Executive Summary: Hazard Mitigation Action Plan

The Little Lake City School District Natural Hazards Mitigation Plan includes resources and information to assist residents, public and private sector organizations, and others interested in participating in planning for natural hazards. The mitigation plan provides a list of activities that may assist Little Lake City School District in reducing risk and preventing loss from future natural hazard events. The action items address multi-hazard issues, as well as activities for earthquakes and flooding.

How is the Plan Organized?

The Mitigation Plan contains a Mitigation Actions Matrix, background on the purpose and methodology used to develop the mitigation plan, a profile of Little Lake City School District, sections on two natural hazards that occur within the District, and a number of appendices. All of the sections are described in detail in Section 1, Introduction.

Who Participated in Developing the Plan?

The Little Lake City School District Natural Hazards Mitigation Plan is the result of a collaborative planning effort between the District, Whittier City School District, City of Santa Fe Springs, City of Whittier, Whittier Union High School District, East Whittier City School District, citizens, public agencies, non-profit organizations, the private sector, and regional and state organizations. Public participation played a key role in development of goals and action items. A Multi-Jurisdictional Planning Team guided the process of developing the plan.

The Multi-Jurisdictional Planning Team was comprised of the following individuals:

Little Lake City School District – Maureen Evans, Assistant Superintendent, Business Services
City of Whittier - Ann-Marie Hayashi, Emergency Services Assistant
City of Whittier – David Muchizuki, Director of Public Works
City of Whittier – Don Dooley, Planning Services Manager
City of Santa Fe Springs – Fernando Tarin, Director of Police Services
City of Santa Fe Springs – Neal Welland, Fire Chief
City of Santa Fe Springs – Bryan Collins, Public Safety Officer
City of Santa Fe Springs – Cuong Ngyuen, Deputy Purchasing Officer
City of Santa Fe Springs – Tony Olmos, Principal Civil Engineer
East Whittier City School District – Steve Ritter, Assistant Superintendent

East Whittier City School District – Lee Bean, Director of Facilities, Maintenance , and Operations
Whittier Union High School District – Paul Muschetto, Associate Superintendent
Whittier City School District – Bob Mazzeo, Director of Business Projects
Emergency Planning Consultants – Carolyn J. Harshman, President

What is the Plan Mission?

The mission of the Little Lake City School District Natural Hazards Mitigation Plan is to promote sound public policy designed to protect students, faculty, and staff of the District, District facilities, infrastructure, private property, and the environment from natural hazards. This can be achieved by increasing public awareness, documenting the resources for risk reduction and loss-prevention, and identifying activities to guide the District in creating a more disaster resistant District.

What are the Plan Goals?

The plan goals describe the overall direction that Little Lake City School District administrators, staff, and parents can take to work toward mitigating risk from natural hazards. The goals are stepping-stones between the broad direction of the mission statement and the specific recommendations outlined in the Mitigation Actions Matrix.

Protect Life and Property

Implement activities that assist in protecting lives by making district facilities and schools more resistant to losses from natural hazards.

Reduce losses and repetitive damages for chronic hazard events while promoting insurance coverage for catastrophic hazards.

Improve hazard assessment information to make recommendations for discouraging new development in high hazard areas and encouraging preventative measures for existing development in areas vulnerable to natural hazards.

Public Awareness

Develop and implement education and outreach programs to increase public awareness of the risks associated with natural hazards.

Provide information on tools; partnership opportunities, and funding resources to assist in implementing mitigation activities.

Natural Systems

Balance natural resource management, and facilities planning with natural hazard mitigation to protect life, property, and the environment.

Partnerships and Implementation

Strengthen communication and coordinate participation among and within public agencies, faculty and staff, students and parents, non-profit organizations, business, and industry to gain a vested interest in implementation.

Encourage leadership within the District and public organizations to prioritize and implement local and regional hazard mitigation activities.

Emergency Services

Establish policy to ensure mitigation projects for critical facilities, services, and infrastructure.

Strengthen emergency operations by increasing collaboration and coordination with public agencies, non-profit organizations, business, and industry.

Coordinate and integrate natural hazards mitigation activities, where appropriate, with emergency operations plans and procedures.

How are the Action Items Organized?

The action items are a listing of activities in which District staff, school faculty, students and parents, and public agencies can be engaged to reduce risk. Each action item includes an estimate of the timeline for implementation (see Executive Summary, Attachment 1: Mitigation Actions Matrix).

Funding Sources

The actions items will be funded through a variety of sources, possibly including: operating budget/general fund, Hazard Mitigation Grant Program (HMGP), other Grants, private funding, Facilities Management Program, and other funding opportunities.

The action items are organized within the following matrix, which lists all of the multi-hazard and hazard-specific action items included in the mitigation plan. Data collection and research and the public participation process resulted in the development of these action items (see Appendix B: Public Participation). The matrix includes the following information for each action item:

Coordinating Organization. The Mitigation Actions Matrix assigns primary responsibility for each of the action items. The hierarchies of the assignments vary – some are positions, others departments, and others Committees. No matter, the primary responsibility for implementing the action items falls to the entity shown as the "Coordinating Organization". The coordinating organization is the agency with regulatory responsibility to address natural hazards, or that is willing and able to organize resources, find appropriate funding, or oversee activity implementation, monitoring, and evaluation. Coordinating organizations may include District, local, county, or regional agencies that are capable of or responsible for implementing activities and programs.

Timeline. Action items include both short and long-term activities. Each action item includes an estimate of the timeline for implementation.

Plan Goals Addressed. The plan goals addressed by each action item are included as a way to monitor and evaluate how well the mitigation plan is achieving its goals once implementation begins. The plan goals are organized into the following five areas:

Protect Life and Property
Public Awareness
Natural Systems
Partnerships and Implementation
Emergency Services

How Will the Plan be Implemented, Monitored, and Evaluated?

The Plan Maintenance Section (Section 2) of this document details the formal process that will ensure that the Little Lake City School District Natural Hazards Mitigation Plan remains an active and relevant document. The plan maintenance process includes a schedule for monitoring and evaluating the Plan annually and producing a plan revision every five years. This section describes how the District will integrate public participation throughout the plan maintenance process. Finally, this section includes an explanation of how Little Lake City School District government intends to incorporate the mitigation strategies outlined in this Plan into existing planning mechanisms such as the District's Facilities Master Plan, California Code of Regulations concerning School Facilities Construction, and local government General Plans.

Plan Adoption

Adoption of the Natural Hazards Mitigation Plan by the District's governing body is one of the prime requirements for approval of the plan. Once the plan is completed, the Board of Trustees will be responsible for adopting the Little Lake City School District Natural Hazards Mitigation Plan. The governing body has the responsibility and authority to promote sound public policy regarding natural hazards. The Board will periodically need to re-adopt the plan as it is revised to meet changes in the natural hazard risks and exposures in the District. The approved Natural Hazards Mitigation Plan will be significant in the future growth and development of the District.

Coordinating Body

The Little Lake City School District Natural Hazards Mitigation Committee (Mitigation Committee) will be responsible for coordinating implementation of Plan action items and undertaking the formal review process. The District Superintendent or designee will assign representatives from District departments including the current Planning Team members.

Convener

The Board of Education will adopt the Little Lake City School District Natural Hazards Mitigation Plan, and the Mitigation Committee will take responsibility for plan implementation. The District Superintendent or designee will serve as a convener to facilitate the Committee meetings, and will assign tasks such as updating and presenting the Plan to the members of the Committee. Plan implementation and evaluation will be a shared responsibility among all of the Committee members.

Implementation through Existing Programs

Little Lake City School District addresses statewide planning goals and legislative requirements through its Facilities Master Plan. The Natural Hazards Mitigation Plan provides a series of recommendations that are closely related to the goals and objectives of existing planning programs. Little Lake City School District will have the opportunity to implement recommended mitigation action items through existing programs and procedures.

Economic Analysis of Mitigation Projects

The Federal Emergency Management Agency's approaches to identify costs and benefits associated with natural hazard mitigation strategies or projects fall into two general categories: benefit/cost analysis and cost-effectiveness analysis. Conducting benefit/cost analysis for a mitigation activity can assist communities in determining whether a project is worth undertaking now, in order to avoid disaster-related damages later. Cost-effectiveness analysis evaluates how best to spend a given amount of money to achieve a specific goal. Determining the economic feasibility of mitigating natural hazards can provide decision makers with an understanding of the potential benefits and costs of an activity, as well as a basis upon which to compare alternative projects.

