1	0	117	32	69	1	101	38	17	1	56
	Severity 2:	20	0	0	20	6	13	1	19	7	3	1	11
	Severity 3:	2	0	0	2	1	2	1	3	1	0	3	4
	Severity 4:	2	0	0	2	1	2	0	2	1	0	0	2
	Total:	**139**	**1**	**0**	**141**	**39**	**85**	**2**	**126**	**46**	**21**	**6**	**73**
Sherman													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0

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Casualties Summary Report

August 26, 1998

		Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
		At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Tillamook													
	Severity 1:	61	1	0	62	26	81	0	108	31	29	1	61
	Severity 2:	11	0	0	11	5	16	1	21	5	6	2	13
	Severity 3:	1	0	0	1	0	2	1	4	0	1	3	4
	Severity 4:	1	0	0	1	0	2	0	3	0	1	1	2
	Total:	**73**	**2**	**0**	**75**	**31**	**102**	**2**	**135**	**37**	**36**	**6**	**80**
Umatilla													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Union													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Wallowa													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Casualties Summary Report

August 26, 1998

		Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
		At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
Wasco													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Washington													
	Severity 1:	232	17	0	248	62	398	1	461	73	165	3	241
	Severity 2:	38	3	0	41	10	71	1	82	12	29	3	45
	Severity 3:	3	0	0	4	1	9	2	12	1	4	6	11
	Severity 4:	3	0	0	3	1	9	0	10	1	4	1	6
	Total:	**275**	**20**	**1**	**296**	**74**	**486**	**5**	**565**	**87**	**201**	**14**	**302**
Wheeler													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Yamhill													
	Severity 1:	124	2	0	126	38	83	1	122	45	26	1	72
	Severity 2:	21	0	0	22	7	15	1	22	8	5	1	14
	Severity 3:	2	0	0	2	1	2	1	4	1	1	3	4
	Severity 4:	2	0	0	2	1	2	0	3	1	1	0	2
	Total:	**149**	**2**	**1**	**152**	**46**	**102**	**3**	**151**	**54**	**32**	**6**	**92**
Total State	Severity 1	3,702	131	3	3,836	1,335	4,934	13	6,281	1,585	1,961	36	3,582
	Severity 2	639	24	3	666	232	909	16	1,157	275	360	44	680
	Severity 3	43	3	6	52	15	119	28	162	18	47	79	144

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Casualties Summary Report

August 26, 1998

	Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
Severity 4	43	3	1	48	15	119	5	139	18	47	15	80
Total :	**4,428**	**162**	**12**	**4,602**	**1,597**	**6,081**	**62**	**7,740**	**1,896**	**2,416**	**175**	**4,487**
Study Region Total												
Severity 1	3,702	131	3	3,836	1,335	4,934	13	6,281	1,585	1,961	36	3,582
Severity 2	639	24	3	666	232	909	16	1,157	275	360	44	680
Severity 3	43	3	6	52	15	119	28	162	18	47	79	144
Severity 4	43	3	1	48	15	119	5	139	18	47	15	80
Total :	**4,428**	**162**	**12**	**4,602**	**1,597**	**6,081**	**62**	**7,740**	**1,896**	**2,416**	**175**	**4,487**

Shelter Summary Report

August 26, 1998

	Displaced Households	Short Term Shelter Needs
Oregon		
Baker	0	0
Benton	1,223	1,122
Clackamas	426	262
Clatsop	788	543
Columbia	94	65
Coos	2,069	1,548
Crook	0	0
Curry	430	292
Deschutes	0	0
Douglas	255	193
Gilliam	0	0
Grant	0	0
Harney	0	0
Hood River	0	0
Jackson	650	489
Jefferson	0	0
Josephine	573	433
Klamath	37	30
Lake	0	0
Lane	2,345	1,734
Lincoln	592	401
Linn	615	445
Malheur	0	0
Marion	1,241	912
Morrow	0	0
Multnomah	2,803	1,801
Polk	538	419
Sherman	0	0
Tillamook	158	114
Umatilla	0	0
Union	0	0
Wallowa	0	0
Wasco	0	0
Washington	2,062	1,284
Wheeler	0	0
Yamhill	385	310
Total State	17,284	12,397
Study Region Total	**17,284**	**12,397**

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Direct Economic Losses For Buildings

August 26, 1998

All values are in thousands of dollars

	Capital Stock Losses					Income Losses				
	Cost Structural Damage	Cost Non-struct. Damage	Cost Contents Damage	Inventory Loss	Loss Ratio %	Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	Total Loss
Oregon										
Baker	7	6	0	0	0.00	2	0	0	0	15
Benton	108,209	243,819	43,548	824	9.53	56,124	74,664	61,777	43,025	631,990
Clackamas	57,658	109,492	33,511	1,302	1.17	39,241	28,159	27,685	19,658	316,706
Clatsop	84,575	220,288	43,559	575	13.87	53,322	58,497	51,935	36,155	548,906
Columbia	13,882	30,122	7,377	177	2.64	8,353	3,907	4,460	3,531	71,809
Coos	216,149	559,903	105,201	1,462	23.78	130,934	148,300	109,973	67,141	1,339,063
Crook	56	67	5	1	0.02	19	1	4	3	156
Curry	65,268	157,071	28,749	414	20.33	36,233	35,530	28,761	18,870	370,896
Deschutes	1,143	1,742	473	6	0.06	539	235	245	132	4,515
Douglas	52,074	111,124	27,363	740	3.52	30,191	18,665	21,875	13,164	275,196
Gilliam	3	1	0	0	0.00	1	0	0	0	5
Grant	3	3	0	0	0.00	0	0	0	0	6
Harney	2	2	0	0	0.00	0	0	0	0	4
Hood River	389	852	342	8	0.12	207	414	406	127	2,745
Jackson	93,969	188,209	39,074	967	3.60	56,120	68,577	58,512	32,143	537,571
Jefferson	189	328	73	3	0.07	95	23	29	24	764
Josephine	106,421	228,458	41,864	763	10.34	59,403	66,029	58,713	31,605	593,256
Klamath	7,812	15,765	3,975	92	0.75	5,043	3,133	3,430	2,220	41,470
Lake	55	83	24	1	0.04	30	15	17	6	231
Lane	280,436	574,505	123,918	3,269	5.54	167,268	191,355	172,908	100,357	1,614,016
Lincoln	99,913	246,544	48,068	639	12.99	56,838	67,677	65,056	39,671	624,406
Linn	80,799	160,896	36,293	1,238	5.12	50,819	43,919	43,098	25,879	442,941
Malheur	44	33	4	0	0.01	10	1	2	2	96
Marion	137,345	272,873	65,792	1,788	3.47	86,077	81,538	78,210	51,943	775,566

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Table A3. Direct Economic Losses for Buildings

Direct Economic Losses For Buildings

August 26, 1998

All values are in thousands of dollars

	Capital Stock Losses					Income Losses				
	Cost Structural Damage	Cost Non-struct. Damage	Cost Contents Damage	Inventory Loss	Loss Ratio %	Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	Total Loss
Morrow	28	43	2	1	0.02	18	0	2	3	97
Multnomah	327,134	572,587	153,564	6,643	2.41	192,612	304,684	251,609	133,865	1,942,698
Polk	43,933	97,440	21,241	518	6.07	26,100	21,916	21,163	16,427	248,738
Sherman	7	7	0	0	0.01	3	0	0	0	17
Tillamook	38,422	95,336	20,030	264	8.69	22,631	18,000	19,754	11,854	226,291
Umatilla	92	100	9	0	0.01	28	1	3	3	236
Union	3	3	0	0	0.00	0	0	0	0	6
Wallowa	5	6	0	0	0.00	1	0	0	0	12
Wasco	200	318	87	2	0.04	79	46	42	21	795
Washington	158,555	320,379	88,986	3,043	2.89	105,626	93,725	96,447	64,520	931,281
Wheeler	4	5	0	0	0.01	2	0	0	0	11
Yamhill	50,479	98,928	20,709	615	4.92	27,264	22,163	22,439	16,701	259,298
Total State	2,025,263	4,307,338	953,841	25,355	4.02	1,211,233	1,351,174	1,198,555	729,050	11,801,809
Study Region Total	2,025,263	4,307,338	953,841	25,355	4.02	1,211,233	1,351,174	1,198,555	729,050	11,801,809

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Oregon						
Baker						
Agriculture	10	0	0	0	0	10
Commercial	108	0	0	0	0	108
Education	12	0	0	0	0	12
Government	0	0	0	0	0	0
Industrial	16	0	0	0	0	16
Religion	19	0	0	0	0	19
Residential	6,865	8	1	0	0	6,874
Benton						
Agriculture	11	1	4	3	4	23
Commercial	47	22	84	86	76	315
Education	10	0	5	5	4	24
Government	0	0	0	0	0	0
Industrial	8	0	9	14	15	46
Religion	9	3	6	7	5	30
Residential	11,209	4,319	2,312	1,057	742	19,639
Clackamas						
Agriculture	105	9	11	2	0	127

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Commercial	1,216	197	180	60	4	1,657
Education	118	7	5	1	0	131
Government	18	0	0	0	0	18
Industrial	325	53	71	28	2	479
Religion	154	15	16	4	0	189
Residential	77,432	7,800	3,666	1,186	230	90,314
Clatsop						
Agriculture	4	1	1	1	4	11
Commercial	14	6	37	62	87	206
Education	0	0	0	1	2	3
Government	0	0	0	0	0	0
Industrial	1	0	4	10	14	29
Religion	4	2	5	8	17	36
Residential	4,582	4,246	3,031	1,132	566	13,557
Columbia						
Agriculture	7	0	0	0	0	7
Commercial	85	12	17	6	0	120
Education	9	0	1	0	0	10
Government	1	0	0	0	0	1
Industrial	28	3	3	0	0	34
Religion	18	0	5	1	0	24

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Residential	9,201	1,946	1,145	550	201	13,043
Coos						
Agriculture	0	0	0	0	4	4
Commercial	4	4	44	101	230	383
Education	1	0	0	3	9	13
Govemment	0	0	0	0	3	3
Industrial	1	0	2	13	45	61
Religion	2	2	4	9	20	37
Residential	2,884	5,848	7,300	3,963	3,158	23,153
Crook						
Agriculture	8	0	0	0	0	8
Commercial	100	0	0	0	0	100
Education	3	0	0	0	0	3
Government	1	0	0	0	0	1
Industrial	24	0	0	0	0	24
Religion	7	0	0	0	0	7
Residential	5,478	60	16	0	0	5,554
Curry						
Agriculture	1	1	1	2	1	6
Commercial	3	3	22	40	45	113

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Education	1	1	2	4	3	11
Government	0	0	0	0	0	0
Industrial	0	0	1	6	6	13
Religion	2	1	3	4	5	15
Residential	1,238	2,081	2,350	1,753	1,456	8,878
Deschutes						
Agriculture	26	0	0	0	0	26
Commercial	643	2	0	0	0	645
Education	33	0	0	0	0	33
Government	5	0	0	0	0	5
Industrial	168	0	0	0	0	168
Religion	71	0	0	0	0	71
Residential	31,127	921	320	19	0	32,387
Douglas						
Agriculture	29	2	3	3	0	37
Commercial	270	78	85	26	7	466
Education	46	5	4	0	0	55
Government	4	0	0	0	0	4
Industrial	63	11	21	8	4	107
Religion	42	9	11	3	1	66
Residential	21,837	5,736	3,859	1,808	825	34,065

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Gilliam						
Agriculture	3	0	0	0	0	3
Commercial	13	0	0	0	0	13
Education	3	0	0	0	0	3
Government	0	0	0	0	0	0
Industrial	1	0	0	0	0	1
Religion	1	0	0	0	0	1
Residential	897	2	1	0	0	900
Grant						
Agriculture	6	0	0	0	0	6
Commercial	37	0	0	0	0	37
Education	5	0	0	0	0	5
Government	0	0	0	0	0	0
Industrial	8	0	0	0	0	8
Religion	4	0	0	0	0	4
Residential	3,502	11	0	0	0	3,513
Harney						
Agriculture	6	0	0	0	0	6
Commercial	42	0	0	0	0	42
Education	4	0	0	0	0	4

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Government	0	0	0	0	0	0
Industrial	16	0	0	0	0	16
Religion	4	0	0	0	0	4
Residential	2,990	8	0	0	0	2,998
Hood River						
Agriculture	21	0	0	0	0	21
Commercial	158	4	2	0	0	164
Education	4	0	0	0	0	4
Government	1	0	0	0	0	1
Industrial	35	1	0	0	0	36
Religion	17	1	0	0	0	18
Residential	6,159	156	31	1	0	6,347
Jackson						
Agriculture	60	5	6	3	3	77
Commercial	515	106	174	124	60	979
Education	32	2	4	4	2	44
Government	6	0	0	0	0	6
Industrial	154	21	41	22	10	248
Religion	57	8	11	9	4	89
Residential	36,672	7,281	4,309	1,925	903	51,090

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Jefferson						
Agriculture	17	0	0	0	0	17
Commercial	84	0	0	0	0	84
Education	6	0	0	0	0	6
Government	1	0	0	0	0	1
Industrial	16	0	0	0	0	16
Religion	9	0	0	0	0	9
Residential	5,461	188	52	1	0	5,702
Josephine						
Agriculture	15	3	5	4	7	34
Commercial	65	24	82	94	101	366
Education	5	0	3	3	4	15
Government	0	0	0	0	1	1
Industrial	15	2	16	19	26	78
Religion	10	1	5	5	7	28
Residential	11,679	5,431	4,028	1,983	1,643	24,764
Klamath						
Agriculture	35	0	0	0	0	35
Commercial	335	17	16	5	0	373
Education	17	0	0	0	0	17

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Government	3	0	0	0	0	3
Industrial	53	1	1	0	0	55
Religion	39	1	1	0	0	41
Residential	19,580	1,737	951	312	63	22,643
Lake						
Agriculture	8	0	0	0	0	8
Commercial	36	0	0	0	0	36
Education	5	0	0	0	0	5
Government	0	0	0	0	0	0
Industrial	7	0	0	0	0	7
Religion	4	0	0	0	0	4
Residential	3,152	59	14	0	0	3,225
Lane						
Agriculture	42	3	5	4	3	57
Commercial	545	231	509	348	147	1,780
Education	58	4	14	9	2	87
Government	5	0	0	0	0	5
Industrial	158	37	115	77	37	424
Religion	78	17	34	26	10	165
Residential	60,442	16,761	9,216	4,692	2,652	93,763

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Lincoln						
Agriculture	3	1	3	2	4	13
Commercial	38	11	62	70	82	263
Education	3	0	0	1	2	6
Government	0	0	0	0	0	0
Industrial	5	1	6	7	10	29
Religion	6	1	4	6	7	24
Residential	6,192	5,471	4,067	2,233	1,316	19,279
Linn						
Agriculture	29	8	9	8	4	58
Commercial	150	67	152	110	39	518
Education	21	2	11	9	1	44
Government	0	0	0	0	0	0
Industrial	70	23	64	48	20	225
Religion	26	7	10	9	2	54
Residential	20,348	5,398	2,890	1,464	710	30,810
Malheur						
Agriculture	38	0	0	0	0	38
Commercial	199	0	0	0	0	199
Education	11	0	0	0	0	11

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Government	1	0	0	0	0	1
Industrial	29	0	0	0	0	29
Religion	19	0	0	0	0	19
Residential	9,340	37	6	0	0	9,383
Marion						
Agriculture	153	32	42	28	7	262
Commercial	570	208	325	196	43	1,342
Education	47	5	12	5	0	69
Government	10	0	0	0	0	10
Industrial	138	43	81	53	10	325
Religion	103	20	28	16	2	169
Residential	51,583	10,051	5,037	2,166	701	69,538
Morrow						
Agriculture	14	0	0	0	0	14
Commercial	34	0	0	0	0	34
Education	4	0	0	0	0	4
Government	0	0	0	0	0	0
Industrial	20	0	0	0	0	20
Religion	2	0	0	0	0	2
Residential	2,996	38	9	0	0	3,043

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Multnomah						
Agriculture	64	4	4	0	0	72
Commercial	2,817	746	933	502	169	5,167
Education	178	15	17	7	3	220
Government	19	2	2	1	0	24
Industrial	568	147	272	191	82	1,260
Religion	257	25	38	9	1	330
Residential	149,834	19,115	5,550	1,322	376	176,197
Polk						
Agriculture	15	3	4	3	2	27
Commercial	28	15	49	46	25	163
Education	5	1	1	2	1	10
Government	0	0	0	0	0	0
Industrial	12	4	20	21	11	68
Religion	6	1	6	5	2	20
Residential	9,640	3,360	1,661	673	249	15,583
Sherman						
Agriculture	2	0	0	0	0	2
Commercial	12	0	0	0	0	12
Education	2	0	0	0	0	2

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Government	0	0	0	0	0	0
Industrial	0	0	0	0	0	0
Religion	0	0	0	0	0	0
Residential	854	8	3	0	0	865
Tillamook						
Agriculture	5	1	1	1	1	9
Commercial	31	8	23	20	35	117
Education	3	1	1	0	1	6
Government	0	0	0	0	0	0
Industrial	8	3	5	2	4	22
Religion	4	1	2	1	1	9
Residential	5,977	2,938	1,986	884	518	12,303
Umatilla						
Agriculture	79	0	0	0	0	79
Commercial	316	0	0	0	0	316
Education	31	0	0	0	0	31
Government	0	0	0	0	0	0
Industrial	101	0	0	0	0	101
Religion	23	0	0	0	0	23
Residential	19,783	112	30	0	0	19,925

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Union						
Agriculture	11	0	0	0	0	11
Commercial	137	0	0	0	0	137
Education	9	0	0	0	0	9
Government	1	0	0	0	0	1
Industrial	33	0	0	0	0	33
Religion	10	0	0	0	0	10
Residential	8,446	15	0	0	0	8,461
Wallowa						
Agriculture	6	0	0	0	0	6
Commercial	41	0	0	0	0	41
Education	4	0	0	0	0	4
Government	0	0	0	0	0	0
Industrial	10	0	0	0	0	10
Religion	2	0	0	0	0	2
Residential	3,492	11	2	0	0	3,505
Wasco						
Agriculture	11	0	0	0	0	11
Commercial	138	0	0	0	0	138
Education	8	0	0	0	0	8

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Government	0	0	0	0	0	0
Industrial	64	0	0	0	0	64
Religion	12	0	0	0	0	12
Residential	8,452	202	44	0	0	8,698
Washington						
Agriculture	64	2	11	1	0	78
Commercial	910	292	427	197	38	1,864
Education	71	6	12	4	2	95
Government	6	0	0	0	0	6
Industrial	331	105	194	96	31	757
Religion	77	11	24	11	1	124
Residential	68,786	12,865	4,783	1,609	508	88,551
Wheeler						
Agriculture	2	0	0	0	0	2
Commercial	7	0	0	0	0	7
Education	1	0	0	0	0	1
Government	0	0	0	0	0	0
Industrial	0	0	0	0	0	0
Religion	1	0	0	0	0	1
Residential	753	6	2	0	0	761

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Count by General Occupancy

August 26, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Yamhill						
Agriculture	21	4	7	4	2	38
Commercial	90	38	77	52	20	277
Education	8	1	4	2	1	16
Government	2	0	0	0	0	2
Industrial	44	14	29	19	7	113
Religion	14	4	7	6	2	33
Residential	13,220	3,359	1,841	1,007	361	19,788
Total State	717,357	130,407	75,203	34,788	18,894	976,649
Study region	717,357	130,407	75,203	34,788	18,894	976,649

Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Oregon						
Baker						
Agriculture	135	99.83	0.00	0.00	0.00	0.00
Commercial	1,826	99.83	0.00	0.00	0.00	0.00
Education	242	100.00	0.00	0.00	0.00	0.00
Government	31	99.83	0.17	0.00	0.00	0.00
Industrial	379	100.00	0.00	0.00	0.00	0.00
Religion	286	66.67	0.00	0.00	0.00	0.00
Residential	10,692	100.00	0.00	0.00	0.00	0.00
Benton						
Agriculture	403	32.56	14.94	17.31	17.06	17.81
Commercial	6,328	16.25	11.69	24.50	24.38	23.13
Education	713	22.31	11.75	18.50	20.50	20.56
Government	142	14.38	9.88	23.19	26.44	26.06
Industrial	2,059	14.50	10.63	23.38	25.19	26.19
Religion	551	25.38	12.38	18.88	20.06	17.25
Residential	39,875	52.63	22.13	12.81	6.31	5.44
Clackamas						

Table A-5. Building Damage by General Occupancy

Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Agriculture	1,818	74.56	9.15	8.23	3.44	0.85
Commercial	34,955	76.17	11.25	8.96	2.98	0.50
Education	2,754	67.02	8.67	7.52	2.60	0.56
Government	588	72.29	11.75	10.83	3.98	0.94
Industrial	12,893	71.04	11.77	11.46	4.67	1.06
Religion	2,961	70.73	9.60	8.21	2.92	0.67
Residential	149,990	88.35	7.50	2.96	0.88	0.15
Clatsop						
Agriculture	241	5.73	8.13	9.80	10.07	19.47
Commercial	3,840	2.47	4.00	14.40	22.73	36.47
Education	278	5.27	6.27	10.53	14.07	23.80
Government	77	3.00	4.20	14.67	25.73	45.60
Industrial	1,048	2.07	3.67	13.20	20.53	34.53
Religion	569	5.87	7.20	11.67	15.67	26.47
Residential	24,449	23.60	27.93	23.07	9.67	9.47
Columbia						
Agriculture	128	48.18	12.00	13.09	10.55	7.18
Commercial	2,328	40.91	14.55	18.64	11.73	5.00
Education	252	43.45	10.91	13.73	9.45	4.27
Government	84	37.36	13.64	21.27	17.09	10.64

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Study Region : Oregon
Scenario : simple, Oregon, M8.5 PNW

Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Industrial	1,466	36.00	13.64	20.45	14.09	6.91
Religion	368	44.64	11.55	13.82	8.64	3.09
Residential	19,780	69.91	15.55	8.09	4.18	2.09
Coos						
Agriculture	185	2.69	7.85	16.23	15.85	42.08
Commercial	7,060	0.38	1.31	7.92	17.54	57.31
Education	400	1.31	4.00	10.38	14.31	46.85
Government	124	0.23	1.00	6.46	17.00	67.46
Industrial	1,804	0.15	0.85	6.23	16.54	60.23
Religion	574	1.85	4.85	11.92	16.23	49.85
Residential	36,728	5.62	16.46	30.46	19.54	21.15
Crook						
Agriculture	126	99.00	0.50	0.00	0.00	0.00
Commercial	1,793	99.00	0.75	0.00	0.00	0.00
Education	65	99.25	0.50	0.00	0.00	0.00
Government	38	99.00	0.75	0.00	0.00	0.00
Industrial	972	99.25	0.50	0.00	0.00	0.00
Religion	93	74.50	0.50	0.00	0.00	0.00
Residential	8,144	99.25	0.25	0.00	0.00	0.00

Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Curry						
Agriculture	113	2.60	7.00	13.00	13.20	24.20
Commercial	2,162	1.00	2.40	11.60	21.20	44.20
Education	235	1.80	4.60	10.80	14.40	28.20
Government	39	0.80	1.80	9.00	20.80	47.40
Industrial	545	0.80	1.80	9.80	20.60	47.00
Religion	243	1.80	4.60	10.60	14.40	28.40
Residential	12,940	5.40	15.80	25.00	16.80	17.60
Deschutes						
Agriculture	376	93.25	1.40	0.25	0.00	0.00
Commercial	11,721	92.60	1.45	0.30	0.00	0.00
Education	704	88.55	1.30	0.15	0.00	0.00
Government	175	97.80	1.40	0.20	0.00	0.00
Industrial	4,464	92.60	1.70	0.40	0.00	0.00
Religion	1,078	93.45	1.40	0.15	0.00	0.00
Residential	49,499	98.35	1.15	0.35	0.00	0.00
Douglas						
Agriculture	654	28.03	8.30	9.27	6.62	4.46
Commercial	8,797	20.89	8.70	12.59	8.84	5.65

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Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Education	1,268	25.19	7.76	10.05	6.95	3.97
Government	201	19.57	8.19	12.84	9.65	6.41
Industrial	3,672	19.05	8.41	13.11	9.59	6.57
Religion	1,048	25.05	8.24	10.51	7.78	5.05
Residential	52,002	35.65	10.05	6.19	2.97	1.68
Gilliam						
Agriculture	39	100.00	0.00	0.00	0.00	0.00
Commercial	220	100.00	0.00	0.00	0.00	0.00
Education	54	100.00	0.00	0.00	0.00	0.00
Government	3	99.00	0.00	0.00	0.00	0.00
Industrial	10	99.00	0.00	0.00	0.00	0.00
Religion	16	100.00	0.00	0.00	0.00	0.00
Residential	1,332	100.00	0.00	0.00	0.00	0.00
Grant						
Agriculture	86	100.00	0.00	0.00	0.00	0.00
Commercial	624	100.00	0.00	0.00	0.00	0.00
Education	95	100.00	0.00	0.00	0.00	0.00
Government	19	100.00	0.00	0.00	0.00	0.00
Industrial	191	100.00	0.00	0.00	0.00	0.00
Religion	67	100.00	0.00	0.00	0.00	0.00

Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Residential	5,094	100.00	0.00	0.00	0.00	0.00
Harney						
Agriculture	89	100.00	0.00	0.00	0.00	0.00
Commercial	641	100.00	0.00	0.00	0.00	0.00
Education	94	100.00	0.00	0.00	0.00	0.00
Government	14	100.00	0.00	0.00	0.00	0.00
Industrial	668	100.00	0.00	0.00	0.00	0.00
Religion	53	50.00	0.00	0.00	0.00	0.00
Residential	4,474	100.00	0.00	0.00	0.00	0.00
Hood River						
Agriculture	298	96.75	2.50	1.25	0.00	0.00
Commercial	2,651	96.25	2.50	1.25	0.00	0.00
Education	93	97.00	2.50	0.50	0.00	0.00
Government	44	96.50	2.50	1.00	0.00	0.00
Industrial	971	96.00	2.75	1.00	0.00	0.00
Religion	266	97.00	2.25	0.50	0.00	0.00
Residential	10,440	97.75	1.75	0.00	0.00	0.00
Jackson						
Agriculture	1,152	61.45	10.32	9.84	7.00	4.87

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Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Commercial	18,619	57.94	10.94	12.87	8.94	5.68
Education	941	51.16	9.23	10.39	7.87	5.13
Government	327	55.35	10.81	13.52	10.13	6.71
Industrial	7,090	54.16	10.90	14.39	10.29	6.97
Religion	1,494	51.26	9.19	10.10	8.10	5.19
Residential	83,360	74.65	11.61	6.00	2.65	1.48
Jefferson						
Agriculture	271	97.50	1.75	0.75	0.00	0.00
Commercial	1,666	97.25	2.25	0.50	0.00	0.00
Education	129	97.50	1.75	0.25	0.00	0.00
Government	39	97.25	2.25	0.25	0.00	0.00
Industrial	467	97.00	2.00	0.75	0.00	0.00
Religion	131	72.75	1.50	0.25	0.00	0.00
Residential	8,227	97.75	1.75	0.50	0.00	0.00
Josephine						
Agriculture	509	36.20	15.13	16.87	14.73	17.07
Commercial	6,728	23.20	11.27	21.40	20.87	22.87
Education	454	25.53	11.00	15.60	15.60	18.73
Government	158	22.87	12.20	21.13	20.80	23.13
Industrial	2,246	21.07	11.00	20.93	21.20	25.53

Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Religion	492	26.67	12.13	17.20	17.47	19.73
Residential	37,162	50.00	21.93	15.20	7.07	5.80
Klamath						
Agriculture	537	81.20	6.70	5.35	1.50	0.15
Commercial	6,797	84.90	7.85	5.35	1.35	0.05
Education	318	74.35	5.75	3.90	0.80	0.00
Government	138	82.90	8.40	6.55	1.65	0.30
Industrial	1,573	81.95	8.40	7.00	2.05	0.35
Religion	628	80.90	7.30	5.15	1.30	0.15
Residential	35,536	90.75	5.85	2.65	0.50	0.05
Lake						
Agriculture	120	99.00	0.50	0.50	0.00	0.00
Commercial	700	99.00	1.00	0.50	0.00	0.00
Education	97	99.50	0.50	0.00	0.00	0.00
Government	14	98.50	0.50	0.00	0.00	0.00
Industrial	279	99.00	0.50	0.00	0.00	0.00
Religion	66	49.50	0.50	0.00	0.00	0.00
Residential	4,626	99.00	0.50	0.00	0.00	0.00
Lane						

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Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Agriculture	1,183	37.37	11.27	13.43	11.78	8.95
Commercial	34,933	26.34	11.59	19.30	15.90	11.01
Education	2,519	29.34	9.40	13.67	12.15	8.46
Government	605	23.37	10.34	19.33	18.07	12.93
Industrial	15,715	22.85	10.74	19.83	17.65	13.07
Religion	2,709	32.04	10.73	15.35	13.87	9.70
Residential	161,710	55.10	14.76	7.78	3.74	2.39
Lincoln						
Agriculture	296	10.17	13.44	16.61	17.17	26.06
Commercial	5,084	3.11	5.44	20.22	29.50	41.50
Education	299	6.83	9.06	15.94	21.00	30.28
Government	97	3.78	5.61	17.44	29.22	44.00
Industrial	1,180	2.61	5.00	19.28	29.06	43.89
Religion	411	6.78	8.67	14.83	19.56	28.11
Residential	30,965	22.00	29.56	26.00	12.44	9.89
Linn						
Agriculture	828	39.82	10.41	12.50	11.50	7.59
Commercial	9,885	28.59	11.50	20.36	16.59	9.41
Education	1,078	36.14	10.55	16.00	14.77	8.73
Government	191	26.23	10.23	20.77	20.45	13.09

Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Industrial	6,445	25.23	10.55	20.50	18.59	11.64
Religion	873	30.05	9.82	14.73	14.14	8.36
Residential	49,496	59.64	14.64	7.64	5.14	3.64
Malheur						
Agriculture	522	100.00	0.00	0.00	0.00	0.00
Commercial	3,510	100.00	0.00	0.00	0.00	0.00
Education	243	100.00	0.00	0.00	0.00	0.00
Government	59	100.00	0.00	0.00	0.00	0.00
Industrial	781	87.50	0.00	0.00	0.00	0.00
Religion	286	75.00	0.00	0.00	0.00	0.00
Residential	14,730	100.00	0.00	0.00	0.00	0.00
Marion						
Agriculture	3,771	43.33	10.11	11.52	8.65	4.61
Commercial	25,546	35.63	12.65	16.63	10.59	4.85
Education	1,907	38.39	10.02	13.50	9.67	4.30
Government	513	31.46	11.30	18.13	14.11	7.43
Industrial	9,127	30.59	11.33	17.37	12.54	6.46
Religion	2,659	39.09	10.37	13.65	10.09	5.02
Residential	124,534	59.72	12.20	6.28	3.07	1.24

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Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Morrow						
Agriculture	203	99.50	0.50	0.00	0.00	0.00
Commercial	567	99.50	0.50	0.00	0.00	0.00
Education	70	99.50	0.50	0.00	0.00	0.00
Government	15	99.50	0.50	0.00	0.00	0.00
Industrial	435	99.50	0.50	0.00	0.00	0.00
Religion	25	99.50	0.50	0.00	0.00	0.00
Residential	4,371	99.50	0.50	0.00	0.00	0.00
Multnomah						
Agriculture	1,244	54.95	9.69	10.12	5.18	1.77
Commercial	110,240	61.87	14.18	13.56	6.00	1.75
Education	5,014	55.84	10.80	11.29	5.09	1.64
Government	1,320	55.98	14.61	16.62	8.10	2.70
Industrial	35,034	55.35	14.26	16.78	8.44	2.67
Religion	5,605	61.21	12.28	12.48	5.85	1.99
Residential	349,057	82.56	9.76	3.71	1.41	0.47
Polk						
Agriculture	405	37.13	14.50	16.88	17.50	14.00
Commercial	3,068	18.88	12.25	26.13	25.13	17.63

Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Education	311	29.63	12.75	20.25	21.38	15.50
Government	101	17.63	10.88	24.88	26.88	19.63
Industrial	1,906	17.00	10.75	24.75	26.50	20.75
Religion	368	26.63	11.38	17.50	18.50	13.38
Residential	26,960	60.38	21.50	10.38	4.88	2.75
Sherman						
Agriculture	28	99.00	0.00	0.00	0.00	0.00
Commercial	225	99.00	0.00	0.00	0.00	0.00
Education	33	99.00	0.00	0.00	0.00	0.00
Government	4	99.00	1.00	0.00	0.00	0.00
Industrial	7	99.00	1.00	0.00	0.00	0.00
Religion	3	99.00	0.00	0.00	0.00	0.00
Residential	1,198	99.00	0.00	0.00	0.00	0.00
Tillamook						
Agriculture	200	24.13	16.00	19.88	17.38	22.75
Commercial	2,408	11.50	10.25	22.88	24.63	31.00
Education	186	16.13	10.38	16.00	14.25	18.50
Government	45	11.38	9.13	21.38	24.50	33.50
Industrial	625	10.50	10.00	22.38	24.00	33.38
Religion	197	17.00	11.63	17.88	17.25	24.00

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Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Residential	18,767	39.88	26.25	19.75	8.38	5.88
Umatilla						
Agriculture	1,104	93.71	0.06	0.00	0.00	0.00
Commercial	5,620	87.82	0.06	0.00	0.00	0.00
Education	699	82.24	0.06	0.00	0.00	0.00
Government	129	99.59	0.41	0.00	0.00	0.00
Industrial	2,425	87.82	0.41	0.00	0.00	0.00
Religion	353	82.24	0.06	0.00	0.00	0.00
Residential	33,393	99.88	0.00	0.00	0.00	0.00
Union						
Agriculture	143	100.00	0.00	0.00	0.00	0.00
Commercial	2,537	100.00	0.00	0.00	0.00	0.00
Education	185	100.00	0.00	0.00	0.00	0.00
Government	52	100.00	0.00	0.00	0.00	0.00
Industrial	905	100.00	0.00	0.00	0.00	0.00
Religion	161	87.50	0.00	0.00	0.00	0.00
Residential	13,844	100.00	0.00	0.00	0.00	0.00
Wallowa						
Agriculture	83	99.67	0.00	0.00	0.00	0.00

Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Commercial	758	99.67	0.00	0.00	0.00	0.00
Education	70	100.00	0.00	0.00	0.00	0.00
Government	14	99.67	0.00	0.00	0.00	0.00
Industrial	206	99.67	0.00	0.00	0.00	0.00
Religion	38	66.67	0.00	0.00	0.00	0.00
Residential	5,289	100.00	0.00	0.00	0.00	0.00
Wasco						
Agriculture	174	98.38	1.38	0.50	0.00	0.00
Commercial	2,492	97.88	1.50	0.50	0.00	0.00
Education	176	74.00	0.88	0.00	0.00	0.00
Government	43	98.13	1.38	0.38	0.00	0.00
Industrial	1,155	97.50	1.63	0.50	0.00	0.00
Religion	153	74.00	0.88	0.00	0.00	0.00
Residential	14,011	98.75	0.88	0.13	0.00	0.00
Washington						
Agriculture	1,288	52.63	12.44	14.90	10.48	4.71
Commercial	40,193	46.06	17.40	20.56	11.66	4.37
Education	2,253	47.05	13.24	16.87	10.60	4.13
Government	655	39.66	16.44	23.15	14.84	6.00
Industrial	20,250	39.45	16.05	22.94	15.15	6.34

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Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Religion	2,069	49.23	14.10	17.71	11.21	4.47
Residential	167,453	77.81	13.48	5.23	2.13	0.79
Wheeler						
Agriculture	21	99.00	0.00	0.00	0.00	0.00
Commercial	116	99.00	0.00	0.00	0.00	0.00
Education	14	100.00	0.00	0.00	0.00	0.00
Government	3	99.00	1.00	0.00	0.00	0.00
Industrial	11	99.00	1.00	0.00	0.00	0.00
Religion	8	100.00	0.00	0.00	0.00	0.00
Residential	1,063	100.00	0.00	0.00	0.00	0.00
Yamhill						
Agriculture	581	46.90	13.40	16.70	14.40	8.20
Commercial	5,645	31.80	15.30	25.10	18.90	9.10
Education	407	32.70	12.50	19.40	16.80	8.70
Government	151	29.10	13.90	24.80	21.30	11.00
Industrial	3,077	27.40	13.60	25.40	21.50	11.80
Religion	524	39.90	13.60	20.30	17.50	8.90
Residential	33,570	67.50	16.30	8.50	5.10	2.50

Building Damage By General Occupancy

September 09, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
State Average	2,236,790	51.88	10.03	11.90	8.67	6.89
Study Region Average	2,236,790	51.88	10.03	11.90	8.67	6.89

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Building Damage by Building Type for Low Design Level

August 26, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Oregon					
Baker					
Concrete	99.67	0.33	0.00	0.00	0.00
Mobile Home	98.67	1.00	0.17	0.00	0.00
Precast Concrete	99.50	0.33	0.17	0.00	0.00
Reinforced Masonry Bearings Walls	99.67	0.17	0.17	0.00	0.00
Steel	99.83	0.17	0.00	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	100.00	0.00	0.00	0.00	0.00
Benton					
Concrete	15.31	12.31	25.94	26.19	20.38
Mobile Home	10.63	12.06	26.06	29.56	22.00
Precast Concrete	16.19	8.75	22.06	27.56	25.50
Reinforced Masonry Bearings Walls	24.94	9.75	22.75	25.69	16.44
Steel	13.50	8.50	22.94	27.56	27.44
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	46.38	24.63	19.88	6.25	2.56
Clackamas					
Concrete	69.25	14.79	12.02	3.50	0.50
Mobile Home	44.98	17.65	23.96	10.81	2.19
Precast Concrete	69.46	11.02	12.88	6.04	0.60
Reinforced Masonry Bearings Walls	81.87	8.62	7.77	2.35	0.00
Steel	53.63	13.88	20.15	9.37	2.88
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	85.90	11.23	2.77	0.02	0.00

Table A6. Building Damage by Building Type for Low Design Level

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Building Type for Low Design Level

August 26, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Clatsop					
Concrete	4.07	5.93	20.00	30.13	39.93
Mobile Home	2.27	5.47	17.93	33.47	40.87
Precast Concrete	3.33	3.80	16.00	28.73	48.00
Reinforced Masonry Bearings Walls	6.87	5.47	20.27	32.00	35.33
Steel	2.80	3.20	14.13	30.33	49.27
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	24.87	27.27	28.60	12.73	6.60
Columbia					
Concrete	33.00	15.55	24.55	18.27	8.64
Mobile Home	22.00	15.64	28.09	23.18	10.82
Precast Concrete	37.00	11.82	21.64	19.09	10.45
Reinforced Masonry Bearings Walls	51.09	11.73	18.45	13.55	5.09
Steel	25.82	11.91	25.82	22.18	14.09
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	64.73	20.09	11.73	2.45	0.73
Coos					
Concrete	1.23	3.15	13.85	26.38	54.77
Mobile Home	0.77	3.23	12.54	29.46	54.15
Precast Concrete	1.08	1.92	10.85	23.23	62.62
Reinforced Masonry Bearings Walls	3.08	3.31	15.00	28.15	50.31
Steel	0.69	1.15	8.46	25.46	63.69
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	12.69	23.23	33.38	19.00	11.69
Crook					

Study Region : Oregon State.- Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Building Type for Low Design Level