Formal Review Process

The Little Lake City School District Natural Hazards Mitigation Plan will be evaluated on an annual basis to determine the effectiveness of programs, and to reflect changes in land development or programs that may affect mitigation priorities. The evaluation process includes a firm schedule and timeline, and identifies the local agencies and organizations participating in plan evaluation. The convener will be responsible for contacting the Mitigation Working Group members and organizing the annual meeting. Group members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan.

Continued Public Involvement

Little Lake City School District is dedicated to involving the public directly in the continual review and updates of the Natural Hazards Mitigation Plan. Copies of the plan will be catalogued and made available at the District Office.

Little Lake City School District
Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
Multi-Hazard Action Items								
MH #1-1	Integrate the goals and action items from the Little Lake City School District Natural Hazards Mitigation Plan into existing board policies and administrative regulations documents and programs, where appropriate.	Business Services	Ongoing	X	X	X	X	X
MH #1-2	Identify and pursue funding opportunities to develop and implement district mitigation activities.	Business Services	Ongoing	X	X		X	X
MH #1-3	Establish a formal role for the District's Natural Hazards Mitigation Committee to develop a sustainable process for implementing, monitoring, and evaluating district-wide mitigation activities.	Business Services	Ongoing			X		

Little Lake City School District
Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
MH #1-4	Identify, improve, and sustain collaborative programs focusing on parents, staff, and students to avoid activity that increases risk to natural hazards.	Business Services and Educational Services	Ongoing	X	X		X	
MH #1-5	Develop inventories of at-risk buildings and infrastructure and prioritize mitigation projects.	Business Services	Ongoing	X			X	
MH #1-6	Continue to strengthen emergency services preparedness and response by linking emergency services with natural hazard mitigation programs and enhancing public education on a district-wide scale.	Business Services	Ongoing	X				X
MH #1-7	Develop, enhance, and implement education programs aimed at mitigating natural hazards, and reducing the risk to students, staff, parents, and schools.	Business Services and Educational Services	Ongoing	X	X			

Little Lake City School District
Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
MH #1-8	Retrofit Schools	Business Services	Ongoing	X				
MH #1-9	Review and amend corrective measures to address existing problems.	Business Services	Ongoing	X				
MH #1-10	Review and amend preventive measures to avoid creating new problems.	Business Services	Ongoing	X	X		X	X
MH #1-11	Identify the methods of communicating with stakeholders that will maximize the effectiveness of implementing the various policies involved with reconstruction.	Business Services	Ongoing	X	X		X	
MH #1-12	Conduct damage assessment to determine of structures are safe and capable of being used.	Business Services	Ongoing	X				
MH #1-13	Determine which structures and/or facilities that will not be allowed to be repaired and/or reconstructed.	Business Services	Ongoing	X				

Little Lake City School District
Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
MH #1-14	Promote public education to increase awareness of hazards and opportunities for mitigation.	Business Services	Ongoing		X			
MH #1-15	Encourage interested individuals to participate in hazard mitigation planning and training activities.	Business Services	Ongoing		X		X	
MH #1-16	Monitor and publicize the effectiveness of mitigation initiatives implemented in the district.	Business Services	Ongoing		X			
MH #1-17	Educate the staff and students about emergency sheltering and evacuation procedures.	Business Services	Ongoing		X			

Little Lake City School District
Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
MH #1-18	Increase communication, coordination, and collaboration between wildland/urban interface property owners, local and county planners, and fire prevention crews and officials to address risks, existing mitigation measures, and federal assistance programs.	Business Services	Ongoing	X	X		X	
MH #1-19	Determine what kinds of minor repairs and temporary protection activities (e.g., temporary roofing, protect against loss of life/injury, shoring, protect contents) can be done in the immediate aftermath of a disaster.	Business Services	Ongoing	X				

Little Lake City School District
Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
MH #1-20	Conduct a detailed vulnerability assessment in the future in order to accurately identify the extent of damages to vulnerable buildings, infrastructure, and critical facilities.	Business Services	1-5 years	X		X		X
Earthquake Action Items								
EQ #2-1	Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.	Business Services	Ongoing		X		X	
EQ #2-2	Encourage reduction of nonstructural and structural earthquake hazards in schools.	Business Services	Ongoing	X	X			
Flood Action Items								
FL #3-1	Analyze each repetitive flood areas within the Little Lake City School District and identify feasible mitigation options.	Business Services	Ongoing	X				

Little Lake City School District
Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
FL #3-2	Identify surface water drainage obstructions for all parts of the district.	Business Services	Ongoing	X				

Section 1

Introduction

Throughout history, the structures and occupants of Little Lake City School District have dealt with the various natural hazards affecting the area. Photos, journal entries, and newspapers show that the area has dealt with earthquakes and flooding.

Although there were fewer people in the area, the natural hazards adversely affected the lives of those who depended on the land and climate conditions for food and welfare. As the population of the region continues to increase, the exposure to natural hazards creates an even higher risk than previously experienced.

The Little Lake City School District enjoys a Mediterranean type of climate. The District is characterized by the unique and attractive landscape. However, the potential impacts of natural hazards associated with the terrain make the environment and its occupants vulnerable to natural disasters.

The District is subject to earthquakes and flooding. It is impossible to predict exactly when these disasters will occur, or the extent to which they will affect the District. However, with careful planning and collaboration among District and School staff, students and parents, and public agencies, it is possible to minimize the losses that can result from these natural disasters.

The Little Lake City School District most recently experienced destruction due to the 1987 Whittier Narrows Earthquake.

Why Develop a Mitigation Plan?

As the costs of damage from natural disasters continue to increase, the District realizes the importance of identifying effective ways to reduce vulnerability to disasters. Natural hazards mitigation plans assist educational facilities in reducing risk from natural hazards by identifying resources, information, and strategies for risk reduction, while helping to guide and coordinate mitigation activities throughout the District.

The plan provides a set of action items to reduce risk from natural hazards through education and outreach programs and to foster the development of partnerships, and implementation of preventative activities such as land use programs that restrict and control development in areas subject to damage from natural hazards.

The resources and information within the Mitigation Plan:

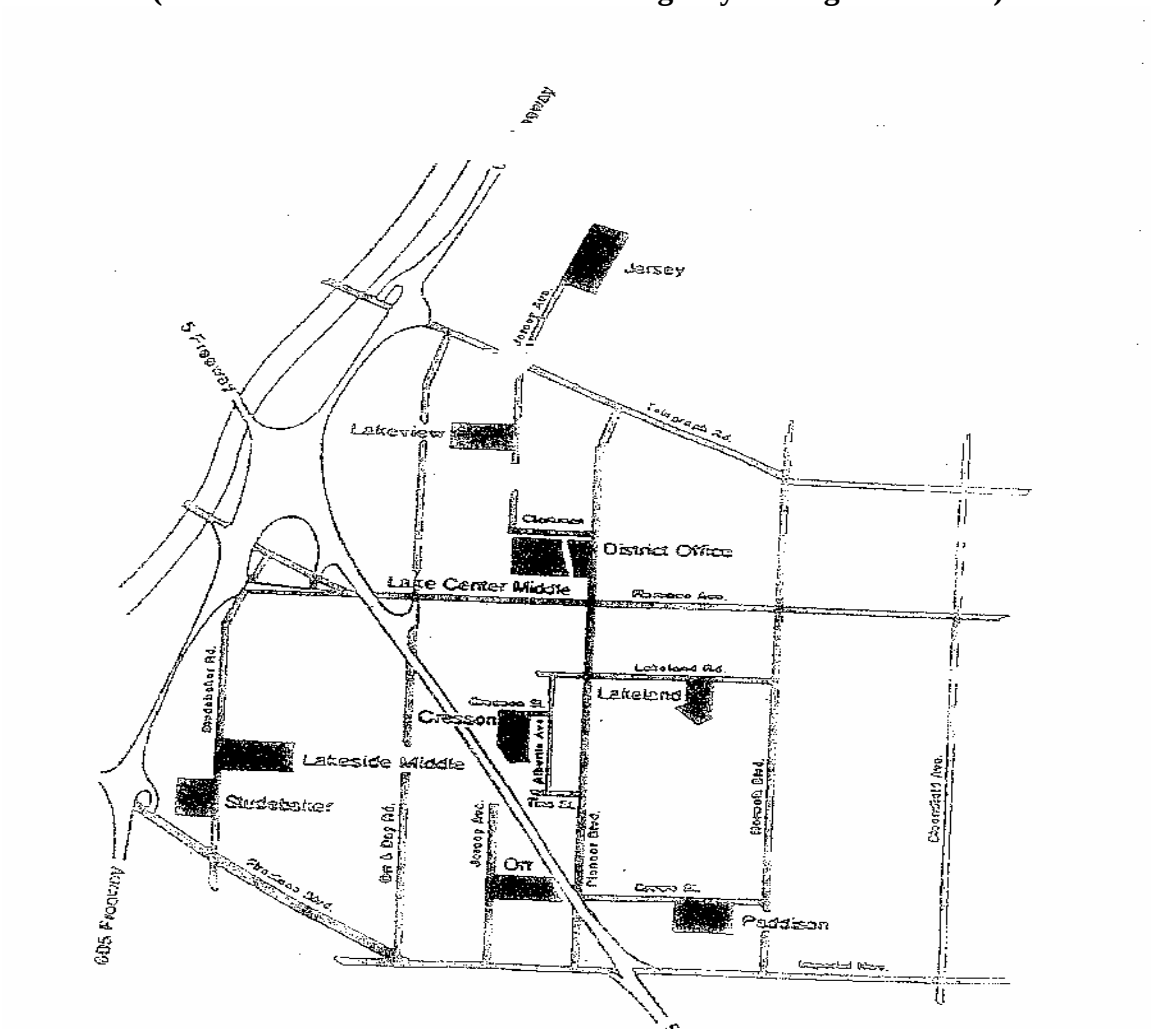
(1) establish a basis for coordination and collaboration among the District, students, and parents in the Little Lake City School District;
(2) identify and prioritize future mitigation projects; and
(3) assist in meeting the requirements of federal assistance programs.

The mitigation plan works in conjunction with other District plans, including the Facilities Master Plan and the Emergency Operations Plan.

Whom Does the Mitigation Plan Affect?

The Little Lake City School District Natural Hazards Mitigation Plan affects the entire District. Map 1-1 shows the areas contained within the boundaries of the Little Lake City School District. This plan provides a framework for planning for natural hazards. The resources and background information in the plan is applicable District-wide, and the goals and recommendations can lay groundwork for other local mitigation plans and partnerships.

Map 1-1: District Area Map
(Source: LLCSD Standardized Emergency Management Plan)



Natural Hazard Land Use Policy in California

Planning for natural hazards should be an integral element of any District's land use planning program. All California cities and counties have General Plans and the implementing ordinances that are required to comply with the statewide planning regulations. Although School Districts are exempt from local planning requirements, it is common for a District to work closely with local governments during the planning phase.

Planning for natural hazards requires a thorough understanding of the various hazards facing the District and region as a whole. Additionally, it's important to take an inventory of the structures and contents of various District holdings.

Support for Natural Hazard Mitigation

All mitigation is local, and the primary responsibility for development and implementation of risk reduction strategies and policies lies with each local jurisdictions – including local governments and special districts. Partners and resources exist at the regional, state and federal levels to assist in this effort. Numerous California state agencies have a role in natural hazards and natural hazard mitigation. Some of the key agencies include:

- The Governor's Office of Emergency Services (OES) is responsible for disaster mitigation, preparedness, response, recovery, and the administration of federal funds after a major disaster declaration;

- The Southern California Earthquake Center (SCEC) gathers information about earthquakes, integrates this information on earthquake phenomena, and communicates this to end-users and the general public to increase earthquake awareness, reduce economic losses, and save lives.

- The California Division of Forestry (CDF) is responsible for all aspects of wildland fire protection on private, state, and administers forest practices regulations, including landslide mitigation, on non-federal lands.

- The California Division of Mines and Geology (DMG) is responsible for geologic hazard characterization, public education, the development of partnerships aimed at reducing risk, and exceptions (based on science-based refinement of tsunami inundation zone delineation) to state mandated tsunami zone restrictions; and

- The California Division of Water Resources (DWR) plans, designs, constructs, operates, and maintains the State Water Project; regulates dams; provides flood protection and assists in emergency management. It also educates the public, serves local water needs by providing technical assistance.

Plan Methodology

Information in the Mitigation Plan is based on research from a variety of sources. Staff from the Little Lake City School District conducted data research and analysis, participated in Planning Team meetings, and developed the final mitigation plan. The research methods and various contributions to the plan include:

Input from the Planning Team:

The Multi-Jurisdictional Planning Team convened four times to guide development of the Mitigation Plan. The Team played an integral role in developing the mission, goals, and action items for the Mitigation Plan. The Team consisted of representatives of six local government entities, including:

Little Lake City School District
City of Whittier
City of Santa Fe Springs
Whittier City School District
Whittier Union High School District
East Whittier City School District

Stakeholder interviews:
Stakeholder interviews were conducted during the workshops and meetings identified above. The key stakeholders to the District were representatives from the City of Norwalk and the City of Santa Fe Springs. The interviews identified common concerns related to natural hazards and identified key long and short-term activities to reduce risk from natural hazards. The data and support gained from the review process was very valuable to the overall planning effort. A complete listing of all plan reviewers is located in Appendix B: Public Participation.

State and federal guidelines and requirements for mitigation plans:

Following are the Federal requirements for approval of a Natural Hazards Mitigation Plan:

- Open public involvement, with public meetings that introduce the process and project requirements.
- The public must be afforded opportunities for involvement in: identifying and assessing risk, drafting a plan, and public involvement in approval stages of the plan.
- Community cooperation, with opportunity for other local government agencies, the business community, other educational institutions, and non-profits to participate in the process.
- Incorporation of local documents, including the District's Facilities Master Plan and the local General Plans pertinent to District holdings.

The following components must be part of the planning process:

- Complete documentation of the planning process
- A detailed risk assessment on hazard exposures in the District
- A comprehensive mitigation strategy, which describes the goals & objectives, including proposed strategies, programs & actions to avoid long-term vulnerabilities.
- A plan maintenance process, which describes the method and schedule of monitoring, evaluating and updating the plan and integration of the Natural Hazards Mitigation Plan into other planning mechanisms.
- Formal adoption by the Board of Trustees.
- Plan Review by both State OES and FEMA.

These requirements are spelled out in greater detail in the following plan sections and supporting documentation.

Public participation opportunities were created through use of local media and the Board of Education public meetings. In addition, the makeup of a Multi-Jurisdictional Planning Team insured a constant exchange of data and input from outside organizations.

The General Plan and Multi-Hazard Functional Plan documents both contained details on the location, extent, and probability of hazards associated with earthquakes and flooding.

Through its consultant, Emergency Planning Consultants, the District had access to numerous existing mitigation plans from around the country, as well as current FEMA hazard mitigation planning standards (386 series) and the State of California Natural Hazards Mitigation Plan Guidance.

Other reference materials consisted of county and city mitigation plans, including:

Clackamas County (Oregon) Natural Hazards Mitigation Plan
Six County (Utah) Association of Governments
Upper Arkansas Area Risk Assessment and Hazard Mitigation Plan
Urbandale-Polk County, Iowa Plan
Hamilton County, Ohio Plan
Natural Hazard Planning Guidebook from Butler County, Ohio

Hazard specific research: Little Lake City School District staff collected data and compiled research on two hazards: earthquakes and flooding. Research materials came from the City of Norwalk and Santa Fe Springs General Plans, the Norwalk and Santa Fe Springs Threat Assessment contained in their Multi-Hazard Functional Plans, and state agencies including OES, and CDF. The Little Lake City School District staff conducted research by referencing historical local newspapers and locating District information in historical documents.

Public Input

The Little Lake City School District encouraged public participation and input in the Natural Hazards Mitigation Plan by posting its activities in the media (see Appendix B).

The resources and information cited in the mitigation plan provide a strong local perspective and help identify strategies and activities to make Little Lake City School District more disaster resistant.

How Is the Plan Used?

Each section of the mitigation plan provides information and resources to assist people in understanding the District and the hazard-related issues. Combined, the sections of the plan work together to create a document that guides the mission to reduce risk and prevent loss from future natural hazard events.

The structure of the plan enables people to use a section of interest to them. It also allows the District to review and update sections when new data becomes available. The ability to update individual sections of the mitigation plan places less of a financial burden on the District. Decision-makers can allocate funding and staff resources to selected pieces in need of review, thereby avoiding a full update, which can be costly and time-consuming. New data can be easily incorporated, resulting in a natural hazards mitigation plan that remains current and relevant to Little Lake City School District.

The mitigation plan is organized into three parts. Part I contains an executive summary, Mitigation Actions Matrix, introduction, and plan maintenance. Part II contains a District profile, risk assessment and natural hazard-specific sections. Part III includes the appendices. Each section of the plan is described below.

Part I: Mitigation Actions

Executive Summary: Hazard Mitigation Action Plan

The Hazard Mitigation Action Plan provides an overview of the mitigation plan mission, goals, and action items.

Attachment 1: Mitigation Actions Matrix

The plan action items are included in this section, and address multi-hazard issues, as well as hazard-specific activities that can be implemented to reduce risk and prevent loss from future natural hazard events.