August 26, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Concrete	98.25	1.75	0.00	0.00	0.00
Mobile Home	95.00	3.75	1.00	0.00	0.00
Precast Concrete	97.25	1.75	1.00	0.00	0.00
Reinforced Masonry Bearings Walls	98.25	1.25	0.75	0.00	0.00
Steel	99.00	1.00	0.00	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	100.00	0.00	0.00	0.00	0.00
Curry					
Concrete	6.80	8.20	23.80	30.60	30.20
Mobile Home	3.80	8.40	22.40	34.40	32.00
Precast Concrete	6.00	5.60	19.80	31.00	38.00
Reinforced Masonry Bearings Walls	10.60	7.60	23.40	32.40	26.20
Steel	5.40	5.40	18.80	31.20	39.40
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	22.60	28.20	31.60	12.60	5.20
Deschutes					
Concrete	96.90	2.60	1.00	0.00	0.00
Mobile Home	91.05	6.60	2.90	0.10	0.00
Precast Concrete	94.60	3.05	2.30	0.25	0.00
Reinforced Masonry Bearings Walls	97.00	2.35	1.20	0.10	0.00
Steel	96.50	2.45	0.65	0.10	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	98.50	1.40	0.05	0.00	0.00
Douglas					
Concrete	24.30	14.30	25.38	22.57	13.43
Mobile Home	16.24	14.24	27.65	26.46	15.38

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Building Type for Low Design Level

August 26, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Precast Concrete	24.65	9.73	22.35	25.19	18.16
Reinforced Masonry Bearings Walls	34.49	10.24	22.03	22.70	10.76
Steel	21.46	10.65	23.78	24.59	19.43
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	52.30	24.03	17.43	4.54	1.51
Gilliam					
Concrete	99.00	1.00	0.00	0.00	0.00
Mobile Home	97.00	2.00	1.00	0.00	0.00
Precast Concrete	98.00	1.00	1.00	0.00	0.00
Reinforced Masonry Bearings Walls	99.00	1.00	0.00	0.00	0.00
Steel	99.00	0.00	0.00	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	100.00	0.00	0.00	0.00	0.00
Grant					
Concrete	99.50	0.50	0.00	0.00	0.00
Mobile Home	98.50	1.00	0.00	0.00	0.00
Precast Concrete	99.00	0.50	0.00	0.00	0.00
Reinforced Masonry Bearings Walls	99.50	0.50	0.00	0.00	0.00
Steel	100.00	0.00	0.00	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	100.00	0.00	0.00	0.00	0.00
Harney					
Concrete	100.00	0.00	0.00	0.00	0.00
Mobile Home	99.00	1.00	0.00	0.00	0.00
Precast Concrete	99.00	1.00	0.00	0.00	0.00
Reinforced Masonry Bearings Walls	99.50	0.00	0.00	0.00	0.00

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Building Type for Low Design Level

August 26, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Steel	100.00	0.00	0.00	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	100.00	0.00	0.00	0.00	0.00
Hood River					
Concrete	95.00	3.75	1.50	0.00	0.00
Mobile Home	86.00	9.25	4.25	0.25	0.00
Precast Concrete	92.25	4.25	2.75	0.75	0.00
Reinforced Masonry Bearings Walls	95.25	2.75	1.75	0.25	0.00
Steel	94.25	4.00	2.00	0.25	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	97.25	2.50	0.00	0.00	0.00
Jackson					
Concrete	54.77	13.26	15.68	10.65	5.45
Mobile Home	37.32	16.84	23.97	14.97	6.77
Precast Concrete	56.03	10.23	15.10	12.00	6.74
Reinforced Masonry Bearings Walls	66.29	8.65	12.16	9.32	3.87
Steel	46.03	12.52	19.32	13.45	8.55
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	75.87	14.58	7.10	1.55	0.48
Jefferson					
Concrete	96.00	3.25	1.00	0.00	0.00
Mobile Home	88.50	8.00	3.50	0.25	0.00
Precast Concrete	93.75	3.75	2.50	0.25	0.00
Reinforced Masonry Bearings Walls	96.00	2.50	1.50	0.25	0.00
Steel	95.25	3.25	1.25	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Building Type for Low Design Level

August 26, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Wood	98.00	1.75	0.00	0.00	0.00
Josephine					
Concrete	23.80	13.27	22.67	21.13	19.27
Mobile Home	16.20	13.67	25.60	24.40	20.33
Precast Concrete	24.07	9.07	20.13	23.00	23.87
Reinforced Masonry Bearings Walls	32.60	9.27	19.87	21.73	16.33
Steel	22.07	10.20	20.73	22.07	24.87
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	50.07	23.27	17.67	6.07	2.87
Klamath					
Concrete	76.30	11.95	9.25	2.30	0.10
Mobile Home	56.25	14.55	19.30	8.30	1.65
Precast Concrete	76.50	9.25	10.05	4.00	0.10
Reinforced Masonry Bearings Walls	86.00	7.05	5.85	1.55	0.00
Steel	63.15	11.35	16.45	6.95	1.90
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	89.15	8.85	2.00	0.00	0.00
Lake					
Concrete	98.00	2.00	0.50	0.00	0.00
Mobile Home	94.00	4.50	1.50	0.00	0.00
Precast Concrete	96.50	2.00	1.50	0.00	0.00
Reinforced Masonry Bearings Walls	98.00	1.50	0.50	0.00	0.00
Steel	98.00	1.50	0.50	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	99.00	1.00	0.00	0.00	0.00

Building Damage by Building Type for Low Design Level

August 26, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Lane					
Concrete	23.26	14.05	26.29	23.37	13.22
Mobile Home	14.95	13.46	27.94	28.16	15.45
Precast Concrete	25.11	10.15	23.18	25.16	16.55
Reinforced Masonry Bearings Walls	36.88	11.06	22.18	20.72	9.13
Steel	17.11	10.28	26.05	26.79	19.65
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	55.21	22.71	16.38	4.20	1.46
Lincoln					
Concrete	5.44	8.11	24.83	32.11	29.56
Mobile Home	2.89	7.28	22.50	36.06	31.56
Precast Concrete	4.56	5.17	20.11	32.72	37.39
Reinforced Masonry Bearings Walls	9.17	7.11	24.39	33.94	25.39
Steel	3.89	4.56	19.11	33.50	38.89
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	28.33	29.11	28.17	10.11	4.17
Linn					
Concrete	24.32	12.73	26.00	24.14	12.82
Mobile Home	16.82	12.91	26.86	28.32	15.09
Precast Concrete	26.45	9.82	23.05	25.45	15.32
Reinforced Masonry Bearings Walls	37.68	10.95	22.50	20.73	7.95
Steel	18.86	9.50	25.23	27.00	19.23
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	57.50	21.50	15.73	3.91	1.27
Malheur					
Concrete	99.25	0.75	0.00	0.00	0.00

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Building Type for Low Design Level

August 26, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Mobile Home	97.13	2.13	0.38	0.00	0.00
Precast Concrete	98.50	0.75	0.38	0.00	0.00
Reinforced Masonry Bearings Walls	99.25	0.38	0.38	0.00	0.00
Steel	99.63	0.38	0.00	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	100.00	0.00	0.00	0.00	0.00
Marion					
Concrete	29.65	14.87	25.22	20.46	9.96
Mobile Home	19.76	14.70	27.76	25.26	12.17
Precast Concrete	33.39	11.37	22.59	21.26	11.37
Reinforced Masonry Bearings Walls	46.52	11.50	20.00	16.09	6.07
Steel	22.65	11.11	25.98	24.43	15.87
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	62.26	20.91	12.98	2.80	0.89
Morrow					
Concrete	98.50	1.50	0.00	0.00	0.00
Mobile Home	96.50	2.50	0.50	0.00	0.00
Precast Concrete	98.00	1.50	1.00	0.00	0.00
Reinforced Masonry Bearings Walls	98.50	1.00	0.50	0.00	0.00
Steel	99.50	0.50	0.00	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	100.00	0.00	0.00	0.00	0.00
Multnomah					
Concrete	52.48	18.42	18.91	7.96	2.21
Mobile Home	27.61	17.11	30.79	19.02	5.10
Precast Concrete	54.57	13.02	18.37	11.17	2.77

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Building Type for Low Design Level

August 26, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Reinforced Masonry Bearings Walls	70.46	10.94	12.08	5.80	1.07
Steel	31.34	15.53	29.39	17.14	6.60
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	77.33	16.20	5.60	0.46	0.15
Polk					
Concrete	18.75	13.88	27.25	26.00	14.75
Mobile Home	12.75	13.63	28.00	29.25	16.63
Precast Concrete	18.50	9.50	23.75	28.38	19.75
Reinforced Masonry Bearings Walls	27.63	10.50	24.50	25.88	11.75
Steel	16.50	9.75	24.63	27.63	21.13
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	52.25	23.50	17.75	4.88	1.50
Sherman					
Concrete	98.00	2.00	0.00	0.00	0.00
Mobile Home	95.00	3.00	1.00	0.00	0.00
Precast Concrete	97.00	2.00	1.00	0.00	0.00
Reinforced Masonry Bearings Walls	98.00	1.00	1.00	0.00	0.00
Steel	99.00	1.00	0.00	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	100.00	0.00	0.00	0.00	0.00
Tillamook					
Concrete	15.13	12.25	24.25	23.88	24.50
Mobile Home	9.13	12.00	26.00	27.63	25.50
Precast Concrete	12.88	8.50	22.00	26.75	30.00
Reinforced Masonry Bearings Walls	20.13	9.25	23.13	25.75	21.63
Steel	13.63	9.13	21.75	24.63	31.00

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Building Type for Low Design Level

August 26, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	40.75	26.00	21.75	7.88	4.13
Umatilla					
Concrete	99.12	0.71	0.06	0.00	0.00
Mobile Home	97.35	2.06	0.53	0.00	0.00
Precast Concrete	98.47	1.06	0.53	0.00	0.00
Reinforced Masonry Bearings Walls	99.12	0.53	0.18	0.00	0.00
Steel	99.53	0.47	0.00	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	99.94	0.06	0.00	0.00	0.00
Union					
Concrete	100.00	0.00	0.00	0.00	0.00
Mobile Home	99.00	1.00	0.00	0.00	0.00
Precast Concrete	99.50	0.00	0.00	0.00	0.00
Reinforced Masonry Bearings Walls	100.00	0.00	0.00	0.00	0.00
Steel	100.00	0.00	0.00	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	100.00	0.00	0.00	0.00	0.00
Wallowa					
Concrete	99.33	0.67	0.00	0.00	0.00
Mobile Home	97.33	2.00	0.33	0.00	0.00
Precast Concrete	99.00	0.67	0.33	0.00	0.00
Reinforced Masonry Bearings Walls	99.33	0.33	0.33	0.00	0.00
Steel	99.67	0.33	0.00	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	100.00	0.00	0.00	0.00	0.00

Building Damage by Building Type for Low Design Level

August 26, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Wasco					
Concrete	97.13	2.50	0.88	0.00	0.00
Mobile Home	92.25	6.00	2.00	0.00	0.00
Precast Concrete	95.00	2.88	2.00	0.38	0.00
Reinforced Masonry Bearings Walls	97.00	2.25	1.00	0.00	0.00
Steel	97.50	1.75	0.38	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	98.50	1.38	0.00	0.00	0.00
Washington					
Concrete	35.71	19.48	26.55	14.37	3.92
Mobile Home	20.42	16.32	31.21	24.13	7.94
Precast Concrete	39.97	14.08	24.08	17.21	4.95
Reinforced Masonry Bearings Walls	58.02	13.55	18.02	9.31	1.26
Steel	21.34	13.53	31.37	23.18	10.47
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	68.74	20.45	9.26	1.15	0.19
Wheeler					
Concrete	98.00	1.00	0.00	0.00	0.00
Mobile Home	96.00	3.00	1.00	0.00	0.00
Precast Concrete	98.00	2.00	1.00	0.00	0.00
Reinforced Masonry Bearings Walls	98.00	1.00	0.00	0.00	0.00
Steel	99.00	1.00	0.00	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	100.00	0.00	0.00	0.00	0.00
Yamhill					
Concrete	26.80	16.30	28.10	20.90	7.90

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Building Damage by Building Type for Low Design Level

August 26, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Mobile Home	17.20	15.30	30.60	26.40	10.40
Precast Concrete	29.90	12.00	24.90	23.10	10.00
Reinforced Masonry Bearings Walls	44.20	12.60	22.10	16.70	4.50
Steel	19.40	12.20	29.50	25.40	13.70
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	62.10	21.50	13.20	2.50	0.60
Total State	41.06	10.42	15.26	11.76	7.19
Study Region Average	41.06	10.42	15.26	11.76	7.19

Emergency Response Facilities Functionality

August 26, 1998

	Count	Functionality(%) At Day 1
Oregon		
Baker		
Fire Station	2	100.00
Police Station	1	100.00
Benton		
Emergency Operation Centers	1	20.07
Fire Station	6	45.90
Police Station	6	38.34
Clackamas		
Emergency Operation Centers	1	95.51
Fire Station	14	84.25
Police Station	12	84.07
Clatsop		
Emergency Operation Centers	1	20.72
Fire Station	4	16.19
Police Station	4	15.20
Columbia		
Emergency Operation Centers	1	91.87
Police Station	1	45.70
Coos		
Fire Station	10	9.63
Police Station	3	6.33
Crook		
Fire Station	1	96.07
Police Station	3	96.07
Curry		
Fire Station	4	9.15
Police Station	2	5.03

Emergency Response Facilities Functionality

August 26, 1998

	Count	Functionality(%) At Day 1
Deschutes		
Emergency Operation Centers	1	99.82
Fire Station	4	99.49
Police Station	4	99.16
Douglas		
Emergency Operation Centers	1	75.55
Fire Station	9	65.81
Police Station	4	56.60
Gilliam		
Fire Station	1	99.81
Police Station	2	100.40
Grant		
Emergency Operation Centers	1	100.00
Fire Station	4	99.73
Police Station	2	99.99
Harney		
Fire Station	3	99.93
Police Station	1	99.99
Hood River		
Fire Station	11	99.40
Police Station	3	99.96
Jackson		
Fire Station	23	75.08
Police Station	15	61.83
Jefferson		
Fire Station	5	99.73
Police Station	3	99.73
Josephine		
Emergency Operation Centers	1	16.95
Fire Station	4	21.56

Emergency Response Facilities Functionality

August 26, 1998

	Count	Functionality(%) At Day 1
Police Station	1	44.74
Klamath		
Emergency Operation Centers	1	99.23
Fire Station	1	99.27
Police Station	3	99.21
Lake		
Fire Station	2	98.79
Police Station	2	99.98
Lane		
Fire Station	24	49.24
Police Station	12	41.64
Lincoln		
Fire Station	21	26.35
Police Station	4	21.86
Linn		
Emergency Operation Centers	1	51.67
Fire Station	8	61.58
Police Station	5	60.08
Malheur		
Fire Station	6	99.97
Police Station	4	99.96
Marion		
Emergency Operation Centers	1	55.49
Fire Station	19	68.02
Police Station	11	55.99
Morrow		
Fire Station	3	99.99
Police Station	5	99.96
Multnomah		

Emergency Response Facilities Functionality

August 26, 1998

	Count	Functionality(%) At Day 1
Emergency Operation Centers	1	78.12
Fire Station	7	77.95
Police Station	6	75.59
Polk		
Emergency Operation Centers	1	42.25
Fire Station	6	55.18
Police Station	4	45.70
Sherman		
Fire Station	3	99.59
Police Station	2	99.95
Tillamook		
Emergency Operation Centers	1	9.11
Fire Station	10	31.03
Police Station	11	44.41
Umatilla		
Emergency Operation Centers	1	100.00
Fire Station	5	100.00
Police Station	12	99.98
Union		
Emergency Operation Centers	1	100.00
Fire Station	1	100.00
Wasco		
Fire Station	5	99.23
Police Station	3	99.87
Washington		
Emergency Operation Centers	1	58.59
Fire Station	16	66.67
Police Station	9	64.48
Yamhill		
Emergency Operation Centers	1	48.31

Emergency Response Facilities Functionality

August 26, 1998

	Count	Functionality(%) At Day 1
Fire Station	10	52.11
Police Station	8	44.62
Total State	**438**	**64.64**
Total Study Region	**438**	**64.64**

School Functionality

August 26, 1998

	Count	Functionality (%)
Oregon		
Baker	20	99.87
Benton	31	40.35
Clackamas	97	83.73
Clatsop	15	15.50
Columbia	14	63.26
Coos	41	7.67
Crook	15	97.10
Curry	17	5.63
Deschutes	45	99.31
Douglas	28	44.02
Gilliam	5	100.33
Grant	7	99.90
Harney	10	99.99
Hood River	21	98.35
Jackson	71	69.25
Jefferson	17	99.44
Josephine	49	34.31
Klamath	8	96.68
Lake	12	98.69
Lane	123	45.84
Lincoln	28	19.15
Linn	25	52.65
Malheur	43	99.93
Marion	111	63.82
Morrow	16	99.76
Multnomah	141	80.55
Polk	36	45.19
Sherman	5	99.74
Tillamook	31	32.17
Umatilla	57	99.97
Union	15	100.00
Wallowa	1	100.00
Wasco	33	99.73
Washington	57	64.04
Wheeler	3	99.98
Yamhill	66	44.84
Total State	**1,314**	**66.22**
Study Region	**1,314**	**66.22**

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Direct Economic Loss For Transportation

August 26, 1998 *All values are in thousands of dollars*

County	Highway	Railway	Light Rail	Bus	Port	Ferry	Airport	Total
Clatsop, OR	18,258	0	0	558	0	0	5,388	24,204
Tillamook, OR	24,837	0	0	0	0	0	6,576	31,413
Lincoln, OR	16,473	30	0	0	0	0	8,962	25,465
Polk, OR	27,650	0	0	0	0	0	6,186	33,836
Yamhill, OR	4,627	0	0	202	0	0	7,800	12,629
Linn, OR	11,273	0	0	87	0	0	8,698	20,058
Benton, OR	5,170	0	0	182	0	0	5,336	10,688
Lane, OR	38,953	150	0	205	0	0	10,984	50,292
Columbia, OR	1,932	0	0	0	0	0	2,398	4,330
Washington, OR	14,609	0	0	60	0	0	4,779	19,448
Marion, OR	13,132	0	0	0	0	0	5,320	18,452
Multnomah, OR	20,730	0	0	26	0	0	2,136	22,892
Curry, OR	48,128	0	0	0	0	0	11,057	59,185
Coos, OR	43,922	542	0	0	0	0	19,506	63,970
Douglas, OR	43,008	420	0	32	0	0	5,222	48,682
Josephine, OR	16,014	0	0	0	0	0	4,622	20,636
Jackson, OR	9,743	0	0	108	0	0	1,892	11,743
Klamath, OR	339	0	0	0	0	0	642	981
Clackamas, OR	6,746	0	0	71	0	0	3,474	10,291
Jefferson, OR	9	0	0	0	0	0	0	9
Wasco, OR	71	0	0	0	0	0	0	71
Hood River, OR	704	0	0	0	0	0	76	780