Section 1: Introduction

The Introduction describes the background and purpose of developing the mitigation plan for Little Lake City School District.

Section 2: Plan Maintenance

This section provides information on plan implementation, monitoring and evaluation.

Part II: Hazard Analysis

Section 3: District Profile

This section presents the history, geography, and demographics of the Little Lake City School District. It serves as a tool to provide an historical perspective of natural hazards in the District.

Section 4: Risk Assessment

This section provides information on hazard identification, vulnerability and risk associated with natural hazards in Little Lake City School District.

Section 5-6: Hazard-Specific Sections

Hazard-Specific Sections on the two chronic hazards is addressed in this plan. Chronic hazards occur with some regularity and may be predicted through historic evidence and scientific methods. The chronic hazards addressed in the plan include:

Section 5: Earthquake
Section 6: Flooding

Catastrophic hazards do not occur with the frequency of chronic hazards, but can have devastating impacts on life, property, and the environment. In Southern California, because of the geology and terrain, earthquakes and flooding have the potential to be catastrophic as well as chronic hazards.

Each of the hazard-specific sections includes information on the history, hazard causes and characteristics, and hazard assessment.

Part III: Resources

The plan appendices are designed to provide users of the Little Lake City School District Natural Hazards Mitigation Plan with additional information to assist them in understanding the contents of the mitigation plan, and potential resources to assist them with implementation.

Appendix A: Plan Resource Directory

The resource directory includes District, local, regional, state, and national resources and programs that may be of technical and/or financial assistance to

Little Lake City School District during plan implementation.

Appendix B: Public Participation

This appendix includes specific information on the various public processes used during development of the plan.

Appendix C: Benefit/Cost Analysis

This section describes FEMA's requirements for benefit cost analysis in natural hazards mitigation, as well as various approaches for conducting economic analysis of proposed mitigation activities.

Appendix D: List of Acronyms

This section provides a list of acronyms for District, local, regional, state, and federal agencies and organizations that may be referred to within the Little Lake City School District Natural Hazards Mitigation Plan.

Appendix E: Glossary

This section provides a glossary of terms used throughout the plan.

Section 2:

Plan Maintenance

The Plan Maintenance Section of this document details the formal process that will ensure that the Natural Hazards Mitigation Plan remains an active and relevant document. The plan maintenance process includes a schedule for monitoring and evaluating the Plan annually and producing a plan revision every five years. This section describes how the District will integrate public participation throughout the plan maintenance process. Finally, this Section includes an explanation of how the District intends to incorporate the mitigation strategies outlined in this Plan into existing planning mechanisms such as the District's Facilities Maintenance Plan.

Monitoring and Implementing the Plan

Plan Adoption

The Board of Trustees will be responsible for adopting the Natural Hazards Mitigation Plan. This governing body has the authority to promote sound public policy regarding natural hazards. Once the plan has been adopted, the District's Assistant Superintendent – Business Services will be responsible for submitting it to the State Hazard Mitigation Officer at The Governor's Office of Emergency Services. The Governor's Office of Emergency Services will then submit the plan to the Federal Emergency Management Agency (FEMA) for review. This review will address the federal criteria outlined in FEMA Interim Final Rule 44 CFR Part 201. Upon acceptance by FEMA, the District will gain eligibility for Hazard Mitigation Grant Program funds.

Coordinating Body

The District's Natural Hazards Mitigation Committee (Mitigation Committee) will be responsible for coordinating implementation of plan action items and undertaking the formal review process. The District Superintendent (or other authority) will assign representatives from the District, including, but not limited to, the current Hazard Mitigation Planning Team member. The District has formed a Mitigation Committee that will consist of the following members:

Little Lake City School District – Maureen Evans, Assistant Superintendent – Business Services

The Mitigation Committee will meet no less than quarterly. Meeting dates will be scheduled once the final Mitigation Committee has been established. These meetings will provide an opportunity to discuss the progress of the action items and maintain the partnerships that are essential for the sustainability of the mitigation plan.

Convener

The District Superintendent will adopt the Natural Hazards Mitigation Plan, and the Mitigation Committee will take responsibility for plan implementation. The Superintendent (or designee) will serve as a convener to facilitate the Committee meetings, and will assign tasks such as updating and presenting the Plan to the members of the Committee. Plan implementation and evaluation will be a shared responsibility among all of the Committee members.

Implementation through Existing Programs

Although the Facilities Maintenance Plan will serve as the primary tool in implementing the Natural Hazards Mitigation Plan, other Plans and programs will contribute including: District Emergency Operations Plan, and the use of parent/teacher/student organizations for delivering public awareness campaigns. In order to minimize expense and increase efficiency, the Mitigation Committee will strive to fully utilize any and all existing District plans and programs. The Committee will contact the entities responsible for the above-mentioned plans and programs prior to each of the annual implementation meetings. The purpose of this link will be to ensure updated information concerning the District's plans and programs.

The District addresses statewide planning goals and legislative requirements through its Facilities Maintenance Plan. The Natural Hazards Mitigation Plan provides a series of recommendations - many of which are closely related to the goals and objectives of existing planning programs. The District will have the opportunity to implement recommended mitigation action items through existing programs and procedures.

Within six months of formal adoption of the Mitigation Plan, the recommendations listed above will be incorporated into the process of existing planning mechanisms at the District level. The meetings of the Mitigation Committee will provide an opportunity for Committee members to report back on the progress made on the integration of mitigation planning elements into the District's planning documents and procedures.

Economic Analysis of Mitigation Projects

At the Mitigation Committee's first implementation meeting, the STAPLEE Tool (Plan Maintenance – Attachment 1) or some other prioritizing tool will be utilized to prioritize the action items identified in the Mitigation Actions Matrix (Executive Summary – Attachment 1). In addition, appropriate funding sources will be identified for the "top ten" priority action items.

FEMA's approaches to identify the costs and benefits associated with natural hazard mitigation strategies, measures, or projects fall into two general categories: benefit/cost analysis and cost-effectiveness analysis.

Conducting benefit/cost analysis for a mitigation activity can assist communities in determining whether a project is worth undertaking now, in order to avoid disaster-related damages later.

Cost-effectiveness analysis evaluates how best to spend a given amount of money to achieve a specific goal. Determining the economic feasibility of mitigating natural hazards can provide decision-makers with an understanding of the potential benefits and costs of an activity, as well as a basis upon which to compare alternative projects.

Given federal funding, the Mitigation Committee will use a FEMA-approved benefit/cost analysis approach to identify and prioritize mitigation action items. For other projects and funding sources, the Mitigation Committee will use other approaches to understand the costs and benefits of each action item and develop a prioritized list. For more information regarding economic analysis of mitigation action items, please see Appendix C: Benefit/Cost Analysis.

Evaluating and Updating the Plan

Formal Review Process

The Natural Hazards Mitigation Plan will be evaluated on an annual basis to determine the effectiveness of programs, and to reflect changes in land development or programs that may affect mitigation priorities. The evaluation process includes a firm schedule and timeline, and identifies the local agencies and organizations participating in plan evaluation. The convener or designee will be responsible for contacting the Mitigation Committee members and organizing the annual meeting.

Mitigation Committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan.

The Mitigation Committee will review the goals and action items to determine their relevance to changing situations in the District, as well as changes in State or Federal policy, and to ensure they are addressing current and expected conditions. The Mitigation Committee will also review the Risk Assessment portion of the Plan to determine if this information should be updated or modified, given any new available data. The coordinating organizations responsible for the various action items will report on the status of their projects, the success of various implementation processes, difficulties encountered, success of coordination efforts, and which strategies should be revised.

The convener will assign the duty of updating the plan to one or more of the Mitigation Committee members. The designated Committee members will have three months to make appropriate changes to the Plan before submitting it to the Mitigation Committee members, and presenting it to the Board of Education (or other authority). The Mitigation Committee will also notify all holders of the District's Plan when changes

have been made. Every five years the updated Plan will be submitted to the State Hazard Mitigation Officer and the Federal Emergency Management Agency for review.

Continued Public Involvement

The District is dedicated to involving the public directly in review and updates of the Natural Hazards Mitigation Plan. The Mitigation Committee members are responsible for the annual review and update of the plan.

The public will also have the opportunity to provide feedback about the Plan. Copies of the Plan will be catalogued and kept at the District Office.

A public meeting will also be held after each annual evaluation or as deemed necessary by the Mitigation Committee. The meetings will provide the public a forum for which they can express its concerns, opinions, or ideas about the Plan. The Mitigation Committee will be responsible for using District resources to publicize the annual public meetings and maintain public involvement through the media and the District website.

Plan Maintenance – Attachment 1

Simplified STAPLEE Worksheet – Prioritizing Mitigation Actions (Social, Technical, Administrative, Political, Legal, Economic, Environmental)

1. Fill in the goal. Use a separate worksheet for each goal. The considerations under each criterion are suggested ones to use; you can revise these to reflect your own considerations.

2. Fill in the action items associated with the goal.

3. **Scoring:** For each action item, indicate a plus (+) for favorable, and a negative (-) for less favorable.

When you complete the scoring, add up the positives to establish your priorities. For STAPLEE categories that do not apply, fill in N/A for not applicable. Only leave a blank if you do not know an answer – seek the input of an expert.

Goal: _____

STAPLEE Category	**S (Social)**		**T (Technical)**			**A (Administrative)**			**P (Political)**		
Categories (right) **Action Items (below)**	**Community Acceptance**	**Effect on Segment of Population**	**Technical Feasibility**	**Long-term Solution**	**Secondary Impacts**	**Staffing**	**Funding Allocated**	**Maintenance/ Operations**	**Political Support**	**Local Champion**	**Public Support**
1.											
2.											
3.											
4.											
5.											
6.											

STAPLEE Categories	L (Legal)			E (Economic)				E (Environmental)				
Categories (right) Action Items (below)	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws
1.												
2.												
3.												
4.												
5.												
6.												

Section 3:

District Profile

Why Plan for Natural Hazards in Little Lake City School District?

Natural hazards impact staff, students, parents, property, the environment, and the economy of Little Lake City School District. Earthquakes and flooding have exposed the Little Lake City School District to the financial and emotional costs of recovering after natural disasters. The risk associated with natural hazards increases as more people move to areas affected by natural hazards.

Even in those communities that are essentially "built-out" i.e., have little or no vacant land remaining for development; population density continues to increase when low density housing is replaced with medium and high density development projects.

The inevitability of natural hazards, and the growing population and activity within the District create a need to develop strategies, coordinate resources, and increase public awareness to reduce risk and prevent loss from future natural hazard events.

Geography and the Environment

Little Lake City School District has an area of 4 square miles and is located in southeastern Los Angeles County. The Little Lake City School District borders Whittier on the north, Cerritos to the south, Pico Rivera to the west, and Whittier to the east.

Major Rivers

The nearest major river is the San Gabriel River. This River and water reservoirs on the hillsides have a potential impact on the Little Lake City School District. Flooding and inundation of the Whittier Narrows Dam are a concern for the school sites in the northwest portion of the Little Lake City School District.

Climate

Average temperatures in the Little Lake City School District range from 58 degrees in the winter months to 77 degrees in the summer months. However the temperatures can vary over a wide range, particularly when the Santa Ana winds blow, bringing higher temperatures and very low humidity.

Rainfall in the region averages 14.6 inches of rain per year. However the term "average rainfall" is misleading because over the recorded history of rainfall in the Little Lake City School District rainfall amounts have ranged dramatically from dry to wet years. Furthermore, actual rainfall in Southern California tends to fall in large amounts during sporadic and often heavy storms rather than consistently over storms at somewhat regular intervals. In short rainfall in Southern California might be characterized as feast or

famine within a single year. Because the metropolitan basin is largely built out, water originating in higher elevation communities can have a sudden impact on adjoining communities that have a lower elevation.

Minerals and Soils

The characteristics of the minerals and soils present in Little Lake City School District indicate the potential types of hazards that may occur. Rock hardness and soil characteristics can determine whether or not an area will be prone to geologic hazards such as earthquakes, liquefaction and landslides.

The surface material includes unconsolidated, fine-grained deposits of silt, sand, gravel, and recent flood plain deposits. Torrential flood events can introduce large deposits of sand and gravel. Sandy silt and silt containing clay are moderately dense and firm, and are primarily considered to be prone to liquefaction, an earthquake related hazard. Basaltic lava consists mainly of weathered and non-weathered, dense, fine-grained basalt. Though the characteristics of this lava may offer solid foundation support, landslides are common in many of these areas where weathered residual soil overlies the basalt. Understanding the geologic characteristics of Little Lake City School District is an important step in hazard mitigation and avoiding at-risk development.

Other Significant Geologic Features

Little Lake City School District, like most of the Los Angeles Basin, lie over the area of one or more known earthquake faults, and potentially many more unknown faults, particularly so-called lateral or blind thrust faults.

The major faults that have the potential to affect the greater Los Angeles Basin, and therefore the Little Lake City School District are the:

Whittier
Elsinore/Chino
Elysian Park Fold
Thrust Belt
Newport-Inglewood
Sierra Madre
Palos Verdes
San Jacinto
San Andreas
Norwalk

The Los Angeles Basin has a history of powerful and relatively frequent earthquakes, dating back to the powerful 8.0+ San Andreas earthquake of 1857 which did substantial damage to the relatively few buildings that existed at the time. Paleoseismological research indicates that large (8.0+) earthquakes occur on the San Andreas fault at

intervals between 45 and 332 years with an average interval of 140 years[1]. Other lesser faults have also caused very damaging earthquakes since 1857. Notable earthquakes include the 1933 Long Beach Earthquake, the 1971 San Fernando Earthquake, the 1987 Whittier Narrows Earthquake, and the 1994 Northridge Earthquake.

In addition, many areas in the Los Angeles Basin have sandy soils that are subject to liquefaction. The Little Lake City School District has liquefaction zones throughout the entire District area as shown on USGS Seismic Hazard Maps (see Section 5: Earthquakes).

The Little Lake City School District also has areas with land movement potential.

Enrollment and Demographics

The Little Lake City School District has an enrollment of about 5,226 students and encompasses an area of 4 square miles. The District properties are located within the City of Santa Fe Springs and Norwalk. Enrollment is projected to decline according to the recent enrollment trends.

According to the October 2003 California Basic Educational Data Systems (CBEDS), the demographic make up of the District is as follows:

Caucasian	10%
Hispanic	82%
African American	4%
Asian	3%
Native American	0%
Other	1%

Land and Development

Development in Southern California from the earliest days was a cycle of boom and bust. The Second World War however dramatically changed that cycle. Military personnel and defense workers came to Southern California to fill the logistical needs created by the war effort. The available housing was rapidly exhausted and existing commercial centers proved inadequate for the influx of people. Immediately after the war, construction began on the freeway system, and the face of Southern California was forever changed.

At the present time, the Little Lake City School District has no plans for expansion or development.

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[1] Peacock, Simon M., http://aamc.geo.lsa.umich.edu/eduQuakes/EQpredLab/EQprediction.peacock.html

Section 4:

Risk Assessment

What is a Risk Assessment?

Conducting a risk assessment can provide information: on the location of hazards, the value of existing land and property in hazard locations, and an analysis of risk to life, property, and the environment that may result from natural hazard events. Specifically, the five levels of a risk assessment are as follows:

1) Hazard Identification

The Planning Team considered a range of natural hazards facing the region including: Earthquakes, Flooding, Earth Movement, Windstorms, Wildfire, Tsunami, and Drought. The attached Ranking Your Hazards - Attachment 1 handout guided the Team in prioritizing the natural hazards with the highest probability of significantly impacting the Little Lake City School District. The Team agreed that any hazards receiving a Team average score of "3" or higher would be included in the Hazard Mitigation Plan. Utilizing the ranking technique, the Team identified: Earthquakes and Flooding as the most prominent hazards facing the community.

This is the description of the geographic extent, potential intensity and the probability of occurrence of a given hazard. Maps are frequently used to display hazard identification data. The Little Lake City School District identified three major hazards that affect this geographic area. These hazards – earthquakes and flooding - were identified through an extensive process that utilized input from the Hazard Mitigation Planning Team. The geographic extent of each of the identified hazards has been identified by the Little Lake City School District utilizing the maps contained in the Santa Fe Springs General Plans and MHFP Threat Assessments, and are illustrated by the tables, maps, and photos listed on page iii.

2) Profiling Hazard Events

This process describes the causes and characteristics of each hazard and what part of the District's facilities, infrastructure, and environment may be vulnerable to each specific hazard. A profile of each hazard discussed in this plan is provided in each hazard section. For a full description of the history of hazard specific events, please see the appropriate hazard chapter. (See Risk Assessment – Attachment 2 Vulnerability: Location, Extent, & Probability)

3) Vulnerability Assessment/Inventorying Assets

This is a combination of hazard identification with an inventory of the existing (or planned) property development(s) and population(s) exposed to a hazard. Critical facilities are of particular concern because these facilities provide critical products and

services to the general public that are necessary to preserve the welfare and quality of life in the District and fulfill important public safety, emergency response, and/or disaster recovery functions. The critical facilities have been identified and are illustrated in Table 4-2 at the end of this section.