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : N/A

Direct Economic Loss For Transportation

August 26, 1998 *All values are in thousands of dollars*

County	Highway	Railway	Light Rail	Bus	Port	Ferry	Airport	Total
Deschutes, OR	17	0	0	0	0	0	40	57
Lake, OR	32	0	0	0	0	0	96	128
Crook, OR	6	0	0	0	0	0	0	6
Sherman, OR	29	0	0	0	0	0	0	29
Gilliam, OR	0	0	0	0	0	0	0	0
Wheeler, OR	1	0	0	0	0	0	8	9
Morrow, OR	0	0	0	0	0	0	0	0
Harney, OR	0	0	0	0	0	0	0	0
Umatilla, OR	0	0	0	0	0	0	0	0
Grant, OR	0	0	0	0	0	0	8	8
Malheur, OR	0	0	0	0	0	0	0	0
Union, OR	0	0	0	0	0	0	0	0
Wallowa, OR	0	0	0	0	0	0	0	0
Baker, OR	0	0	0	0	0	0	0	0
Study Region Total	**366,413**	**1,142**	**0**	**1,531**	**0**	**0**	**121,206**	**490,292**

ransportation Highway Bridge Damage

ugust 26, 1998

	# of Bridges	Average for Damage State				
		None	Slight	Moderate	Extensive	Complete
Oregon						
Baker	56	1.00	0.00	0.00	0.00	0.00
Benton	17	0.26	0.36	0.28	0.04	0.06
Clackamas	149	0.73	0.21	0.05	0.00	0.00
Clatsop	36	0.27	0.30	0.30	0.05	0.08
Columbia	15	0.54	0.34	0.11	0.00	0.01
Coos	47	0.11	0.29	0.36	0.10	0.14
Crook	10	0.99	0.01	0.00	0.00	0.00
Curry	26	0.08	0.19	0.37	0.15	0.21
Deschutes	17	0.99	0.01	0.00	0.00	0.00
Douglas	163	0.42	0.35	0.17	0.02	0.03
Gilliam	16	1.00	0.00	0.00	0.00	0.00
Grant	38	1.00	0.00	0.00	0.00	0.00
Harney	34	1.00	0.00	0.00	0.00	0.00
Hood River	49	0.85	0.13	0.02	0.00	0.00
Jackson	82	0.62	0.26	0.10	0.01	0.02
Jefferson	20	0.99	0.01	0.00	0.00	0.00
Josephine	52	0.41	0.36	0.17	0.02	0.04
Klamath	44	0.92	0.08	0.01	0.00	0.00
Lake	58	0.99	0.01	0.00	0.00	0.00
Lane	201	0.44	0.36	0.16	0.01	0.03
Lincoln	30	0.12	0.38	0.36	0.06	0.09
Linn	119	0.43	0.42	0.13	0.00	0.02
Malheur	65	1.00	0.00	0.00	0.00	0.00
Marion	146	0.50	0.37	0.12	0.00	0.01
Morrow	13	1.00	0.00	0.00	0.00	0.00
Multnomah	727	0.81	0.15	0.03	0.00	0.00
Polk	126	0.39	0.38	0.18	0.02	0.03
Sherman	22	0.96	0.03	0.00	0.00	0.00
Tillamook	60	0.22	0.37	0.29	0.05	0.08
Umatilla	101	1.00	0.00	0.00	0.00	0.00
Union	55	1.00	0.00	0.00	0.00	0.00

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Transportation Highway Bridge Damage

August 26, 1998

	# of Bridges	Average for Damage State				
		None	Slight	Moderate	Extensive	Complete
Wasco	58	0.98	0.02	0.00	0.00	0.00
Washington	123	0.51	0.32	0.14	0.01	0.02
Wheeler	18	1.00	0.00	0.00	0.00	0.00
Yamhill	18	0.25	0.39	0.26	0.03	0.06
Total State	2,811	0.67	0.21	0.09	0.01	0.02
Study region Average	**2,811**	**0.67**	**0.21**	**0.09**	**0.01**	**0.02**

Transportation Highway Bridge Functionality

August 26,1998

	# of bridges	Functionality (%)					
		At day 0	At day 1	At day 3	At day 7	At day 30	At day 90
Oregon							
Baker	56	99.99	100.00	100.00	100.00	100.00	100.00
Benton	17	36.75	61.10	78.12	88.70	90.47	92.89
Clackamas	149	77.20	90.45	97.29	99.16	99.42	99.52
Clatsop	36	37.01	58.09	74.16	85.45	87.47	90.76
Columbia	15	60.98	82.09	93.70	97.80	98.36	98.62
Coos	47	22.75	44.14	61.96	75.88	78.67	84.43
Crook	10	99.26	99.76	99.98	99.99	99.99	99.99
Curry	26	18.80	34.13	49.49	63.68	67.07	75.96
Deschutes	17	99.35	99.80	99.99	100.00	100.00	100.00
Douglas	163	50.74	73.56	87.45	94.04	95.08	96.25
Gilliam	16	99.97	99.99	100.00	100.00	100.00	100.00
Grant	38	99.92	99.97	100.00	100.00	100.00	100.00
Harney	34	99.95	99.98	100.00	100.00	100.00	100.00
Hood River	49	87.64	95.40	99.12	99.75	99.83	99.85
Jackson	82	68.24	84.40	93.67	97.45	98.00	98.38
Jefferson	20	99.26	99.76	99.98	99.99	100.00	100.00
Josephine	52	50.00	73.31	87.32	93.79	94.82	96.04
Klamath	44	92.91	97.50	99.63	99.90	99.93	99.93
Lake	58	99.01	99.67	99.97	99.99	99.99	99.99
Lane	201	52.84	75.83	89.46	95.53	96.43	97.18
Lincoln	30	24.38	50.77	70.51	84.05	86.39	89.86
Linn	119	52.04	78.36	92.73	97.68	98.34	98.52
Malheur	65	99.99	100.00	100.00	100.00	100.00	100.00
Marion	146	57.92	80.74	93.24	97.60	98.20	98.52
Morrow	13	99.99	100.00	100.00	100.00	100.00	100.00
Multnomah	727	84.44	93.85	98.53	99.56	99.70	99.73
Polk	126	48.10	72.38	87.12	94.07	95.15	96.27
Sherman	22	96.89	98.97	99.90	99.97	99.98	99.98
Tillamook	60	32.95	57.72	75.31	86.53	88.48	91.46
Umatilla	101	99.98	99.99	100.00	100.00	100.00	100.00

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Transportation Highway Bridge Functionality

August 26,1998

	# of bridges	Functionality (%)					
		At day 0	At day 1	At day 3	At day 7	At day 30	At day 90
Union	55	100.00	100.00	100.00	100.00	100.00	100.00
Wasco	58	98.33	99.42	99.93	99.98	99.98	99.99
Washington	123	58.48	79.09	91.16	96.37	97.14	97.73
Wheeler	18	99.91	99.97	100.00	100.00	100.00	100.00
Yamhill	18	36.51	62.68	80.04	89.91	91.52	93.55
Total State	2,811	71.82	85.40	93.36	96.81	97.35	97.97
Study Region	**2,811**	**71.82**	**85.40**	**93.36**	**96.81**	**97.35**	**97.97**

Direct Economic Loss For Utilities

September 09, 1998

All values are in thousands of dollars

County	Potable Water	Waste Water	Oil	Natural Gas	Electric Power	Communication	Total
Curry, OR	0	0	0	0	0	18,273	18,273
Coos, OR	0	0	0	0	0	25,116	25,116
Josephine, OR	0	0	0	0	0	4,150	4,150
Douglas, OR	0	0	0	0	0	6,909	6,909
Jackson, OR	0	0	0	0	0	1,715	1,715
Lane, OR	0	0	0	0	0	11,093	11,093
Lincoln, OR	0	0	0	0	0	8,889	8,889
Clatsop, OR	0	0	0	0	0	6,115	6,115
Tillamook, OR	0	0	0	0	0	5,170	5,170
Yamhill, OR	0	0	0	0	0	946	946
Benton, OR	0	0	0	0	0	4,138	4,138
Polk, OR	0	0	0	0	0	688	688
Linn, OR	0	0	0	0	0	1,031	1,031
Marion, OR	0	0	0	0	0	1,812	1,812
Washington, OR	0	0	0	0	0	752	752
Columbia, OR	0	0	0	0	0	97	97
Multnomah, OR	0	0	0	0	0	3,349	3,349

Study Region : Oregon
Scenario : N/A

Direct Economic Loss For Utilities

September 09, 1998

All values are in thousands of dollars

County	Potable Water	Waste Water	Oil	Natural Gas	Electric Power	Communication	Total
Klamath, OR	0	0	0	0	0	141	141
Deschutes, OR	0	0	0	0	0	2	2
Lake, OR	0	0	0	0	0	10	10
Clackamas, OR	0	0	0	0	0	232	232
Hood River, OR	0	0	0	0	0	17	17
Wasco, OR	0	0	0	0	0	6	6
Jefferson, OR	0	0	0	0	0	0	0
Crook, OR	0	0	0	0	0	8	8
Gilliam, OR	0	0	0	0	0	0	0
Sherman, OR	0	0	0	0	0	0	0
Wheeler, OR	0	0	0	0	0	0	0
Grant, OR	0	0	0	0	0	0	0
Morrow, OR	0	0	0	0	0	0	0
Umatilla, OR	0	0	0	0	0	0	0
Harney, OR	0	0	0	0	0	0	0
Union, OR	0	0	0	0	0	0	0
Baker, OR	0	0	0	0	0	0	0

Study Region : Oregon
Scenario : N/A

Direct Economic Loss For Utilities

September 09, 1998

All values are in thousands of dollars

County	Potable Water	Waste Water	Oil	Natural Gas	Electric Power	Communication	Total
Malheur, OR	0	0	0	0	0	0	0
Wallowa, OR	0	0	0	0	0	0	0
Study Region Total	**0**	**0**	**0**	**0**	**0**	100,659	100,659

Communication Facility Functionality

August 26, 1998

County	# of Facilities	Functionality (%)					
		At day 0	At day 1	At day 3	At day 7	At day 30	At day 90
Baker, OR	11	99.93	100.00	100.00	100.00	100.00	100.00
Benton, OR	24	51.82	91.41	98.24	98.95	99.90	99.98
Clackamas, OR	15	88.63	99.29	99.93	99.97	100.00	100.00
Clatsop, OR	13	25.69	76.36	92.63	95.15	99.40	99.90
Columbia, OR	3	81.57	98.52	99.84	99.93	99.99	100.00
Coos, OR	34	18.57	65.38	86.22	90.48	98.53	99.74
Crook, OR	4	96.51	99.87	99.99	100.00	100.00	100.00
Curry, OR	21	16.95	60.67	82.79	87.91	97.95	99.64
Deschutes, OR	28	99.49	99.99	100.00	100.00	100.00	100.00
Douglas, OR	43	61.20	92.73	98.03	98.73	99.83	99.97
Gilliam, OR	1	99.96	100.00	100.00	100.00	100.00	100.00
Grant, OR	9	99.92	100.00	100.00	100.00	100.00	100.00
Harney, OR	16	99.91	100.00	100.00	100.00	100.00	100.00
Hood River, OR	6	96.37	99.88	99.99	100.00	100.00	100.00
Jackson, OR	48	81.49	98.51	99.83	99.92	99.99	100.00
Jefferson, OR	2	99.52	99.99	100.00	100.00	100.00	100.00
Josephine, OR	19	49.14	89.34	97.46	98.43	99.84	99.97
Klamath, OR	31	95.55	99.76	99.98	99.99	100.00	100.00
Lake, OR	19	99.14	99.98	100.00	100.00	100.00	100.00
Lane, OR	60	54.25	90.67	97.65	98.52	99.83	99.97
Lincoln, OR	18	25.94	77.56	93.43	95.73	99.51	99.91
Linn, OR	14	69.04	96.19	99.43	99.70	99.98	100.00
Malheur, OR	18	99.95	100.00	100.00	100.00	100.00	100.00
Marion, OR	20	61.52	95.38	99.37	99.68	99.98	100.00
Morrow, OR	2	100.00	100.00	100.00	100.00	100.00	100.00
Multnomah, OR	76	76.59	97.72	99.71	99.86	99.99	100.00
Polk, OR	5	55.21	92.87	98.71	99.26	99.94	99.99
Sherman, OR	1	99.76	99.99	100.00	100.00	100.00	100.00
Tillamook, OR	10	23.64	73.13	90.78	93.81	99.16	99.85
Umatilla, OR	32	99.92	100.00	100.00	100.00	100.00	100.00
Union, OR	15	100.00	100.00	100.00	100.00	100.00	100.00

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Communication Facility Functionality

August 26, 1998

County	# of Facilities	Functionality (%)					
		At day 0	At day 1	At day 3	At day 7	At day 30	At day 90
Wallowa, OR	4	100.00	100.00	100.00	100.00	100.00	100.00
Wasco, OR	15	99.18	99.98	100.00	100.00	100.00	100.00
Washington, OR	8	60.35	94.86	99.22	99.58	99.97	100.00
Wheeler, OR	5	99.96	100.00	100.00	100.00	100.00	100.00
Yamhill, OR	6	52.93	92.32	98.55	99.15	99.92	99.99
Study Region	**656**	**70.65**	**92.68**	**97.67**	**98.45**	**99.78**	**99.96**

Debris Summary Report

August 26, 1998 *All values are in thousands of tons.*

County	Brick, Wood and Other	Reinf. Concrete and Steel	Total
Baker, OR	0	0	0
Benton, OR	107	437	544
Clackamas, OR	50	187	237
Clatsop, OR	90	294	383
Columbia, OR	18	39	57
Coos, OR	263	590	853
Crook, OR	0	0	0
Curry, OR	92	175	267
Deschutes, OR	1	1	3
Douglas, OR	69	153	222
Gilliam, OR	0	0	0
Grant, OR	0	0	0
Harney, OR	0	0	0
Hood River, OR	0	1	1
Jackson, OR	104	330	434
Jefferson, OR	0	0	1
Josephine, OR	131	345	476
Klamath, OR	9	19	28
Lake, OR	0	0	0
Lane, OR	294	1,047	1,341
Lincoln, OR	124	322	446
Linn, OR	85	315	400
Malheur, OR	0	0	0
Marion, OR	122	542	664
Morrow, OR	0	0	0
Multnomah, OR	239	1,359	1,598
Polk, OR	45	174	219
Sherman, OR	0	0	0
Tillamook, OR	48	109	158
Umatilla, OR	0	0	0
Union, OR	0	0	0
Wallowa, OR	0	0	0
Wasco, OR	0	0	1
Washington, OR	129	633	763
Wheeler, OR	0	0	0
Yamhill, OR	50	196	247
Study Region Total	**2,074**	**7,269**	**9,342**

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : Appendix A M8.5 Cascadia and soils

Appendix B

Casualties Summary Report

August 25, 1998

	Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
Oregon												
Baker												
Severity 1:	2	0	0	2	1	2	0	3	1	0	0	2
Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
Total:	**3**	**0**	**0**	**3**	**1**	**2**	**0**	**3**	**1**	**1**	**1**	**3**
Benton												
Severity 1:	260	17	0	277	68	487	2	556	80	207	5	293
Severity 2:	46	3	0	50	12	95	2	109	14	40	6	61
Severity 3:	3	0	1	5	1	13	4	18	1	6	12	18
Severity 4:	3	0	0	4	1	13	1	15	1	6	2	9
Total:	**313**	**21**	**2**	**336**	**81**	**608**	**8**	**697**	**97**	**259**	**26**	**381**
Clackamas												
Severity 1:	502	24	1	527	151	996	4	1,150	179	391	10	581
Severity 2:	82	5	1	87	25	187	5	217	29	74	13	116
Severity 3:	6	1	2	8	2	25	8	35	2	10	22	34
Severity 4:	6	1	0	7	2	25	2	29	2	10	4	16
Total:	**596**	**30**	**4**	**629**	**179**	**1,233**	**18**	**1,431**	**213**	**485**	**49**	**747**
Clatsop												
Severity 1:	263	4	0	267	88	235	1	324	104	80	4	188
Severity 2:	47	1	0	48	16	46	1	63	19	16	4	39
Severity 3:	4	0	1	5	1	6	3	10	2	2	8	12
Severity 4:	4	0	0	4	1	6	0	8	2	2	1	5
Total:	**318**	**5**	**1**	**324**	**106**	**294**	**6**	**405**	**126**	**100**	**17**	**243**
Columbia												
Severity 1:	150	1	0	152	53	68	1	122	63	17	3	83

Table B1. Casualties

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Casualties Summary Report

August 25, 1998

		Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
		At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
	Severity 2:	26	0	0	26	9	13	1	23	11	3	4	18
	Severity 3:	1	0	1	2	1	2	3	5	1	0	7	8
	Severity 4:	1	0	0	2	1	2	1	3	1	0	1	2
	Total:	**179**	**1**	**1**	**182**	**63**	**84**	**6**	**153**	**75**	**21**	**16**	**111**
Coos													
	Severity 1:	631	6	0	638	248	440	2	691	295	135	6	436
	Severity 2:	114	1	1	116	45	86	3	134	53	26	9	88
	Severity 3:	7	0	1	9	3	12	5	20	3	4	14	21
	Severity 4:	7	0	0	8	3	12	1	16	3	4	3	10
	Total:	**760**	**8**	**2**	**770**	**299**	**551**	**12**	**861**	**355**	**168**	**32**	**555**
Crook													
	Severity 1:	1	0	0	1	1	0	0	1	1	0	0	1
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**2**	**0**	**0**	**2**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**1**
Curry													
	Severity 1:	194	1	0	196	90	84	1	174	107	24	2	132
	Severity 2:	35	0	0	35	16	16	1	33	19	5	2	26
	Severity 3:	2	0	0	2	1	2	1	4	1	1	4	5
	Severity 4:	2	0	0	2	1	2	0	3	1	1	1	2
	Total:	**233**	**1**	**1**	**235**	**108**	**105**	**3**	**215**	**128**	**29**	**8**	**165**
Deschutes													
	Severity 1:	23	0	0	23	9	6	0	15	11	2	0	13
	Severity 2:	3	0	0	3	1	1	0	2	2	0	0	2
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**26**	**0**	**0**	**27**	**11**	**7**	**0**	**17**	**13**	**2**	**0**	**15**

Casualties Summary Report

August 25, 1998

	Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
Douglas												
Severity 1:	282	3	0	286	119	122	2	243	141	36	5	182
Severity 2:	48	1	0	49	20	22	2	44	24	6	6	36
Severity 3:	2	0	1	3	1	3	3	7	1	1	11	13
Severity 4:	2	0	0	3	1	3	1	4	1	1	2	4
Total:	**336**	**4**	**1**	**341**	**142**	**149**	**7**	**298**	**168**	**44**	**23**	**235**
Gilliam												
Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Grant												
Severity 1:	1	0	0	1	0	0	0	0	0	0	0	0
Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
Total:	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**
Harney												
Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
Total:	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**
Hood River												
Severity 1:	6	0	0	7	2	22	0	25	3	9	0	12
Severity 2:	1	0	0	1	0	4	0	4	0	2	1	2
Severity 3:	0	0	0	0	0	0	0	1	0	0	1	1

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Casualties Summary Report

August 25, 1998

		Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
		At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
	Severity 4:	0	0	0	0	0	0	0	1	0	0	0	0
	Total:	**7**	**1**	**0**	**8**	**3**	**27**	**1**	**31**	**3**	**11**	**2**	**16**
Jackson													
	Severity 1:	423	12	0	435	163	601	1	765	194	234	4	431
	Severity 2:	74	2	0	77	29	114	2	145	34	45	5	83
	Severity 3:	5	0	1	6	2	16	3	21	2	6	8	17
	Severity 4:	5	0	0	5	2	16	1	18	2	6	2	10
	Total:	**508**	**15**	**1**	**524**	**196**	**746**	**7**	**948**	**232**	**290**	**19**	**541**
Jefferson													
	Severity 1:	6	0	0	6	2	4	0	6	2	1	0	4
	Severity 2:	1	0	0	1	0	1	0	1	0	0	0	1
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**7**	**0**	**0**	**7**	**2**	**5**	**0**	**7**	**3**	**2**	**0**	**4**
Josephine													
	Severity 1:	366	5	0	372	158	322	1	481	188	98	2	288
	Severity 2:	66	1	0	67	29	63	1	92	34	19	2	55
	Severity 3:	4	0	0	5	2	9	2	12	2	3	4	9
	Severity 4:	4	0	0	4	2	9	0	11	2	3	1	6
	Total:	**441**	**7**	**1**	**448**	**190**	**402**	**3**	**596**	**226**	**123**	**9**	**358**
Klamath													
	Severity 1:	401	6	0	407	143	369	2	514	170	120	5	295
	Severity 2:	71	1	0	73	26	72	2	100	30	23	6	60
	Severity 3:	5	0	1	6	2	10	4	16	2	3	11	17
	Severity 4:	5	0	0	5	2	10	1	12	2	3	2	7
	Total:	**482**	**7**	**2**	**491**	**172**	**461**	**9**	**642**	**204**	**149**	**25**	**379**
Lake													

Casualties Summary Report

August 25, 1998

	Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
Severity 1:	11	0	0	11	4	11	0	15	5	3	0	8
Severity 2:	2	0	0	2	1	2	0	3	1	1	0	2
Severity 3:	0	0	0	0	0	0	0	1	0	0	1	1
Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
Total:	**13**	**0**	**0**	**13**	**5**	**13**	**1**	**19**	**5**	**4**	**2**	**11**
Lane												
Severity 1:	998	33	1	1,031	330	1,518	4	1,851	392	593	10	994
Severity 2:	176	6	1	183	58	289	4	352	69	113	12	194
Severity 3:	13	1	2	15	4	39	8	51	5	15	22	42
Severity 4:	13	1	0	14	4	39	2	45	5	15	4	24
Total:	**1,199**	**41**	**4**	**1,243**	**396**	**1,886**	**18**	**2,299**	**470**	**736**	**48**	**1,254**
Lincoln												
Severity 1:	289	4	0	294	110	244	2	356	131	87	5	223
Severity 2:	52	1	0	53	20	47	2	69	23	17	6	46
Severity 3:	4	0	1	4	1	7	4	11	2	2	11	15
Severity 4:	4	0	0	4	1	7	1	9	2	2	2	6
Total:	**348**	**5**	**2**	**355**	**132**	**304**	**8**	**445**	**157**	**108**	**25**	**290**
Linn												
Severity 1:	366	13	1	379	135	463	3	601	160	161	8	329
Severity 2:	65	2	1	68	24	89	3	116	28	31	10	69
Severity 3:	5	0	1	6	2	12	6	20	2	4	18	24
Severity 4:	5	0	0	5	2	12	1	15	2	4	3	10
Total:	**440**	**16**	**3**	**458**	**162**	**576**	**13**	**751**	**192**	**200**	**39**	**432**
Malheur												
Severity 1:	7	0	0	7	2	10	0	13	3	4	0	7
Severity 2:	1	0	0	1	0	2	0	2	0	1	0	1
Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Casualties Summary Report

August 25, 1998

		Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
		At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
	Total:	**8**	**0**	**0**	**8**	**3**	**12**	**0**	**15**	**3**	**4**	**1**	**8**
Marion													
	Severity 1:	754	29	1	785	239	1,351	6	1,595	283	536	14	833
	Severity 2:	131	6	1	138	42	257	7	306	49	102	17	168
	Severity 3:	11	1	2	15	4	35	12	51	4	14	30	48
	Severity 4:	11	1	0	13	4	35	2	41	4	14	6	24
	Total:	**908**	**36**	**5**	**950**	**287**	**1,678**	**27**	**1,992**	**341**	**666**	**66**	**1,074**
Morrow													
	Severity 1:	4	0	0	4	2	1	0	3	2	0	0	2
	Severity 2:	0	0	0	1	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**4**	**0**	**0**	**5**	**2**	**1**	**0**	**3**	**2**	**0**	**0**	**3**
Multnomah													
	Severity 1:	1,706	196	1	1,903	518	6,577	7	7,102	615	3,113	21	3,750
	Severity 2:	289	38	2	328	88	1,262	9	1,359	104	599	26	729
	Severity 3:	29	5	3	37	9	174	15	198	10	83	46	139
	Severity 4:	29	5	1	35	9	174	3	186	10	83	9	102
	Total:	**2,052**	**244**	**7**	**2,303**	**623**	**8,188**	**34**	**8,845**	**740**	**3,877**	**102**	**4,719**
Polk													
	Severity 1:	269	2	0	272	74	139	2	215	88	34	4	126
	Severity 2:	48	0	0	49	13	27	2	42	16	7	5	27
	Severity 3:	4	0	1	5	1	4	4	9	1	1	9	12
	Severity 4:	4	0	0	5	1	4	1	6	1	1	2	4
	Total:	**326**	**3**	**2**	**331**	**90**	**174**	**9**	**272**	**106**	**43**	**20**	**169**
Sherman													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Casualties Summary Report

August 25, 1998

		Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
		At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Tillamook													
	Severity 1:	102	2	0	104	43	103	1	148	52	36	2	89
	Severity 2:	18	0	0	18	7	20	1	29	9	7	3	19
	Severity 3:	1	0	0	2	0	3	2	5	1	1	5	6
	Severity 4:	1	0	0	1	0	3	0	4	1	1	1	2
	Total:	**122**	**2**	**1**	**125**	**52**	**129**	**4**	**185**	**62**	**45**	**11**	**117**
Umatilla													
	Severity 1:	18	0	0	19	6	10	0	16	8	3	0	11
	Severity 2:	2	0	0	2	1	1	0	2	1	0	0	2
	Severity 3:	0	0	0	0	0	0	0	0	0	0	1	1
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**21**	**0**	**0**	**21**	**7**	**11**	**1**	**19**	**9**	**3**	**2**	**14**
Union													
	Severity 1:	2	0	0	2	1	1	0	1	1	0	0	1
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**2**	**0**	**0**	**2**	**1**	**1**	**0**	**1**	**1**	**0**	**0**	**1**
Wallowa													
	Severity 1:	2	0	0	2	1	1	0	1	1	0	0	1
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**2**	**0**	**0**	**2**	**1**	**1**	**0**	**1**	**1**	**0**	**0**	**1**

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Casualties Summary Report

August 25, 1998

		Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
		At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
Wasco													
	Severity 1:	6	0	0	7	2	2	0	4	3	1	0	4
	Severity 2:	1	0	0	1	0	0	0	1	0	0	1	1
	Severity 3:	0	0	0	0	0	0	0	0	0	0	1	1
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**7**	**0**	**0**	**7**	**3**	**2**	**1**	**6**	**3**	**1**	**2**	**6**
Washington													
	Severity 1:	1,136	83	1	1,221	293	2,081	6	2,380	348	866	17	1,231
	Severity 2:	196	16	2	214	51	398	8	457	60	166	20	247
	Severity 3:	19	2	3	24	5	55	14	73	6	23	37	65
	Severity 4:	19	2	1	21	5	55	3	62	6	23	7	35
	Total:	**1,370**	**103**	**6**	**1,479**	**353**	**2,588**	**30**	**2,972**	**420**	**1,078**	**81**	**1,578**
Wheeler													
	Severity 1:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 2:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 3:	0	0	0	0	0	0	0	0	0	0	0	0
	Severity 4:	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Yamhill													
	Severity 1:	327	5	0	332	99	248	2	349	117	77	3	198
	Severity 2:	58	1	0	60	18	47	2	67	21	15	4	40
	Severity 3:	5	0	1	6	2	6	4	12	2	2	7	11
	Severity 4:	5	0	0	5	2	6	1	9	2	2	1	5
	Total:	**395**	**6**	**2**	**403**	**119**	**309**	**8**	**436**	**142**	**96**	**16**	**254**
Total State	Severity 1	9,512	448	10	9,969	3,155	16,517	48	19,720	3,747	6,868	133	10,748
	Severity 2	1,654	86	12	1,752	550	3,163	59	3,772	653	1,317	162	2,132
	Severity 3	131	12	21	164	42	434	106	581	50	181	292	522

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Casualties Summary Report

August 25, 1998

	Total Casualties - 2am				Total Casualties - 2pm				Total Casualties - 5pm			
	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total	At Home	At Work	Commute	Total
Severity 4	131	12	4	147	42	434	20	496	50	181	56	286
Total :	**11,428**	**558**	**47**	**12,033**	**3,789**	**20,547**	**233**	**24,570**	**4,500**	**8,546**	**642**	**13,688**
Study Region Total												
Severity 1	9,512	448	10	9,969	3,155	16,517	48	19,720	3,747	6,868	133	10,748
Severity 2	1,654	86	12	1,752	550	3,163	59	3,772	653	1,317	162	2,132
Severity 3	131	12	21	164	42	434	106	581	50	181	292	522
Severity 4	131	12	4	147	42	434	20	496	50	181	56	286
Total :	**11,428**	**558**	**47**	**12,033**	**3,789**	**20,547**	**233**	**24,570**	**4,500**	**8,546**	**642**	**13,688**

Shelter Summary Report

August 25, 1998

	Displaced Households	Short Term Shelter Needs
Oregon		
Baker	10	8
Benton	2,082	1,855
Clackamas	2,525	1,550
Clatsop	1,182	821
Columbia	326	233
Coos	2,521	1,885
Crook	0	0
Curry	486	328
Deschutes	5	3
Douglas	534	410
Gilliam	0	0
Grant	0	0
Harney	0	0
Hood River	56	40
Jackson	1,458	1,080
Jefferson	12	15
Josephine	872	662
Klamath	1,409	1,061
Lake	18	13
Lane	4,543	3,350
Lincoln	847	577
Linn	1,372	1,005
Malheur	43	38
Marion	3,356	2,484
Morrow	10	9
Multnomah	13,777	8,860
Polk	1,064	825
Sherman	0	0
Tillamook	275	198
Umatilla	81	64
Union	1	1
Wallowa	1	1
Wasco	23	17
Washington	7,666	4,660
Wheeler	0	0
Yamhill	871	696
Total State	47,426	32,749
Study Region Total	**47,426**	**32,749**

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Direct Economic Losses For Buildings

August 25, 1998

All values are in thousands of dollars

	Capital Stock Losses					Income Losses				
	Cost Structural Damage	Cost Non-struct. Damage	Cost Contents Damage	Inventory Loss	Loss Ratio %	Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	Total Loss
Oregon										
Baker	2,048	5,361	2,019	31	0.79	1,473	735	978	845	13,490
Benton	171,940	444,101	80,145	1,237	16.68	91,749	123,179	94,563	66,194	1,073,108
Clackamas	340,708	783,001	215,114	5,219	7.87	217,858	239,161	183,957	113,941	2,098,959
Clatsop	114,985	323,596	64,666	816	19.95	74,090	72,222	62,385	47,130	759,890
Columbia	46,076	120,221	29,453	561	9.99	28,929	15,013	14,639	12,505	267,397
Coos	229,586	615,381	119,133	1,610	25.89	142,985	142,286	106,801	71,472	1,429,254
Crook	1,107	2,284	883	50	0.46	684	165	238	227	5,638
Curry	65,300	169,159	34,076	504	21.44	37,913	34,274	27,855	19,358	388,439
Deschutes	13,153	29,204	9,233	272	0.91	8,011	3,863	4,549	3,046	71,331
Douglas	96,453	228,478	57,258	1,256	7.02	59,130	36,150	41,941	25,796	546,462
Gilliam	117	309	119	3	0.38	90	17	23	27	705
Grant	469	1,124	394	8	0.38	283	108	126	85	2,597
Harney	325	758	286	18	0.27	151	49	70	44	1,701
Hood River	8,679	18,938	6,239	162	2.68	6,071	9,096	9,054	4,105	62,344
Jackson	196,136	438,535	97,335	2,230	8.11	118,397	151,333	120,799	66,571	1,191,336
Jefferson	2,775	5,545	1,688	54	1.18	1,741	690	905	794	14,192
Josephine	144,267	343,976	66,782	1,112	15.07	82,207	90,515	76,335	42,514	847,708
Klamath	155,959	408,952	82,100	1,158	18.03	98,926	74,578	69,946	47,555	939,174
Lake	6,739	15,669	3,870	106	5.70	4,280	3,639	4,038	2,012	40,353
Lane	514,166	1,135,218	227,441	5,569	10.70	301,490	370,741	310,294	179,547	3,044,466
Lincoln	125,626	329,648	65,028	815	17.07	73,770	77,142	72,864	47,744	792,637
Linn	172,702	394,220	80,534	2,360	12.00	106,984	101,077	87,765	52,839	998,481
Malheur	6,752	15,052	5,913	178	1.61	5,069	3,056	4,581	2,540	43,141
Marion	387,863	916,615	202,846	4,335	11.04	232,013	251,215	210,776	136,178	2,341,841

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Direct Economic Losses For Buildings

August 25, 1998

All values are in thousands of dollars

	Capital Stock Losses					Income Losses				
	Cost Structural Damage	Cost Non-struct. Damage	Cost Contents Damage	Inventory Loss	Loss Ratio %	Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	Total Loss
Morrow	1,988	4,167	1,298	93	1.69	1,280	571	559	442	10,398
Multnomah	1,374,427	3,283,728	790,660	18,515	12.50	808,372	1,412,732	990,688	540,064	9,219,186
Polk	86,505	232,160	50,441	904	13.68	53,519	40,031	35,230	30,427	529,217
Sherman	160	392	142	2	0.57	105	45	45	32	923
Tillamook	59,320	162,803	35,865	409	14.43	37,292	24,663	25,365	17,899	363,616
Umatilla	11,225	26,304	10,155	341	1.25	7,944	3,636	4,808	3,362	67,775
Union	1,432	3,620	1,533	40	0.41	913	399	496	391	8,824
Wallowa	1,124	3,135	1,204	17	0.96	733	612	567	297	7,689
Wasco	4,318	9,912	3,692	122	1.13	2,913	1,280	1,584	1,194	25,015
Washington	591,196	1,468,148	354,059	8,155	12.44	372,453	425,930	329,748	229,013	3,778,702
Wheeler	129	296	87	1	0.52	78	51	45	21	708
Yamhill	115,608	276,355	59,884	1,301	12.90	63,788	53,956	48,304	35,723	654,919
Total State	5,051,363	12,216,365	2,761,575	59,564	10.96	3,043,684	3,764,210	2,942,921	1,801,934	31,641,616
Study Region Total	**5,051,363**	**12,216,365**	**2,761,575**	**59,564**	**10.96**	**3,043,684**	**3,764,210**	**2,942,921**	**1,801,934**	**31,641,616**

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Oregon						
Baker						
Agriculture	10	0	0	0	0	10
Commercial	97	3	2	1	0	103
Education	10	1	1	1	0	13
Government	0	0	0	0	0	0
Industrial	16	0	0	0	0	16
Religion	17	1	0	0	0	18
Residential	6,109	522	208	36	4	6,879
Benton						
Agriculture	5	2	4	3	7	21
Commercial	14	6	58	83	143	304
Education	6	0	2	4	9	21
Government	0	0	0	0	1	1
Industrial	0	0	4	12	34	50
Religion	3	2	6	7	11	29
Residential	6,336	5,872	4,440	1,709	1,294	19,651
Clackamas						
Agriculture	46	17	20	18	11	112

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Commercial	348	193	449	382	219	1,591
Education	53	15	24	14	5	111
Government	7	0	0	0	0	7
Industrial	79	41	120	119	88	447
Religion	57	28	41	34	20	180
Residential	45,845	24,276	13,823	4,859	1,666	90,469
Clatsop						
Agriculture	0	1	1	1	9	12
Commercial	0	2	28	58	120	208
Education	0	0	0	1	3	4
Government	0	0	0	0	0	0
Industrial	0	0	2	9	23	34
Religion	0	2	4	7	18	31
Residential	2,319	4,124	4,365	1,803	942	13,553
Columbia						
Agriculture	4	0	0	0	0	4
Commercial	29	12	28	25	16	110
Education	4	0	1	1	1	7
Government	1	0	0	0	0	1
Industrial	11	3	7	3	1	25
Religion	8	3	5	3	3	22

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Residential	4,620	3,747	2,755	1,259	689	13,070
Coos						
Agriculture	0	0	0	0	3	3
Commercial	5	5	48	104	212	374
Education	1	0	0	3	8	12
Government	0	0	0	0	3	3
Industrial	1	0	4	15	37	57
Religion	1	1	7	11	18	38
Residential	2,182	5,190	7,749	4,700	3,346	23,167
Crook						
Agriculture	8	0	0	0	0	8
Commercial	92	4	1	0	0	97
Education	3	0	0	0	0	3
Government	1	0	0	0	0	1
Industrial	24	0	0	0	0	24
Religion	7	0	0	0	0	7
Residential	4,738	503	290	26	0	5,557
Curry						
Agriculture	1	2	2	2	1	8
Commercial	5	4	21	40	43	113

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Education	1	1	3	4	3	12
Government	0	0	0	0	0	0
Industrial	0	0	2	6	8	16
Religion	0	1	3	5	5	14
Residential	989	2,020	2,623	1,868	1,373	8,873
Deschutes						
Agriculture	25	0	0	0	0	25
Commercial	552	49	34	1	0	636
Education	30	1	1	0	0	32
Government	5	0	0	0	0	5
Industrial	145	11	10	0	0	166
Religion	61	3	4	0	0	68
Residential	26,302	3,395	1,990	594	122	32,403
Douglas						
Agriculture	18	3	5	4	2	32
Commercial	158	81	135	76	19	469
Education	31	8	10	3	0	52
Government	0	0	0	0	0	0
Industrial	38	10	29	15	8	100
Religion	28	9	14	9	3	63
Residential	15,662	8,124	5,839	2,939	1,520	34,084

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Gilliam						
Agriculture	3	0	0	0	0	3
Commercial	13	0	0	0	0	13
Education	3	0	0	0	0	3
Government	0	0	0	0	0	0
Industrial	1	0	0	0	0	1
Religion	1	0	0	0	0	1
Residential	810	67	22	1	0	900
Grant						
Agriculture	6	0	0	0	0	6
Commercial	35	1	0	0	0	36
Education	5	0	0	0	0	5
Government	0	0	0	0	0	0
Industrial	8	0	0	0	0	8
Religion	4	0	0	0	0	4
Residential	3,061	291	155	7	0	3,514
Harney						
Agriculture	6	0	0	0	0	6
Commercial	40	2	0	0	0	42
Education	4	0	0	0	0	4

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Government	0	0	0	0	0	0
Industrial	16	0	0	0	0	16
Religion	4	0	0	0	0	4
Residential	2,687	212	95	4	0	2,998
Hood River						
Agriculture	16	1	0	0	0	17
Commercial	76	28	32	20	3	159
Education	3	0	0	0	0	3
Government	1	0	0	0	0	1
Industrial	20	3	5	4	1	33
Religion	9	3	3	2	1	18
Residential	4,862	992	420	75	11	6,360
Jackson						
Agriculture	37	10	12	7	5	71
Commercial	250	110	216	204	170	950
Education	17	0	5	7	6	35
Government	1	0	0	0	2	3
Industrial	81	27	57	46	38	249
Religion	33	10	17	17	12	89
Residential	26,894	11,201	7,782	3,337	1,922	51,136

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Jefferson						
Agriculture	15	1	1	0	0	17
Commercial	66	11	8	0	0	85
Education	5	1	0	0	0	6
Government	1	0	0	0	0	1
Industrial	13	3	0	0	0	16
Religion	8	1	0	0	0	9
Residential	4,275	777	544	93	12	5,701
Josephine						
Agriculture	10	3	5	5	7	30
Commercial	42	15	69	86	146	358
Education	4	0	2	3	6	15
Government	0	0	0	0	3	3
Industrial	13	1	10	16	35	75
Religion	9	2	5	5	9	30
Residential	8,205	6,185	5,495	2,652	2,238	24,775
Klamath						
Agriculture	7	3	5	2	13	30
Commercial	43	25	62	81	154	365
Education	2	0	0	0	7	9

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Government	2	0	0	0	1	3
Industrial	6	0	6	7	28	47
Religion	7	2	6	7	16	38
Residential	5,111	5,873	6,522	3,069	2,101	22,676
Lake						
Agriculture	4	1	1	1	0	7
Commercial	8	4	9	10	2	33
Education	2	0	1	1	0	4
Government	0	0	0	0	0	0
Industrial	0	0	2	2	0	4
Religion	1	1	1	1	0	4
Residential	1,791	736	471	177	58	3,233
Lane						
Agriculture	23	5	8	7	7	50
Commercial	209	141	482	527	429	1,788
Education	31	4	18	16	14	83
Government	3	0	0	0	0	3
Industrial	56	28	118	119	115	436
Religion	33	17	33	43	34	160
Residential	41,473	24,320	15,820	7,556	4,592	93,761