4) Risk Analysis

Estimating potential losses involves assessing the damage, injuries, and financial costs likely to be sustained in a geographic area over a given period of time. This level of analysis involves using mathematical models. The two measurable components of risk analysis are magnitude of the harm that may result and the likelihood of the harm occurring. Data was not available to make vulnerability determinations in terms of dollar losses. The Mitigation Actions Matrix (Executive Summary – Attachment 1) includes an action item to conduct such an assessment in the future.

5) Assessing Vulnerability

This step provides a general description of District facilities and contents in relation to the identified natural hazards.

Hazard assessments are subject to the availability of hazard-specific data. Gathering data for a hazard assessment requires a commitment of resources on the part of participating organizations and agencies. Each hazard-specific section of the plan includes a section on hazard identification using data and information from City, County or State agency sources.

Little Lake City School District conducted a vulnerability assessment for the flood hazard using FEMA Flood Insurance Rate Maps (FIRM) to identify the geographic extent of the hazard and assess the land use and value at risk from the flood hazard. The vulnerability assessment for the earthquake hazard is addressed in part from FEMA's HAZUS analysis model.

Federal Requirements for Risk Assessment

Recent federal regulations for hazard mitigation plans outlined in 44 CFR Part 201 include a requirement for risk assessment. This risk assessment requirement is intended to provide information that will help communities to identify and prioritize mitigation activities that will reduce losses from the identified hazards. There are two hazards profiled in the mitigation plan, including earthquakes and flooding. The Federal criteria for risk assessment and information on how the Little Lake City School District Natural Hazards Mitigation Plan meets those criteria is outlined in Table 4-1 below.

Table 4-1: **Federal Criteria for Risk Assessment**

Section 322 Plan Requirement	**How is this addressed?**
Identifying Hazards	Each hazard section includes an inventory of the best available data sources that identify hazard areas. To the extent data are available; the existing maps identifying the location of the hazard were utilized. The Executive Summary and the Risk Assessment sections of the plan include a list of the hazard maps.
Profiling Hazard Events	Each hazard section includes documentation of the history, and causes and characteristics of the hazard in the District.
Assessing Vulnerability: Identifying Assets	Where data is available, the vulnerability assessment for each hazard addressed in the mitigation plan includes an inventory of all publicly owned land within hazardous areas. Each hazard section provides information on vulnerable areas within the District. Each hazard section also identifies potential mitigation strategies.
Assessing Vulnerability: Estimating Potential Losses:	The Risk Assessment Section of this mitigation plan identifies key critical facilities that provide services to the District and includes a map of these facilities. Vulnerability assessments have been completed for the hazards addressed in the plan, and quantitative estimates were made for each hazard where data was available.

Critical and Essential Facilities

Facilities critical to government response and recovery activities (i.e., life safety and property and environmental protection) include: local government 911 centers, District and local government emergency operations centers, local police and fire stations, local public works facilities, local communications centers, sewer and water facilities, hospitals, bridges and major roads, and shelters. Also, facilities that, if damaged, could cause serious secondary impacts may also be considered "critical." A hazardous material facility is one example of this type of “secondary impact” critical facility.

Essential facilities are those facilities that are vital to the continued delivery of key District services or that may significantly impact the District’s ability to recover from the disaster. Examples would include public infrastructure and school buildings. Table 4-2 illustrates the critical and essential facilities serving the Little Lake City School District.

Table 4-2: Little Lake City School District Critical and Essential Facilities Vulnerable to Hazards (*data not available to determine the extent of damages to the critical and essential facilities)

EQ	Flood	Facility	Address
X	X	Little Lake City School District, Administration Building	10515 South Pioneer Boulevard, Santa Fe Springs
X	X	Cresson Elementary School	11650 East Cresson Street, Norwalk
X	X	Jersey Elementary School	9400 Jersey Avenue, Santa Fe Springs
X	X	Lake Center Middle School	10503 South Pioneer Boulevard, Santa Fe Springs
X	X	Lakeland Elementary School	11224 Bombardier Avenue, Norwalk
X	X	Lakeside Middle School	11000 East Kenney Street, Norwalk
X	X	Lakeview Elementary School	11500 East Joslin Street, Santa Fe Springs
X	X	Paddison Elementary School	12100 Crewe Street, Norwalk
X	X	Studebaker Elementary School	11800 Halcourt Avenue, Norwalk
X	X	William Orr Elementary School	12130 S. Jersey Avenue, Norwalk

Summary

Natural hazard mitigation strategies can reduce the impacts concentrated at large employment and industrial centers, public infrastructure, and critical facilities. Natural hazard mitigation for industries and employers may include developing relationships with emergency management services and their employees before disaster strikes, and establishing mitigation strategies together. Collaboration among the public and private sector to create mitigation plans and actions can reduce the impacts of natural hazards.

Ranking Your Hazards

It is important to keep in mind that your rankings should be based on a hazard event that would overwhelm your jurisdiction's ability to respond effectively.

For each hazard listed assign a score. Place a number in the appropriate box.

Hazard Scoring	
1	An event of that magnitude is not likely to occur
2	There is a slight chance that an event of that magnitude will occur
3	It is possible that an event of that magnitude will occur
4	An event of that magnitude has occurred here in the past and is likely to occur again
5	There is a high probability that an event of that magnitude will occur

Identify any additional hazards for the jurisdiction at the end of the list labeled as "Other Hazard."

Hazard	***Score***
Earthquake	
Flooding	
Wildfire	
Windstorm	
Earth Movement (Landslide/Debris Flow)	
Tsunami	
Drought	
Other Hazard _____	
Other Hazard _____	
Other Hazard _____	
Other Hazard _____	
Other Hazard _____	
Other Hazard _____	

Risk Assessment – Attachment 2

Vulnerability: Location, Extent, and Probability*

	Location (Where)	**Extent (How Big an Event)**	**Probability (How Often)***
Hazard			
Earthquake	Entire Project Area	According to USGS, there is a 60% chance in the next 30 years of an earthquake measuring greater than 6.7 occurring in southern California.	Moderate
Flood	Southern Portion	100-year floodplain contained within San Gabriel River channelization.	Low
* Probability is defined as: Low = 1:500 years, Moderate = 1:100 years, High = 1:10 years			

Section 5: Earthquake Hazards in the Little Lake City School District

Why Are Earthquakes a Threat to the Little Lake City School District?

The most recent significant earthquake event affecting Southern California was the January 17th 1994 Northridge Earthquake. At 4:31 A.M. on Monday, January 17, a moderate but very damaging earthquake with a magnitude of 6.7 struck the San Fernando Valley. In the following days and weeks, thousands of aftershocks occurred, causing additional damage to affected structures.

57 people were killed and more than 1,500 people seriously injured. For days afterward, thousands of homes and businesses were without electricity; tens of thousands had no gas; and nearly 50,000 had little or no water. Approximately 15,000 structures were moderately to severely damaged, which left thousands of people temporarily homeless. 66,500 buildings were inspected. Nearly 4,000 were severely damaged and over 11,000 were moderately damaged. Several collapsed bridges and overpasses created commuter havoc on the freeway system. Extensive damage was caused by ground shaking, but earthquake triggered liquefaction and dozens of fires also caused additional severe damage. This extremely strong ground motion in large portions of Los Angeles County resulted in record economic losses.

However, the earthquake occurred early in the morning on a holiday. This circumstance considerably reduced the potential effects. Many collapsed buildings were unoccupied, and most businesses were not yet open. The direct and indirect economic losses ran into the 10's of billions of dollars.

Historical and geological records show that California has a long history of seismic events. Southern California is probably best known for the San Andreas Fault, a 400 mile long fault running from the Mexican border to a point offshore, west of San Francisco. "Geologic studies show that over the past 1,400 to 1,500 years large earthquakes have occurred at about 130 year intervals on the Southern San Andreas Fault. As the last large earthquake on the Southern San Andreas occurred in 1857, that section of the fault is considered a likely location for an earthquake within the next few decades."[i]

But San Andreas is only one of dozens of known earthquake faults that crisscross Southern California. Some of the better known faults include the Newport-Inglewood, Whittier, Chatsworth, Elsinore, Hollywood, Los Alamitos, Puente Hills, and Palos Verdes faults. Beyond the known faults, there are a potentially large number of "blind" faults that underlie the surface of Southern California. One such blind fault was involved in the 1987 Whittier Narrows Earthquake.