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Lincoln						
Agriculture	2	1	3	3	4	13
Commercial	30	6	50	74	100	260
Education	1	0	0	2	2	5
Government	0	0	0	0	0	0
Industrial	5	1	4	7	12	29
Religion	4	0	3	6	8	21
Residential	3,836	5,553	5,278	2,805	1,814	19,286
Linn						
Agriculture	10	8	10	9	12	49
Commercial	40	37	131	160	152	520
Education	7	2	6	14	10	39
Government	0	0	0	0	1	1
Industrial	13	11	59	70	66	219
Religion	10	8	12	15	12	57
Residential	11,996	8,396	6,042	2,715	1,675	30,824
Malheur						
Agriculture	33	2	1	0	0	36
Commercial	137	21	24	9	0	191
Education	9	1	1	0	0	11

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Government	1	0	0	0	0	1
Industrial	18	2	3	1	0	24
Religion	14	2	2	1	0	19
Residential	7,615	1,097	572	105	9	9,398
Marion						
Agriculture	60	45	52	55	47	259
Commercial	144	114	362	382	326	1,328
Education	13	5	14	22	11	65
Government	2	0	0	0	2	4
Industrial	31	19	80	101	92	323
Religion	48	25	40	35	25	173
Residential	29,593	19,553	12,773	5,280	2,366	69,565
Morrow						
Agriculture	12	1	1	0	0	14
Commercial	26	2	3	0	0	31
Education	3	0	0	0	0	3
Government	0	0	0	0	0	0
Industrial	11	3	6	1	0	21
Religion	2	0	0	0	0	2
Residential	2,149	401	385	102	9	3,046

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Multnomah						
Agriculture	12	4	7	5	8	36
Commercial	505	365	1,280	1,474	1,375	4,999
Education	33	12	33	33	27	138
Government	2	2	3	4	2	13
Industrial	66	34	244	364	450	1,158
Religion	72	23	69	83	48	295
Residential	70,033	58,999	35,959	9,217	2,433	176,641
Polk						
Agriculture	7	5	6	5	4	27
Commercial	11	8	40	50	65	174
Education	3	1	2	2	2	10
Government	0	0	0	0	1	1
Industrial	4	2	13	20	30	69
Religion	2	1	5	5	8	21
Residential	4,873	4,791	3,794	1,446	665	15,569
Sherman						
Agriculture	2	0	0	0	0	2
Commercial	12	0	0	0	0	12
Education	2	0	0	0	0	2

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Government	0	0	0	0	0	0
Industrial	0	0	0	0	0	0
Religion	0	0	0	0	0	0
Residential	718	96	48	3	0	865
Tillamook						
Agriculture	3	1	4	2	2	12
Commercial	16	8	27	29	40	120
Education	1	1	1	1	1	5
Government	0	0	0	0	0	0
Industrial	3	1	7	3	6	20
Religion	3	1	3	2	1	10
Residential	3,115	3,674	3,234	1,455	821	12,299
Umatilla						
Agriculture	66	7	4	1	0	78
Commercial	245	30	26	7	0	308
Education	29	2	1	0	0	32
Government	0	0	0	0	0	0
Industrial	80	8	8	1	0	97
Religion	18	0	1	0	0	19
Residential	15,719	2,411	1,430	346	35	19,941

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Union						
Agriculture	11	0	0	0	0	11
Commercial	129	6	0	0	0	135
Education	9	0	0	0	0	9
Government	1	0	0	0	0	1
Industrial	32	1	0	0	0	33
Religion	9	0	0	0	0	9
Residential	7,537	640	272	15	0	8,464
Wallowa						
Agriculture	6	0	0	0	0	6
Commercial	41	0	0	0	0	41
Education	4	0	0	0	0	4
Government	0	0	0	0	0	0
Industrial	10	0	0	0	0	10
Religion	2	0	0	0	0	2
Residential	2,940	350	171	40	4	3,505
Wasco						
Agriculture	10	0	0	0	0	10
Commercial	116	14	6	0	0	136
Education	7	0	0	0	0	7

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Government	0	0	0	0	0	0
Industrial	41	8	11	4	0	64
Religion	11	0	0	0	0	11
Residential	6,654	1,138	739	156	15	8,702
Washington						
Agriculture	19	9	16	11	11	66
Commercial	158	126	499	582	477	1,842
Education	22	5	12	21	14	74
Government	0	0	0	1	1	2
Industrial	46	35	182	231	227	721
Religion	14	10	23	32	22	101
Residential	30,825	29,605	19,889	6,137	2,218	88,674
Wheeler						
Agriculture	2	0	0	0	0	2
Commercial	7	0	0	0	0	7
Education	1	0	0	0	0	1
Government	0	0	0	0	0	0
Industrial	0	0	0	0	0	0
Religion	1	0	0	0	0	1
Residential	645	69	43	4	0	761

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Count by General Occupancy

August 25, 1998

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Yamhill						
Agriculture	9	5	7	7	8	36
Commercial	24	17	75	87	72	275
Education	1	1	2	4	5	13
Government	0	0	0	0	0	0
Industrial	11	5	29	34	30	109
Religion	5	4	9	7	7	32
Residential	6,548	5,941	4,315	1,941	1,057	19,802
Total State	425,091	253,208	182,213	74,940	41,216	976,668
Study region	425,091	253,208	182,213	74,940	41,216	976,668

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Oregon						
Baker						
Agriculture	135	85.17	7.17	5.33	1.83	0.33
Commercial	1,826	82.17	8.17	6.83	2.83	0.33
Education	242	84.50	7.17	5.83	2.00	0.33
Government	31	82.50	7.83	6.67	2.33	0.33
Industrial	379	81.50	8.50	7.17	2.67	0.50
Religion	286	53.33	5.83	5.00	1.83	0.33
Residential	10,692	89.50	7.50	2.50	0.50	0.00
Benton						
Agriculture	403	17.50	16.69	20.56	19.25	25.94
Commercial	6,328	7.81	8.50	22.81	26.75	34.31
Education	713	11.50	11.56	18.81	22.19	29.69
Government	142	7.00	7.13	20.38	27.56	37.88
Industrial	2,059	6.63	7.50	20.75	26.63	38.00
Religion	551	13.31	12.31	19.88	22.06	26.31
Residential	39,875	30.25	29.00	22.75	9.44	8.19

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario 898-500yrandubcsoil

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Clackamas						
Agriculture	1,818	32.25	17.81	20.21	16.06	9.69
Commercial	34,955	23.19	15.27	27.12	22.15	12.17
Education	2,754	25.94	14.35	20.27	16.88	9.25
Government	588	22.90	13.98	26.44	23.08	13.25
Industrial	12,893	21.67	14.31	26.73	22.85	14.10
Religion	2,961	26.96	15.35	21.67	18.10	10.04
Residential	149,990	49.71	27.62	15.77	5.12	1.71
Clatsop						
Agriculture	241	4.00	7.80	11.00	10.93	19.73
Commercial	3,840	2.40	3.80	14.40	22.87	36.67
Education	278	4.07	6.07	11.40	14.47	23.93
Government	77	2.20	3.87	14.27	25.73	47.07
Industrial	1,048	1.73	3.20	12.67	20.47	35.00
Religion	569	4.13	7.00	12.53	16.40	26.47
Residential	24,449	15.07	27.13	28.47	12.40	10.40
Columbia						

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Agriculture	128	19.91	16.09	19.27	17.00	18.45
Commercial	2,328	11.55	10.36	23.45	24.27	21.27
Education	252	16.36	12.27	18.64	18.36	16.18
Government	84	12.00	9.73	22.64	26.73	29.27
Industrial	1,466	10.55	9.27	22.64	25.00	23.91
Religion	368	16.82	12.55	19.36	19.18	14.00
Residential	19,780	33.55	29.73	22.18	9.09	5.36
Coos						
Agriculture	185	4.85	10.46	18.85	19.23	31.31
Commercial	7,060	1.62	3.38	14.77	24.31	40.69
Education	400	2.85	6.15	14.23	19.77	33.85
Government	124	1.46	2.62	12.31	24.85	51.00
Industrial	1,804	1.08	2.46	12.62	23.62	44.38
Religion	574	3.54	7.00	16.08	21.77	36.23
Residential	36,728	9.00	20.85	30.62	17.15	15.08
Crook						
Agriculture	126	87.00	7.75	4.75	1.00	0.00
Commercial	1,793	85.50	8.75	4.75	1.00	0.00

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Education	65	87.00	7.75	4.50	0.75	0.00
Government	38	85.50	9.00	4.75	0.50	0.00
Industrial	972	83.75	9.50	5.75	0.75	0.00
Religion	93	66.50	5.50	2.75	0.50	0.00
Residential	8,144	86.00	8.50	5.00	0.25	0.00
Curry						
Agriculture	113	5.40	9.60	15.40	14.80	14.60
Commercial	2,162	3.80	6.20	20.00	25.20	24.80
Education	235	4.60	7.40	15.00	16.80	16.00
Government	39	3.60	5.00	17.80	26.60	27.20
Industrial	545	3.20	5.00	18.60	25.60	27.40
Religion	243	4.60	7.20	14.80	17.40	16.20
Residential	12,940	10.40	20.20	24.40	14.80	10.00
Deschutes						
Agriculture	376	75.30	9.75	7.25	2.30	0.35
Commercial	11,721	71.85	11.35	8.55	2.65	0.35
Education	704	70.65	9.55	7.30	2.45	0.35
Government	175	75.20	12.00	9.30	2.85	0.50

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Industrial	4,464	69.30	11.85	9.80	3.15	0.55
Religion	1,078	74.50	10.25	7.45	2.50	0.35
Residential	49,499	83.15	10.15	5.20	1.15	0.25
Douglas						
Agriculture	654	19.30	10.24	12.05	9.16	5.95
Commercial	8,797	12.30	8.84	15.59	12.35	7.49
Education	1,268	16.54	9.00	12.76	9.95	5.84
Government	201	12.16	8.14	15.35	12.89	8.30
Industrial	3,672	11.43	8.22	15.62	12.81	8.68
Religion	1,048	16.59	9.38	13.35	10.84	6.59
Residential	52,002	26.73	14.08	9.41	4.35	2.19
Gilliam						
Agriculture	39	88.00	8.00	4.00	1.00	0.00
Commercial	220	86.00	9.00	5.00	1.00	0.00
Education	54	88.00	8.00	4.00	1.00	0.00
Government	3	86.00	9.00	5.00	1.00	0.00
Industrial	10	84.00	10.00	5.00	1.00	0.00
Religion	16	88.00	8.00	4.00	1.00	0.00

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Residential	1,332	92.00	7.00	2.00	0.00	0.00
Grant						
Agriculture	86	89.50	6.50	3.50	0.50	0.00
Commercial	624	89.00	7.00	3.50	0.50	0.00
Education	95	90.50	6.50	3.00	0.00	0.00
Government	19	89.50	7.00	3.50	0.50	0.00
Industrial	191	88.00	7.50	4.00	0.50	0.00
Religion	67	90.50	6.50	3.00	0.00	0.00
Residential	5,094	90.00	6.50	3.00	0.00	0.00
Harney						
Agriculture	89	89.50	6.50	3.00	0.50	0.00
Commercial	641	88.50	7.50	3.50	0.50	0.00
Education	94	90.00	6.50	3.00	0.50	0.00
Government	14	88.50	7.50	3.50	0.50	0.00
Industrial	668	88.00	8.00	4.00	0.50	0.00
Religion	53	46.50	2.50	1.00	0.00	0.00
Residential	4,474	89.00	7.00	3.00	0.00	0.00

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Hood River						
Agriculture	298	65.00	14.50	13.00	5.75	1.25
Commercial	2,651	56.75	16.75	17.25	7.50	1.25
Education	93	62.50	15.00	14.50	6.25	1.25
Government	44	57.00	16.25	17.25	7.25	1.50
Industrial	971	55.00	16.00	17.75	8.50	2.00
Religion	266	62.50	15.25	14.50	6.50	1.25
Residential	10,440	76.75	15.00	6.25	1.25	0.25
Jackson						
Agriculture	1,152	38.58	15.19	17.16	12.90	9.74
Commercial	18,619	28.87	14.55	22.84	17.84	12.55
Education	941	29.13	12.42	17.32	14.32	10.68
Government	327	28.87	13.81	22.32	18.35	13.55
Industrial	7,090	27.39	13.71	22.81	18.71	14.23
Religion	1,494	30.84	12.58	16.58	13.35	10.39
Residential	83,360	54.48	20.71	13.13	5.26	2.81
Jefferson						

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Agriculture	271	74.00	11.25	10.00	4.00	0.75
Commercial	1,666	68.75	14.25	12.50	4.50	0.50
Education	129	72.00	12.00	11.25	4.25	0.75
Government	39	66.50	13.75	13.50	5.50	1.00
Industrial	467	64.75	14.00	15.00	5.50	1.00
Religion	131	50.00	10.00	10.00	4.00	0.75
Residential	8,227	78.25	12.25	7.25	1.75	0.25
Josephine						
Agriculture	509	27.13	16.93	20.47	16.33	19.13
Commercial	6,728	16.80	11.67	22.93	22.60	25.87
Education	454	19.40	11.73	17.87	16.80	21.00
Government	158	17.60	12.07	22.27	22.00	26.07
Industrial	2,246	15.73	11.13	21.93	22.27	28.53
Religion	492	19.87	13.20	19.33	18.40	22.40
Residential	37,162	37.60	25.80	20.87	9.40	6.60
Klamath						
Agriculture	537	15.90	14.55	20.05	16.05	28.25
Commercial	6,797	10.80	7.90	18.35	22.15	40.35

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Education	318	12.95	10.15	16.75	16.75	28.50
Government	138	11.35	7.30	16.70	22.10	42.50
Industrial	1,573	9.85	7.25	17.40	22.00	43.10
Religion	628	12.50	11.05	18.30	18.80	34.40
Residential	35,536	22.60	26.65	29.25	13.05	9.05
Lake						
Agriculture	120	54.50	15.00	15.00	11.00	4.50
Commercial	700	44.50	15.50	21.50	14.00	5.00
Education	97	51.00	14.50	17.50	12.50	4.50
Government	14	43.50	14.50	21.50	15.50	6.00
Industrial	279	43.00	14.00	21.00	15.00	7.00
Religion	66	12.00	8.00	13.50	12.00	4.50
Residential	4,626	61.50	20.50	12.50	3.50	1.00
Lane						
Agriculture	1,183	21.90	13.54	16.40	16.10	14.98
Commercial	34,933	10.04	9.45	22.15	23.02	19.56
Education	2,519	15.33	9.79	15.94	17.18	14.70
Government	605	9.59	8.15	20.70	24.05	21.15

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Industrial	15,715	8.80	8.43	21.24	23.72	22.04
Religion	2,709	16.93	11.12	17.99	19.43	16.32
Residential	161,710	37.50	22.26	14.23	6.35	3.63
Lincoln						
Agriculture	296	9.72	13.83	18.67	18.44	22.39
Commercial	5,084	4.44	7.11	23.22	30.50	34.83
Education	299	7.22	9.78	18.28	22.39	25.61
Government	97	4.72	6.78	20.61	30.89	36.72
Industrial	1,180	3.83	6.44	22.39	30.11	37.22
Religion	411	6.89	9.56	17.00	20.61	23.78
Residential	30,965	19.94	29.89	28.17	13.28	8.83
Linn						
Agriculture	828	20.09	13.23	16.32	16.00	16.14
Commercial	9,885	9.73	8.45	21.73	24.00	22.41
Education	1,078	16.59	11.05	18.59	20.77	19.41
Government	191	9.32	7.82	20.55	26.18	26.73
Industrial	6,445	8.32	7.45	20.55	24.68	25.05
Religion	873	12.59	10.05	16.82	19.41	18.18

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Residential	49,496	34.91	24.23	17.23	8.14	6.73
Malheur						
Agriculture	522	75.75	10.88	9.38	3.75	0.50
Commercial	3,510	70.00	12.50	11.88	4.88	0.50
Education	243	74.25	11.13	10.38	3.75	0.50
Government	59	71.13	12.25	11.50	4.25	0.50
Industrial	781	56.88	12.00	12.50	5.25	0.75
Religion	286	51.38	10.13	9.75	3.63	0.50
Residential	14,730	82.50	11.13	5.13	0.88	0.13
Marion						
Agriculture	3,771	20.02	13.76	16.13	15.04	13.17
Commercial	25,546	11.17	9.37	21.02	21.37	17.65
Education	1,907	15.70	10.59	17.35	18.24	14.41
Government	513	11.22	8.48	19.80	22.57	20.33
Industrial	9,127	9.93	8.22	19.30	21.43	19.33
Religion	2,659	16.33	11.37	17.63	17.93	14.93
Residential	124,534	32.13	22.93	16.24	7.13	3.78

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Morrow						
Agriculture	203	74.50	11.50	10.00	3.50	0.50
Commercial	567	68.00	14.00	12.50	5.00	0.50
Education	70	73.00	12.00	11.00	3.50	0.50
Government	15	67.00	13.50	13.50	4.50	0.50
Industrial	435	67.00	12.50	14.50	6.00	0.50
Religion	25	72.50	12.00	11.00	3.50	0.50
Residential	4,371	75.50	12.00	9.50	2.50	0.00
Multnomah						
Agriculture	1,244	17.50	14.72	17.89	17.23	14.02
Commercial	110,240	10.26	10.69	27.00	28.21	21.31
Education	5,014	14.31	12.01	20.26	22.02	16.24
Government	1,320	9.56	9.25	25.28	30.05	23.56
Industrial	35,034	8.90	9.39	25.26	29.20	24.44
Religion	5,605	15.51	13.60	22.29	24.11	18.12
Residential	349,057	36.26	30.82	20.37	6.94	3.24
Polk						

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Agriculture	405	18.25	17.13	21.38	19.88	23.63
Commercial	3,068	8.50	9.00	23.50	27.75	31.38
Education	311	14.50	13.50	21.63	23.75	27.25
Government	101	8.38	8.00	21.75	28.25	33.75
Industrial	1,906	7.38	8.00	21.63	27.75	35.38
Religion	368	13.00	12.00	18.75	20.13	24.00
Residential	26,960	30.88	30.50	24.13	9.38	5.50
Sherman						
Agriculture	28	85.00	9.00	5.00	1.00	0.00
Commercial	225	82.00	10.00	6.00	1.00	0.00
Education	33	85.00	9.00	5.00	1.00	0.00
Government	4	82.00	11.00	6.00	1.00	0.00
Industrial	7	81.00	11.00	7.00	1.00	0.00
Religion	3	84.00	10.00	5.00	1.00	0.00
Residential	1,198	86.00	10.00	4.00	0.00	0.00
Tillamook						
Agriculture	200	14.75	17.25	22.88	20.00	24.63
Commercial	2,408	7.63	8.88	23.25	27.25	32.88

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Education	186	10.00	10.25	17.75	17.13	19.63
Government	45	7.13	7.75	21.38	27.63	35.75
Industrial	625	6.75	8.38	22.63	26.63	35.63
Religion	197	10.63	11.75	19.63	20.25	25.13
Residential	18,767	24.00	30.63	27.50	11.38	6.63
Umatilla						
Agriculture	1,104	69.71	10.82	9.47	3.59	0.59
Commercial	5,620	58.53	12.82	11.94	4.41	0.59
Education	699	57.59	10.59	10.06	3.71	0.59
Government	129	68.82	13.24	12.88	4.53	0.59
Industrial	2,425	57.18	12.47	12.88	5.00	0.65
Religion	353	57.00	11.06	10.18	3.53	0.59
Residential	33,393	80.82	11.71	6.00	1.29	0.06
Union						
Agriculture	143	87.25	7.50	4.38	0.50	0.00
Commercial	2,537	86.00	8.63	4.75	0.88	0.00
Education	185	87.63	7.63	4.25	0.50	0.00
Government	52	85.63	9.13	4.88	0.50	0.00