Although the most famous of the faults, the San Andreas, is capable of producing an earthquake with a magnitude of 8+ on the Richter Scale, some of the "lesser" faults have the potential to inflict greater damage on the urban core of the Los Angeles Basin. Seismologists believe that a 6.0 earthquake on the Newport-Inglewood would result in far more death and destruction than a "great" quake on the San Andreas, because the San Andreas is relatively remote from the urban centers of Southern California.

For decades, partnerships have flourished between the USGS, Cal Tech, the California Geological Survey and universities to share research and educational efforts with Californians. Tremendous earthquake mapping and mitigation efforts have been made in California in the past two decades, and public awareness has risen remarkably during this time. Major federal, state, and local government agencies and private organizations support earthquake risk reduction, and

have made significant contributions in reducing the adverse impacts of earthquakes. Despite the progress, the majority of California communities remain unprepared because there is a general lack of understanding regarding earthquake hazards among Californians.

Table 5-1: Earthquake Events in the Southern California Region

Southern California Region Earthquakes with a Magnitude 5.0 or Greater			
1769	Los Angeles Basin	1916	Tejon Pass Region
1800	San Diego Region	1918	San Jacinto
1812	Wrightwood	1923	San Bernardino Region
1812	Santa Barbara Channel	1925	Santa Barbara
1827	Los Angeles Region	1933	Long Beach
1855	Los Angeles Region	1941	Carpenteria
1857	Great Fort Tejon Earthquake	1952	Kern County
1858	San Bernardino Region	1954	W. of Wheeler Ridge
1862	San Diego Region	1971	San Fernando
1892	San Jacinto or Elsinore Fault	1973	Point Mugu
1893	Pico Canyon	1986	North Palm Springs
894	Lytle Creek Region	1987	Whittier Narrows
1894	E. of San Diego	1992	Landers
1899	Lytle Creek Region	1992	Big Bear
1899	San Jacinto and Hemet	1994	Northridge
1907	San Bernardino Region	1999	Hector Mine
1910	Glen Ivy Hot Springs		

Source: http://geology.about.com/gi/dynamic/offsite.htm?site=http%3A%2F%2Fpasadena.wr.usgs.gov%2Finfo%2Fcahist_eqs.html

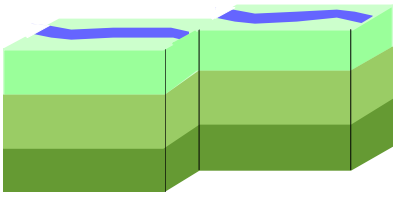
To better understand the earthquake hazard, the scientific community has looked at historical records and accelerated research on those faults that are the sources of the earthquakes occurring in the Southern California region. Historical earthquake records can generally be divided into records of the pre-instrumental period and the instrumental period. In the absence of instrumentation, the detection of earthquakes is based on observations and felt reports, and are dependent upon population density and distribution. Since California was sparsely populated in the 1800s, the detection of pre-instrumental earthquakes is relatively difficult. However, two very large earthquakes, the Fort Tejon in 1857 (7.9) and the Owens Valley in 1872 (7.6) are evidence of the tremendously damaging potential of earthquakes in Southern California. In more recent times two 7.3 earthquakes struck Southern California, in Kern County (1952) and Landers (1992). The damage from these four large earthquakes was limited because the occurred in areas which were sparsely populated at the time they happened. The seismic risk is much more severe today than in the past because the population at risk is in the millions, rather than a few hundred or a few thousand persons.

History of Earthquake Events in Southern California

Since seismologists started recording and measuring earthquakes, there have been tens of thousands of recorded earthquakes in Southern California, most with a magnitude below three. No community in Southern California is beyond the reach of a damaging earthquake. Table 5-1 describes the historical earthquake events that have affected Southern California.

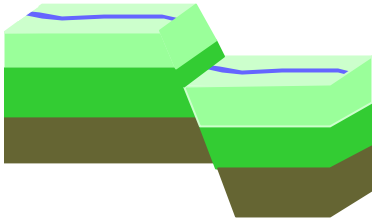
Figure 5-1 Causes and Characteristics of Earthquakes in Southern California

Earthquake Faults



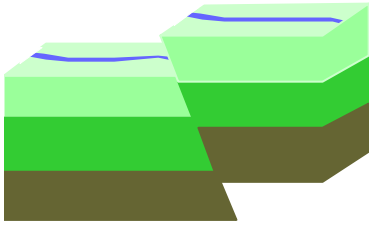
A fault is a fracture along between blocks of the earth's crust where either side moves relative to the other along a parallel plane to the fracture.

Strike-slip



Strike-slip faults are vertical or almost vertical rifts where the earth's plates move mostly horizontally. From the observer's perspective, if the opposite block looking across the fault moves to the right, the slip style is called a right lateral fault; if the block moves left, the shift is called a left lateral fault.

Dip-slip



Dip-slip faults are slanted fractures where the blocks mostly shift vertically. If the earth above an inclined fault moves down, the fault is called a normal fault, but when the rock above the fault moves up, the fault is called a reverse fault. Thrust faults have a reverse fault with a dip of 45 ° or less.

Dr. Kerry Sieh of Cal Tech has investigated the San Andreas Fault at Pallett Creek. "The record at Pallett Creek shows that rupture has recurred about every 130 years, on average, over the past 1500 years. But actual intervals have varied greatly, from less than 50 years to more than 300. The physical cause of such irregular recurrence remains unknown." [ii] Damage from a great quake on the San Andreas would be widespread throughout Southern California.

Earthquake Related Hazards

Ground shaking, landslides, liquefaction, and amplification are the specific hazards associated with earthquakes. The severity of these hazards depends on several factors, including soil and slope conditions, proximity to the fault, earthquake magnitude, and the type of earthquake.

Ground Shaking

Ground shaking is the motion felt on the earth's surface caused by seismic waves generated by the earthquake. It is the primary cause of earthquake damage. The strength of ground shaking depends on the magnitude of the earthquake, the type of fault, and distance from the epicenter (where the earthquake originates). Buildings on poorly consolidated and thick soils will typically see more damage than buildings on consolidated soils and bedrock.

Earthquake-Induced Landslides

Earthquake-induced landslides are secondary earthquake hazards that occur from ground shaking. They can destroy the roads, buildings, utilities, and other critical facilities necessary to respond and recover from an earthquake. Many communities in Southern California have a high likelihood of encountering such risks, especially in areas with steep slopes.