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Industrial	905	84.75	8.88	5.25	0.88	0.00
Religion	161	77.13	6.50	3.38	0.38	0.00
Residential	13,844	89.88	7.25	2.75	0.00	0.00
Wallowa						
Agriculture	83	77.00	10.00	8.67	3.67	0.67
Commercial	758	72.00	11.00	11.00	5.33	0.67
Education	70	75.67	10.33	9.67	3.67	0.67
Government	14	72.33	11.00	11.67	4.33	0.67
Industrial	206	71.33	11.33	11.67	4.67	0.67
Religion	38	61.00	4.00	1.67	0.00	0.00
Residential	5,289	84.33	10.33	4.67	1.00	0.00
Wasco						
Agriculture	174	73.75	12.63	10.38	3.38	0.25
Commercial	2,492	68.25	15.88	12.38	3.25	0.13
Education	176	55.88	9.63	7.38	1.88	0.00
Government	43	65.50	16.25	14.38	4.00	0.50
Industrial	1,155	64.63	16.13	14.50	4.50	0.25
Religion	153	55.63	9.88	7.50	1.75	0.00

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Residential	14,011	80.00	12.00	6.38	1.25	0.00
Washington						
Agriculture	1,288	17.89	17.06	20.81	20.69	19.06
Commercial	40,193	8.08	9.69	26.84	30.27	25.34
Education	2,253	13.19	12.55	21.31	24.40	20.79
Government	655	7.65	8.27	24.42	31.60	27.74
Industrial	20,250	6.74	8.31	24.60	31.24	29.19
Religion	2,069	13.61	13.32	22.34	25.84	21.85
Residential	167,453	33.76	32.77	22.52	7.69	3.44
Wheeler						
Agriculture	21	85.00	9.00	6.00	1.00	0.00
Commercial	116	83.00	10.00	6.00	1.00	0.00
Education	14	85.00	9.00	5.00	1.00	0.00
Government	3	82.00	11.00	6.00	1.00	0.00
Industrial	11	81.00	11.00	7.00	1.00	0.00
Religion	8	85.00	9.00	5.00	1.00	0.00
Residential	1,063	87.00	8.00	4.00	0.00	0.00

Building Damage By General Occupancy

August 25, 1998

	Square Footage (Thousand. sq.ft)	Damage State Probability (%)				
		None	Slight	Moderate	Extensive	Complete
Yamhill						
Agriculture	581	19.90	17.60	21.40	21.60	19.10
Commercial	5,645	8.10	9.70	26.70	30.30	24.70
Education	407	11.60	11.90	20.60	24.70	21.20
Govemment	151	9.10	9.50	24.70	30.60	26.00
Industrial	3,077	7.20	8.50	24.80	31.20	28.50
Religion	524	15.20	13.90	23.10	26.20	21.40
Residential	33,570	33.70	30.30	21.40	9.30	5.30
State Average	2,236,790	24.18	12.94	18.87	17.72	15.68
Study Region Average	2,236,790	24.18	12.94	18.87	17.72	15.68

Building Damage by Building Type for Low Design Level

August 25, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Oregon					
Baker					
Concrete	81.50	9.00	7.00	2.17	0.33
Mobile Home	70.83	14.00	11.83	2.83	0.50
Precast Concrete	77.17	8.33	9.17	5.00	0.67
Reinforced Masonry Bearings Walls	83.17	6.50	6.83	3.17	0.33
Steel	83.50	6.33	6.67	2.33	0.67
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	89.50	7.67	2.33	0.17	0.00
Benton					
Concrete	6.44	7.63	21.06	27.38	37.56
Mobile Home	3.63	6.81	20.19	31.19	38.00
Precast Concrete	5.50	5.06	17.56	27.56	44.44
Reinforced Masonry Bearings Walls	9.75	6.63	20.88	29.19	33.31
Steel	5.25	4.75	16.31	27.94	45.56
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	25.25	27.38	28.19	12.13	6.69
Clackamas					
Concrete	21.40	15.37	27.62	23.08	12.79
Mobile Home	13.40	15.02	30.21	26.88	14.31
Precast Concrete	18.40	10.52	25.25	28.04	17.65
Reinforced Masonry Bearings Walls	27.12	11.23	25.88	25.35	10.38
Steel	20.17	11.63	25.50	24.44	18.25
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	44.33	28.54	20.42	5.06	1.31

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Table B6. Building Damage by Building Type for Low Design Level

Building Damage by Building Type for Low Design Level

August 25, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Clatsop					
Concrete	1.73	3.33	14.47	26.93	53.13
Mobile Home	1.20	3.33	13.00	30.07	52.53
Precast Concrete	1.53	2.20	11.40	23.80	61.00
Reinforced Masonry Bearings Walls	3.60	3.73	15.73	28.73	48.47
Steel	1.33	1.60	8.53	26.07	62.13
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	12.40	24.67	33.73	18.33	10.87
Columbia					
Concrete	10.09	10.18	23.55	27.36	28.91
Mobile Home	5.82	9.55	23.73	31.00	29.91
Precast Concrete	8.64	6.82	20.64	28.64	35.45
Reinforced Masonry Bearings Walls	14.45	8.27	23.00	29.09	25.27
Steel	9.00	6.73	19.55	28.00	36.55
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	29.73	28.45	26.73	10.27	4.55
Coos					
Concrete	1.15	3.15	14.23	27.46	53.69
Mobile Home	0.69	3.08	12.54	30.46	53.38
Precast Concrete	0.92	2.08	11.08	23.92	61.54
Reinforced Masonry Bearings Walls	2.77	3.23	15.46	29.23	49.00
Steel	0.62	1.15	8.23	26.54	63.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	9.38	21.23	35.77	21.23	12.31
Crook					

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Building Damage by Building Type for Low Design Level

August 25, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Concrete	83.75	10.25	5.25	0.75	0.00
Mobile Home	64.50	19.00	15.25	1.50	0.00
Precast Concrete	82.00	8.75	7.25	2.00	0.00
Reinforced Masonry Bearings Walls	89.25	6.50	4.00	1.00	0.00
Steel	81.75	10.50	7.00	1.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	92.50	6.50	1.00	0.00	0.00
Curry					
Concrete	7.00	8.80	25.40	31.20	28.00
Mobile Home	3.80	7.80	23.60	35.20	29.60
Precast Concrete	5.80	6.00	20.80	32.20	35.60
Reinforced Masonry Bearings Walls	11.00	7.60	24.60	33.20	23.60
Steel	5.40	5.80	20.40	32.00	36.60
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	18.40	28.80	34.60	13.00	4.60
Deschutes					
Concrete	72.50	14.10	9.95	3.05	0.45
Mobile Home	54.65	20.10	19.60	4.60	0.70
Precast Concrete	72.10	10.65	11.80	4.75	0.55
Reinforced Masonry Bearings Walls	82.05	8.10	7.35	2.50	0.15
Steel	70.80	12.60	11.90	3.60	0.90
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	86.60	10.50	2.50	0.15	0.00
Douglas					
Concrete	12.86	11.81	26.22	27.22	21.84
Mobile Home	7.73	10.84	26.59	31.03	23.62

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Building Type for Low Design Level

August 25, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Precast Concrete	11.30	7.95	22.84	30.05	28.24
Reinforced Masonry Bearings Walls	17.97	9.43	24.78	29.22	18.57
Steel	11.57	8.30	22.49	28.43	29.16
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	35.62	28.32	25.08	8.32	3.03
Gilliam					
Concrete	84.00	11.00	5.00	1.00	0.00
Mobile Home	70.00	18.00	12.00	1.00	0.00
Precast Concrete	81.00	9.00	8.00	2.00	0.00
Reinforced Masonry Bearings Walls	89.00	7.00	5.00	1.00	0.00
Steel	87.00	8.00	4.00	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	92.00	7.00	1.00	0.00	0.00
Grant					
Concrete	88.00	8.00	3.00	0.00	0.00
Mobile Home	71.00	16.50	11.50	0.50	0.00
Precast Concrete	85.00	7.50	6.00	1.50	0.00
Reinforced Masonry Bearings Walls	91.50	5.00	3.50	1.00	0.00
Steel	86.00	8.00	5.00	0.50	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	94.50	5.00	0.50	0.00	0.00
Harney					
Concrete	86.50	9.00	3.50	0.50	0.00
Mobile Home	73.00	16.00	11.00	0.50	0.00
Precast Concrete	84.50	8.00	6.50	1.50	0.00
Reinforced Masonry Bearings Walls	90.00	6.00	4.00	1.00	0.00

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Building Type for Low Design Level

August 25, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Steel	89.00	7.00	3.50	0.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	93.00	6.00	0.50	0.00	0.00
Hood River					
Concrete	53.50	19.00	18.75	7.25	1.25
Mobile Home	39.00	22.25	26.75	9.25	2.00
Precast Concrete	49.50	14.00	20.75	12.75	2.50
Reinforced Masonry Bearings Walls	61.00	12.50	16.75	8.75	1.00
Steel	56.25	15.00	18.50	7.75	2.50
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	75.00	17.75	6.25	0.50	0.00
Jackson					
Concrete	27.48	15.94	24.52	18.90	13.32
Mobile Home	18.68	16.23	28.52	21.97	14.52
Precast Concrete	25.61	10.94	23.13	22.94	17.35
Reinforced Masonry Bearings Walls	34.97	11.23	22.19	20.29	11.29
Steel	27.06	12.39	22.90	19.61	18.03
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	53.19	23.87	16.19	4.48	2.00
Jefferson					
Concrete	64.00	15.25	14.25	5.50	1.00
Mobile Home	46.50	20.25	24.00	7.75	1.50
Precast Concrete	65.00	12.00	14.50	7.25	0.75
Reinforced Masonry Bearings Walls	76.50	9.50	10.00	4.00	0.25
Steel	59.75	14.25	17.50	7.00	1.75
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Building Damage by Building Type for Low Design Level

August 25, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Wood	82.25	13.25	4.25	0.25	0.00
Josephine					
Concrete	15.60	12.00	22.27	22.53	27.67
Mobile Home	9.67	11.80	24.53	26.07	28.27
Precast Concrete	13.40	8.20	20.40	24.67	32.93
Reinforced Masonry Bearings Walls	20.13	9.00	21.80	24.60	24.87
Steel	14.80	8.67	19.60	22.80	34.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	35.80	26.33	23.33	9.27	4.87
Klamath					
Concrete	9.75	7.85	17.35	21.95	43.20
Mobile Home	6.20	7.70	18.25	25.40	42.55
Precast Concrete	8.35	5.00	15.05	21.65	48.90
Reinforced Masonry Bearings Walls	13.40	6.25	17.40	23.50	39.55
Steel	8.90	5.50	14.05	21.60	49.90
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	21.65	24.60	29.10	14.75	9.60
Lake					
Concrete	41.00	16.00	22.50	15.00	5.50
Mobile Home	30.00	17.50	27.00	18.00	6.50
Precast Concrete	39.00	11.50	21.00	20.00	8.00
Reinforced Masonry Bearings Walls	48.50	11.00	19.50	17.00	4.50
Steel	41.50	12.00	21.00	16.50	8.50
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	64.00	21.00	12.00	2.00	0.50

Building Damage by Building Type for Low Design Level

August 25, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Lane					
Concrete	9.07	9.87	25.33	29.88	25.96
Mobile Home	5.39	9.02	24.29	33.66	27.74
Precast Concrete	8.29	6.59	21.29	31.09	32.95
Reinforced Masonry Bearings Walls	14.29	8.23	24.24	31.21	21.91
Steel	7.34	6.22	20.95	31.15	34.32
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	35.23	27.32	25.20	8.95	3.65
Lincoln					
Concrete	3.67	5.78	21.33	32.00	37.22
Mobile Home	2.11	5.50	18.72	35.22	38.56
Precast Concrete	2.89	3.89	16.89	30.50	45.89
Reinforced Masonry Bearings Walls	6.33	5.61	21.39	33.83	32.56
Steel	2.22	3.17	14.89	32.39	47.28
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	17.61	28.33	33.72	14.39	6.11
Linn					
Concrete	8.09	8.50	22.64	29.18	31.55
Mobile Home	5.18	8.00	21.32	32.68	32.95
Precast Concrete	7.68	5.55	18.64	28.91	38.82
Reinforced Masonry Bearings Walls	13.41	7.09	21.91	30.09	27.18
Steel	6.68	5.09	17.77	29.82	40.36
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	31.09	26.77	26.45	10.50	4.82
Malheur					
Concrete	68.63	14.00	12.50	4.00	0.50

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Building Type for Low Design Level

August 25, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Mobile Home	52.13	19.25	21.75	5.88	0.63
Precast Concrete	64.88	11.00	14.75	8.50	1.00
Reinforced Masonry Bearings Walls	73.88	9.00	11.63	5.75	0.38
Steel	67.88	12.38	14.25	4.63	1.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	83.38	12.50	4.25	0.25	0.00
Marion					
Concrete	9.98	9.67	22.93	28.00	29.59
Mobile Home	5.87	9.04	22.65	31.35	30.89
Precast Concrete	8.70	6.33	19.63	28.80	36.65
Reinforced Masonry Bearings Walls	14.22	7.76	22.48	29.61	25.85
Steel	8.91	6.17	18.39	28.50	37.83
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	30.59	27.74	26.54	10.30	4.48
Morrow					
Concrete	65.00	15.50	14.50	4.50	0.50
Mobile Home	51.50	19.00	22.00	6.00	0.50
Precast Concrete	63.00	12.00	16.00	8.50	1.00
Reinforced Masonry Bearings Walls	73.00	10.00	11.50	5.00	0.00
Steel	66.00	12.50	15.00	4.50	1.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	82.00	13.00	4.50	0.00	0.00
Multnomah					
Concrete	8.60	10.17	26.44	30.66	24.06
Mobile Home	5.06	9.36	25.00	35.05	26.29
Precast Concrete	7.23	6.40	21.79	32.54	31.67

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Building Type for Low Design Level

August 25, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Reinforced Masonry Bearings Walls	13.37	8.08	25.44	32.66	20.39
Steel	6.90	6.36	21.61	32.29	32.58
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	29.99	29.60	27.86	9.33	3.04
Polk					
Concrete	7.25	8.38	22.50	28.13	33.38
Mobile Home	4.13	7.63	21.50	31.88	34.50
Precast Concrete	6.25	5.63	18.88	28.75	40.75
Reinforced Masonry Bearings Walls	10.88	7.13	22.00	30.25	29.75
Steel	6.00	5.25	17.50	28.75	42.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	25.75	28.38	28.50	11.63	5.75
Sherman					
Concrete	79.00	13.00	7.00	1.00	0.00
Mobile Home	64.00	20.00	15.00	1.00	0.00
Precast Concrete	78.00	10.00	9.00	2.00	0.00
Reinforced Masonry Bearings Walls	86.00	7.00	5.00	1.00	0.00
Steel	83.00	10.00	6.00	1.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	89.00	9.00	1.00	0.00	0.00
Tillamook					
Concrete	6.38	8.00	22.38	27.38	35.25
Mobile Home	3.75	7.38	21.63	31.50	36.25
Precast Concrete	5.50	5.38	18.50	28.25	42.25
Reinforced Masonry Bearings Walls	10.00	6.88	21.50	29.50	31.13
Steel	4.75	5.25	18.13	28.25	43.50

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Building Type for Low Design Level

August 25, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	21.00	28.63	30.88	13.00	7.00
Umatilla					
Concrete	65.65	15.53	13.71	4.59	0.59
Mobile Home	52.65	19.53	21.12	6.00	0.65
Precast Concrete	63.29	11.94	15.94	8.12	0.94
Reinforced Masonry Bearings Walls	73.76	10.35	11.59	4.59	0.12
Steel	67.71	12.24	14.35	4.35	1.06
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	81.88	13.35	4.24	0.12	0.00
Union					
Concrete	84.13	10.25	4.75	0.50	0.00
Mobile Home	67.25	17.88	13.38	1.00	0.00
Precast Concrete	81.88	8.88	7.63	2.00	0.00
Reinforced Masonry Bearings Walls	89.13	6.25	4.25	1.00	0.00
Steel	83.75	9.13	6.13	0.75	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	92.25	6.88	0.88	0.00	0.00
Wallowa					
Concrete	70.67	12.67	11.67	4.33	0.67
Mobile Home	58.67	17.00	18.00	5.67	0.67
Precast Concrete	66.00	10.67	14.00	8.67	1.33
Reinforced Masonry Bearings Walls	74.67	8.67	11.33	5.67	0.67
Steel	72.67	9.67	12.00	4.67	1.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	83.33	12.00	4.33	0.33	0.00

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Building Type for Low Design Level

August 25, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Wasco					
Concrete	62.25	19.00	15.25	3.88	0.00
Mobile Home	45.13	22.25	25.75	5.75	0.50
Precast Concrete	64.00	13.88	15.88	6.38	0.13
Reinforced Masonry Bearings Walls	77.50	10.50	9.63	2.88	0.00
Steel	60.00	16.13	18.13	5.13	0.88
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	81.88	14.50	3.50	0.00	0.00
Washington					
Concrete	6.79	9.02	25.27	32.19	27.18
Mobile Home	3.60	8.19	23.15	35.63	29.27
Precast Concrete	5.95	5.79	20.84	32.74	34.90
Reinforced Masonry Bearings Walls	10.98	7.60	24.94	33.66	22.71
Steel	5.45	5.15	19.65	33.35	36.31
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	27.44	30.03	29.45	10.13	3.32
Wheeler					
Concrete	82.00	11.00	5.00	1.00	0.00
Mobile Home	58.00	20.00	18.00	2.00	0.00
Precast Concrete	81.00	9.00	7.00	2.00	0.00
Reinforced Masonry Bearings Walls	89.00	6.00	4.00	1.00	0.00
Steel	75.00	14.00	10.00	1.00	0.00
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	92.00	7.00	1.00	0.00	0.00
Yamhill					
Concrete	7.40	9.20	25.70	31.80	26.10

Study Region : Oregon State - Test for DOGAMI Supp Data

Scenario : 898-500yrandubcsoil

Building Damage by Building Type for Low Design Level

August 25, 1998

	Average Damage State (%)				
	None	Slight	Moderate	Extensive	Complete
Mobile Home	4.20	8.50	23.90	35.50	27.90
Precast Concrete	6.20	5.90	21.20	33.00	33.80
Reinforced Masonry Bearings Walls	11.40	7.90	25.00	33.50	22.10
Steel	5.70	5.60	20.30	33.00	34.90
Unreinforced Masonry Bearing Walls	0.00	0.00	0.00	0.00	0.00
Wood	28.80	29.60	28.50	9.60	3.50
Total State	18.01	9.99	18.60	20.25	18.84
Study Region Average	18.01	9.99	18.60	20.25	18.84

Emergency Response Facilities Functionality

August 25, 1998

	Count	Functionality(%) At Day 1
Oregon		
Baker		
Fire Station	2	94.72
Police Station	1	94.22
Benton		
Emergency Operation Centers	1	8.79
Fire Station	6	23.31
Police Station	6	17.84
Clackamas		
Emergency Operation Centers	1	51.99
Fire Station	14	35.68
Police Station	12	35.34
Clatsop		
Emergency Operation Centers	1	10.20
Fire Station	4	9.24
Police Station	4	9.19
Columbia		
Emergency Operation Centers	1	47.20
Police Station	1	17.66
Coos		
Fire Station	10	8.63
Police Station	3	5.31
Crook		
Fire Station	1	49.63
Police Station	3	49.63
Curry		
Fire Station	4	10.67
Police Station	2	5.08

Emergency Response Facilities Functionality

August 25, 1998

	Count	Functionality(%) At Day 1
Deschutes		
Emergency Operation Centers	1	90.86
Fire Station	4	91.20
Police Station	4	81.69
Douglas		
Emergency Operation Centers	1	49.36
Fire Station	9	47.37
Police Station	4	36.78
Gilliam		
Fire Station	1	71.93
Police Station	2	82.70
Grant		
Emergency Operation Centers	1	94.76
Fire Station	4	66.60
Police Station	2	88.53
Harney		
Fire Station	3	74.14
Police Station	1	84.70
Hood River		
Fire Station	11	72.63
Police Station	3	77.19
Jackson		
Fire Station	23	46.35
Police Station	15	37.84
Jefferson		
Fire Station	5	83.23
Police Station	3	85.67
Josephine		
Emergency Operation Centers	1	9.15
Fire Station	4	11.45

Emergency Response Facilities Functionality

August 25, 1998

	Count	Functionality(%) At Day 1
Police Station	1	22.49
Klamath		
Emergency Operation Centers	1	28.30
Fire Station	1	74.40
Police Station	3	44.52
Lake		
Fire Station	2	54.71
Police Station	2	77.75
Lane		
Fire Station	24	29.23
Police Station	12	24.90
Lincoln		
Fire Station	21	15.61
Police Station	4	12.27
Linn		
Emergency Operation Centers	1	24.71
Fire Station	8	33.76
Police Station	5	29.02
Malheur		
Fire Station	6	75.53
Police Station	4	65.60
Marion		
Emergency Operation Centers	1	20.37
Fire Station	19	30.68
Police Station	11	20.07
Morrow		
Fire Station	3	94.25
Police Station	5	82.95
Multnomah		

Emergency Response Facilities Functionality

August 25, 1998

	Count	Functionality(%) At Day 1
Emergency Operation Centers	1	21.37
Fire Station	7	24.49
Police Station	6	20.52
Polk		
Emergency Operation Centers	1	17.51
Fire Station	6	28.84
Police Station	4	21.47
Sherman		
Fire Station	3	86.80
Police Station	2	89.14
Tillamook		
Emergency Operation Centers	1	6.46
Fire Station	10	16.42
Police Station	11	22.13
Umatilla		
Emergency Operation Centers	1	92.55
Fire Station	5	86.20
Police Station	12	77.45
Union		
Emergency Operation Centers	1	89.39
Fire Station	1	93.80
Wasco		
Fire Station	5	83.45
Police Station	3	76.98
Washington		
Emergency Operation Centers	1	17.67
Fire Station	16	24.42
Police Station	9	25.93
Yamhill		
Emergency Operation Centers	1	17.47

Emergency Response Facilities Functionality

August 25, 1998

	Count	Functionality(%) At Day 1
Fire Station	10	17.45
Police Station	8	15.12
Total State	**438**	**39.18**
Total Study Region	**438**	**39.18**

School Functionality

August 25, 1998

	Count	Functionality (%)
Oregon		
Baker	20	80.50
Benton	31	18.20
Clackamas	97	33.29
Clatsop	15	7.78
Columbia	14	27.83
Coos	41	7.22
Crook	15	54.67
Curry	17	6.72
Deschutes	45	86.72
Douglas	28	29.36
Gilliam	5	80.06
Grant	7	71.78
Harney	10	83.72
Hood River	21	65.53
Jackson	71	38.54
Jefferson	17	84.29
Josephine	49	19.06
Klamath	8	37.44
Lake	12	43.98
Lane	123	25.49
Lincoln	28	11.39
Linn	25	22.65
Malheur	43	63.61
Marion	111	24.19
Morrow	16	81.34
Multnomah	141	22.72
Polk	36	17.50
Sherman	5	87.52
Tillamook	31	15.67
Umatilla	57	78.81
Union	15	89.86
Wallowa	1	94.00
Wasco	33	83.16
Washington	57	17.85
Wheeler	3	93.68
Yamhill	66	14.17
Total State	**1,314**	**36.01**
Study Region	**1,314**	**36.01**

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Direct Economic Loss For Transportation

August 25, 1998 *All values are in thousands of dollars*

County	Highway	Railway	Light Rail	Bus	Port	Ferry	Airport	Total
Clatsop, OR	33,379	0	0	558	0	0	7,440	41,377
Tillamook, OR	39,390	0	0	0	0	0	7,760	47,150
Lincoln, OR	21,552	30	0	0	0	0	12,032	33,614
Polk, OR	72,162	0	0	0	0	0	13,158	85,320
Yamhill, OR	11,425	0	0	202	0	0	19,944	31,571
Linn, OR	34,117	0	0	87	0	0	23,630	57,834
Benton, OR	11,147	0	0	182	0	0	10,876	22,205
Lane, OR	73,828	150	0	205	0	0	20,374	94,557
Columbia, OR	10,116	0	0	0	0	0	7,862	17,978
Washington, OR	60,992	0	0	60	0	0	22,542	83,594
Marion, OR	58,810	0	0	0	0	0	23,222	82,032
Multnomah, OR	436,642	0	0	26	0	0	11,998	448,666
Curry, OR	43,555	0	0	0	0	0	12,118	55,673
Coos, OR	49,313	542	0	0	0	0	19,578	69,433
Douglas, OR	69,200	420	0	32	0	0	9,110	78,762
Josephine, OR	29,434	0	0	0	0	0	10,136	39,570
Jackson, OR	33,534	0	0	108	0	0	8,054	41,696
Klamath, OR	27,602	0	0	0	0	0	15,342	42,944
Clackamas, OR	73,972	0	0	71	0	0	31,686	105,729
Jefferson, OR	698	0	0	0	0	0	395	1,093
Wasco, OR	3,369	0	0	0	0	0	1,992	5,361
Hood River, OR	11,515	0	0	0	0	0	2,508	14,023

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : N/A

Direct Economic Loss For Transportation

August 25, 1998

All values are in thousands of dollars

County	Highway	Railway	Light Rail	Bus	Port	Ferry	Airport	Total
Deschutes, OR	572	0	0	0	0	0	1,814	2,386
Lake, OR	20,388	0	0	0	0	0	8,456	28,844
Crook, OR	879	0	0	0	0	0	316	1,195
Sherman, OR	3,337	0	0	0	0	0	423	3,760
Gilliam, OR	350	0	0	0	0	0	440	790
Wheeler, OR	338	0	0	0	0	0	688	1,026
Morrow, OR	550	0	0	0	0	0	392	942
Harney, OR	6,726	0	0	0	0	0	5,520	12,246
Umatilla, OR	5,833	0	0	0	0	0	3,018	8,851
Grant, OR	2,904	0	0	0	0	0	1,944	4,848
Malheur, OR	3,987	0	0	0	0	0	4,296	8,283
Union, OR	1,005	0	0	0	0	0	618	1,623
Wallowa, OR	0	0	0	0	0	0	2,856	2,856
Baker, OR	4,935	0	0	0	0	0	1,598	6,533
Study Region Total	**1,257,556**	**1,142**	**0**	**1,531**	**0**	**0**	**324,136**	**1,584,365**

Transportation Highway Bridge Damage

August 25, 1998

	# of Bridges	Average for Damage State				
		None	Slight	Moderate	Extensive	Complete
Oregon						
Baker	56	0.56	0.31	0.11	0.00	0.01
Benton	17	0.10	0.29	0.38	0.10	0.13
Clackamas	149	0.23	0.34	0.30	0.05	0.07
Clatsop	36	0.15	0.25	0.36	0.10	0.14
Columbia	15	0.12	0.35	0.36	0.07	0.10
Coos	47	0.08	0.25	0.38	0.12	0.16
Crook	10	0.72	0.23	0.06	0.00	0.01
Curry	26	0.10	0.23	0.38	0.12	0.17
Deschutes	17	0.79	0.19	0.02	0.00	0.00
Douglas	163	0.23	0.38	0.28	0.04	0.06
Gilliam	16	0.82	0.16	0.02	0.00	0.00
Grant	38	0.68	0.24	0.07	0.00	0.01
Harney	34	0.49	0.39	0.10	0.00	0.01
Hood River	49	0.31	0.36	0.24	0.03	0.05
Jackson	82	0.22	0.40	0.28	0.04	0.06
Jefferson	20	0.72	0.23	0.04	0.00	0.00
Josephine	52	0.19	0.40	0.29	0.05	0.07
Klamath	44	0.18	0.29	0.34	0.08	0.10
Lake	58	0.40	0.31	0.22	0.03	0.04
Lane	201	0.25	0.38	0.27	0.04	0.06
Lincoln	30	0.07	0.30	0.39	0.10	0.14
Linn	119	0.17	0.39	0.33	0.04	0.07
Malheur	65	0.68	0.25	0.06	0.00	0.01
Marion	146	0.16	0.35	0.35	0.06	0.09
Morrow	13	0.67	0.27	0.05	0.00	0.00
Multnomah	727	0.30	0.33	0.27	0.04	0.06
Polk	126	0.14	0.35	0.34	0.07	0.10
Sherman	22	0.46	0.33	0.17	0.01	0.03
Tillamook	60	0.10	0.30	0.38	0.09	0.13
Umatilla	101	0.71	0.22	0.06	0.00	0.01
Union	55	0.80	0.18	0.02	0.00	0.00

Table B10. Transportation Highway Bridge Damage

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Transportation Highway Bridge Damage

August 25, 1998

	# of Bridges	Average for Damage State				
		None	Slight	Moderate	Extensive	Complete
Wasco	58	0.68	0.23	0.07	0.01	0.01
Washington	123	0.13	0.31	0.36	0.08	0.11
Wheeler	18	0.81	0.16	0.03	0.00	0.00
Yamhill	18	0.08	0.25	0.40	0.11	0.15
Total State	2,811	0.31	0.32	0.26	0.04	0.06
Study region Average	**2,811**	**0.31**	**0.32**	**0.26**	**0.04**	**0.06**

Transportation Highway Bridge Functionality

August 25,1998

	# of bridges	Functionality (%) At day 0	At day 1	At day 3	At day 7	At day 30	At day 90
Oregon							
Baker	56	63.14	82.55	93.47	97.64	98.22	98.54
Benton	17	21.87	43.02	61.13	75.68	78.56	84.40
Clackamas	149	34.05	57.54	74.77	86.27	88.29	91.39
Clatsop	36	26.02	44.94	61.52	75.14	77.96	84.02
Columbia	15	24.86	49.63	68.85	82.68	85.14	89.07
Coos	47	20.08	39.33	56.67	71.31	74.41	81.40
Crook	10	75.83	89.72	96.96	99.02	99.29	99.38
Curry	26	21.28	38.89	55.44	69.93	73.08	80.39
Deschutes	17	82.32	93.60	98.92	99.69	99.79	99.81
Douglas	163	34.75	60.40	78.07	88.78	90.56	92.93
Gilliam	16	85.07	94.35	98.84	99.66	99.77	99.79
Grant	38	73.34	88.38	96.35	98.79	99.12	99.21
Harney	34	57.20	81.35	94.08	97.91	98.42	98.61
Hood River	49	41.52	65.63	81.73	90.99	92.48	94.30
Jackson	82	33.85	60.38	78.30	88.82	90.56	92.85
Jefferson	20	76.64	90.81	97.80	99.28	99.48	99.54
Josephine	52	30.42	57.55	76.02	87.04	88.93	91.72
Klamath	44	29.72	50.86	67.95	80.87	83.34	88.01
Lake	58	49.10	69.64	83.58	91.84	93.19	94.90
Lane	201	36.34	61.74	79.01	89.27	90.96	93.20
Lincoln	30	19.00	40.94	59.68	74.70	77.68	83.71
Linn	119	29.20	56.11	75.40	87.85	89.87	92.31
Malheur	65	72.72	88.34	96.51	98.88	99.19	99.29
Marion	146	27.62	52.09	70.82	84.07	86.39	89.99
Morrow	13	72.53	88.96	97.22	99.18	99.44	99.48
Multnomah	727	40.65	62.84	78.80	89.16	90.89	93.24
Polk	126	26.03	50.52	69.02	81.90	84.27	88.46
Sherman	22	54.63	75.69	88.68	95.06	96.02	96.87
Tillamook	60	21.80	43.80	62.23	76.72	79.56	85.13
Umatilla	101	75.94	89.48	96.65	98.83	99.14	99.28

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Table B11. Transportation Highway Bridge Functionality

Transportation Highway Bridge Functionality

August 25,1998

	# of bridges	Functionality (%)					
		At day 0	At day 1	At day 3	At day 7	At day 30	At day 90
Union	55	82.98	93.63	98.74	99.62	99.73	99.77
Wasco	58	72.93	87.45	95.31	97.96	98.36	98.71
Washington	123	24.96	47.53	65.75	79.50	82.11	86.98
Wheeler	18	84.13	93.93	98.69	99.58	99.70	99.74
Yamhill	18	20.09	39.62	57.49	72.77	75.88	82.46
Total State	2,811	41.12	62.98	78.47	88.29	90.00	92.59
Study Region	**2,811**	**41.12**	**62.98**	**78.47**	**88.29**	**90.00**	**92.59**

Direct Economic Loss For Utilities

August 25, 1998

All values are in thousands of dollars

County	Potable Water	Waste Water	Oil	Natural Gas	Electric Power	Communication	Total
Curry, OR	0	0	0	0	0	14,572	14,572
Coos, OR	0	0	0	0	0	22,481	22,481
Josephine, OR	0	0	0	0	0	7,797	7,797
Douglas, OR	0	0	0	0	0	12,463	12,463
Jackson, OR	0	0	0	0	0	9,096	9,096
Lane, OR	0	0	0	0	0	20,042	20,042
Lincoln, OR	0	0	0	0	0	9,870	9,870
Clatsop, OR	0	0	0	0	0	7,698	7,698
Tillamook, OR	0	0	0	0	0	5,952	5,952
Yamhill, OR	0	0	0	0	0	2,557	2,557
Benton, OR	0	0	0	0	0	9,712	9,712
Polk, OR	0	0	0	0	0	2,145	2,145
Linn, OR	0	0	0	0	0	4,048	4,048
Marion, OR	0	0	0	0	0	8,356	8,356
Washington, OR	0	0	0	0	0	3,938	3,938
Columbia, OR	0	0	0	0	0	950	950

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : N/A

Direct Economic Loss For Utilities

August 25, 1998

All values are in thousands of dollars

County	Potable Water	Waste Water	Oil	Natural Gas	Electric Power	Communication	Total
Multnomah, OR	0	0	0	0	0	30,825	30,825
Klamath, OR	0	0	0	0	0	14,409	14,409
Deschutes, OR	0	0	0	0	0	1,023	1,023
Lake, OR	0	0	0	0	0	3,813	3,813
Clackamas, OR	0	0	0	0	0	4,308	4,308
Hood River, OR	0	0	0	0	0	1,009	1,009
Wasco, OR	0	0	0	0	0	1,319	1,319
Jefferson, OR	0	0	0	0	0	104	104
Crook, OR	0	0	0	0	0	498	498
Gilliam, OR	0	0	0	0	0	29	29
Sherman, OR	0	0	0	0	0	61	61
Wheeler, OR	0	0	0	0	0	123	123
Grant, OR	0	0	0	0	0	469	469
Morrow, OR	0	0	0	0	0	46	46
Umatilla, OR	0	0	0	0	0	2,864	2,864
Harney, OR	0	0	0	0	0	1,569	1,569
Union, OR	0	0	0	0	0	479	479

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : N/A

Direct Economic Loss For Utilities

August 25, 1998

All values are in thousands of dollars

County	Potable Water	Waste Water	Oil	Natural Gas	Electric Power	Communication	Total
Baker, OR	0	0	0	0	0	1,462	1,462
Malheur, OR	0	0	0	0	0	1,691	1,691
Wallowa, OR	0	0	0	0	0	116	116
Study Region Total	**0**	**0**	**0**	**0**	**0**	**207,894**	**207,894**

Communication Facility Functionality

August 25, 1998

County	# of Facilities	Functionality (%)					
		At day 0	At day 1	At day 3	At day 7	At day 30	At day 90
Baker, OR	11	63.15	94.15	98.98	99.42	99.96	99.99
Benton, OR	24	27.93	78.43	93.56	95.79	99.50	99.91
Clackamas, OR	15	37.59	85.61	96.52	97.83	99.78	99.96
Clatsop, OR	13	18.64	66.26	87.00	91.09	98.69	99.77
Columbia, OR	3	33.90	83.96	96.03	97.52	99.74	99.96
Coos, OR	34	18.01	62.57	83.82	88.64	98.05	99.66
Crook, OR	4	66.27	94.64	99.05	99.46	99.96	100.00
Curry, OR	21	16.80	60.36	82.57	87.75	97.91	99.64
Deschutes, OR	28	84.38	99.01	99.90	99.96	100.00	100.00
Douglas, OR	43	38.30	85.37	96.15	97.55	99.71	99.95
Gilliam, OR	1	87.43	99.36	99.95	99.98	100.00	100.00
Grant, OR	9	83.04	98.07	99.71	99.84	99.99	100.00
Harney, OR	16	72.28	95.71	99.19	99.53	99.96	99.99
Hood River, OR	6	53.38	92.65	98.74	99.29	99.95	99.99
Jackson, OR	48	49.40	91.43	98.39	99.06	99.92	99.99
Jefferson, OR	2	79.06	98.53	99.87	99.94	100.00	100.00
Josephine, OR	19	28.29	77.94	93.13	95.47	99.43	99.90
Klamath, OR	31	26.10	74.56	91.38	94.23	99.23	99.87
Lake, OR	19	54.84	89.89	97.22	98.21	99.79	99.97
Lane, OR	60	35.07	82.55	95.01	96.76	99.61	99.93
Lincoln, OR	18	20.17	69.20	88.86	92.45	98.96	99.82
Linn, OR	14	40.27	85.38	96.15	97.55	99.73	99.95
Malheur, OR	18	70.94	96.17	99.39	99.67	99.98	100.00
Marion, OR	20	26.21	77.65	93.48	95.77	99.52	99.92
Morrow, OR	2	90.51	99.58	99.97	99.99	100.00	100.00
Multnomah, OR	76	27.91	78.20	93.40	95.68	99.48	99.91
Polk, OR	5	26.18	76.72	92.77	95.24	99.42	99.90
Sherman, OR	1	75.10	98.05	99.81	99.92	99.99	100.00
Tillamook, OR	10	18.86	66.11	86.75	90.88	98.63	99.76
Umatilla, OR	32	72.49	96.41	99.40	99.66	99.97	100.00
Union, OR	15	86.81	99.25	99.93	99.97	100.00	100.00

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil

Table B13. Communication Facility Functionality

Communication Facility Functionality

August 25, 1998

County	# of Facilities	Functionality (%)					
		At day 0	At day 1	At day 3	At day 7	At day 30	At day 90
Wallowa, OR	4	87.71	99.36	99.95	99.98	100.00	100.00
Wasco, OR	15	69.17	96.77	99.58	99.79	99.99	100.00
Washington, OR	8	21.87	72.57	90.89	93.93	99.22	99.86
Wheeler, OR	5	89.55	99.50	99.96	99.99	100.00	100.00
Yamhill, OR	6	25.99	76.42	92.61	95.12	99.40	99.89
Study Region	**656**	**42.77**	**83.25**	**94.59**	**96.40**	**99.51**	**99.91**

Debris Summary Report

August 25, 1998

All values are in thousands of tons.

County	Brick, Wood and Other	Reinf. Concrete and Steel	Total
Baker, OR	2	6	8
Benton, OR	180	622	802
Clackamas, OR	343	1,245	1,588
Clatsop, OR	126	348	474
Columbia, OR	59	125	184
Coos, OR	278	586	864
Crook, OR	1	2	3
Curry, OR	92	170	261
Deschutes, OR	17	29	47
Douglas, OR	127	284	411
Gilliam, OR	0	0	0
Grant, OR	1	1	1
Harney, OR	0	1	1
Hood River, OR	8	33	41
Jackson, OR	219	670	889
Jefferson, OR	3	7	10
Josephine, OR	180	434	614
Klamath, OR	189	422	610
Lake, OR	8	22	30
Lane, OR	555	1,869	2,424
Lincoln, OR	158	367	525
Linn, OR	196	622	818
Malheur, OR	7	24	31
Marion, OR	401	1,454	1,855
Morrow, OR	3	6	8
Multnomah, OR	1,267	5,478	6,745
Polk, OR	95	283	378
Sherman, OR	0	0	0
Tillamook, OR	75	150	224
Umatilla, OR	12	33	45
Union, OR	1	3	5
Wallowa, OR	1	2	4
Wasco, OR	5	11	16
Washington, OR	585	2,232	2,817
Wheeler, OR	0	0	0
Yamhill, OR	127	405	532
Study Region Total	**5,320**	**17,947**	**23,267**

Study Region : Oregon State - Test for DOGAMI Supp Data
Scenario : 898-500yrandubcsoil