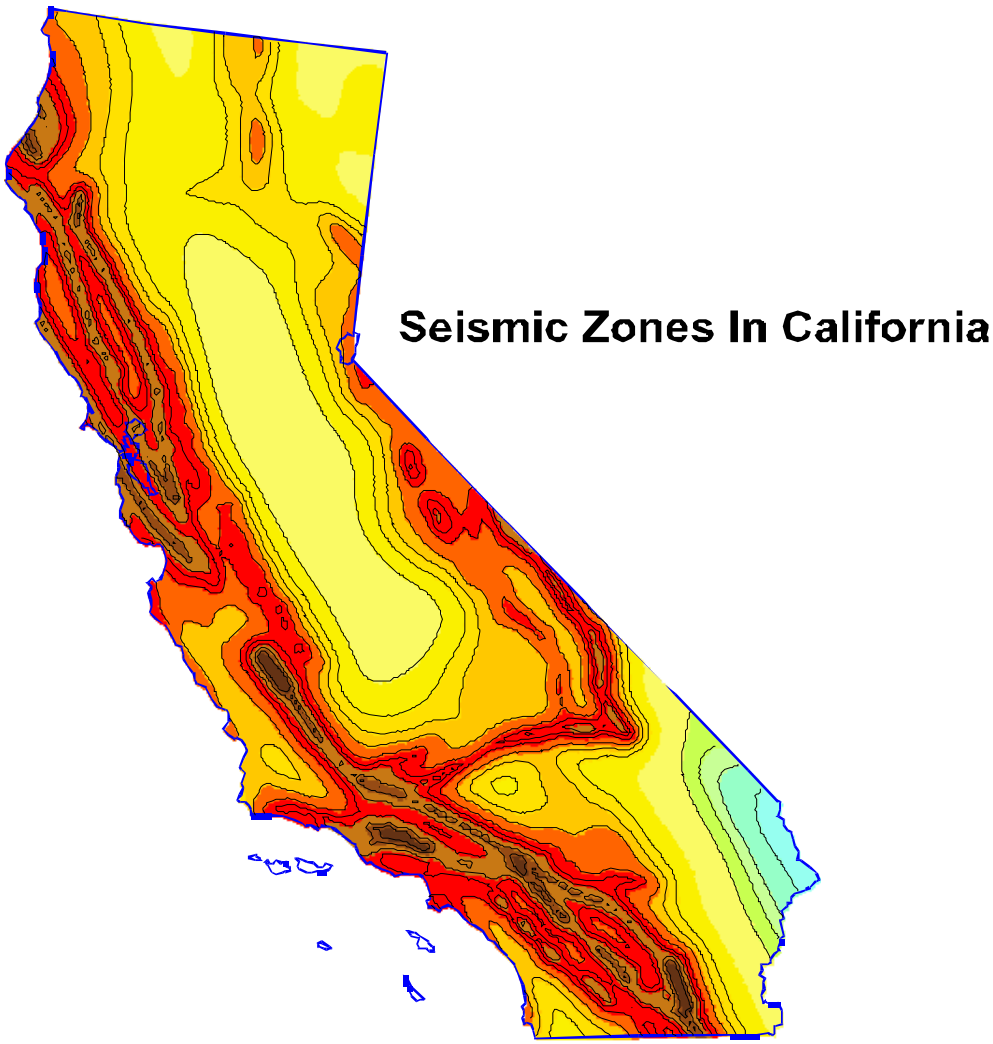
Liquefaction

Liquefaction occurs when ground shaking causes wet granular soils to change from a solid state to a liquid state. This results in the loss of soil strength and the soil's ability to support weight. Buildings and their occupants are at risk when the ground can no longer support these buildings and structures. Many communities in Southern California are built on ancient river bottoms and have sandy soil. In some cases this ground may be subject to liquefaction, depending on the depth of the water table.

Amplification

Soils and soft sedimentary rocks near the earth's surface can modify ground shaking caused by earthquakes. One of these modifications is amplification. Amplification increases the magnitude of the seismic waves generated by the earthquake. The amount of amplification is influenced by the thickness of geologic materials and their physical properties. Buildings and structures built on soft and unconsolidated soils can face greater risk.[iii] Amplification can also occur in areas with deep sediment filled basins and on ridge tops.

Map 5-1: Seismic Zones in California



Darker Shaded Areas indicate Greater Potential Shaking

Source: USGS Website

Earthquake Hazard Assessment

Hazard Identification

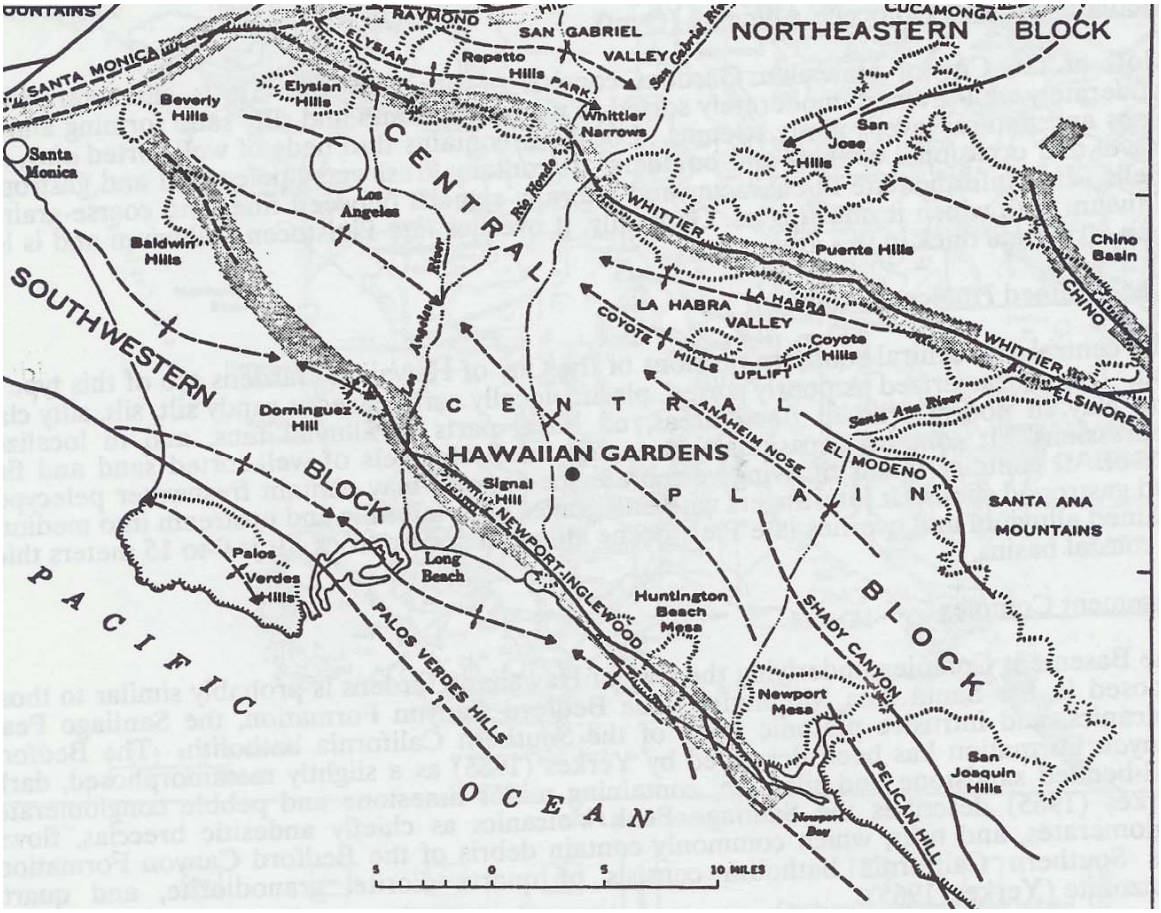
Earthquake – Attachment 1 Southern California Earthquake Fault Map plots the various major faults in the region. A list of Earthquake Probable Events gathered from the Southern California Earthquake Data Center is located in Earthquake – Attachment 2". The list includes various faults and projected magnitude earthquakes likely to impact the region. The Southern California Earthquake Data Center predicts that somewhere in southern California (not everywhere-many

residents would not be affected) should experience a magnitude 7.0 or greater earthquake about seven times each century. About half of these will be on the San Andreas "system" (the San Andreas, San Jacinto, Imperial, and Elsinore Faults) and half will be on other faults. The equivalent probability in the next 30 years is 85%.

In California, many agencies are focused on seismic safety issues: the State's Seismic Safety Commission, the Applied Technology Council, Governor's Office of Emergency Services, United States Geological Survey, Cal Tech, the California Geological Survey as well as a number of universities and private foundations.

These organizations, in partnership with other state and federal agencies, have undertaken a rigorous program in California to identify seismic hazards and risks including active fault identification, bedrock shaking, tsunami inundation zones, ground motion amplification, liquefaction, and earthquake induced landslides. Seismic hazard maps have been published and are available for many communities in California through the State Division of Mines and Geology.

Map 5-2: Major Fault System of the Impacting the District
(Source: City of Hawaiian Gardens General Plan)



The Little Lake City School District is in the vicinity of several known active and potentially active earthquake faults including the San Andreas, the San Jacinto, Whittier-Elsinore, and the Newport-Inglewood. New faults within the region are continuously being discovered. Scientists have identified almost 100 faults in the Los Angeles area known to be capable of a magnitude

6.0 or greater earthquake. The January 17, 1994 magnitude 6.7 Northridge Earthquake (thrust fault) which produced severe ground motions, caused 57 deaths, 9,253 injuries and left over 20,000 displaced. Scientists have stated that such devastating shaking should be considered the norm near any large thrust earthquake.

Recent reports from scientists of the U.S. Geological Survey and the Southern California Earthquake Center say that the Los Angeles Area could expect one earthquake every year of magnitude 5.0 or more for the foreseeable future.

A major earthquake occurring in or near this jurisdiction may cause many deaths and casualties, extensive property damage, fires and hazardous material spills and other ensuing hazards. The effects could be aggravated by aftershocks and by the secondary affects of fire, hazardous material/chemical accidents and possible failure of the waterways and dams. The time of day and season of the year would have a profound effect on the number of dead and injured and the amount of property damage sustained. Such an earthquake would be catastrophic in its affect upon the population and could exceed the response capabilities of the individual cities, Los Angeles County Operational Area and the State of California Emergency Services. Damage control and disaster relief support would be required from other local governmental and private organizations, and from the state and federal governments.

Extensive search and rescue operations would be required to assist trapped or injured persons. Emergency medical care, food and temporary shelter could be required by injured or displaced persons. Identification and burial of many dead persons would pose difficult problems; public health would be a major concern. Mass evacuation may be essential to save lives, particularly in areas downwind from hazardous material releases. Many families would be separated particularly if the earthquake should occur during working hours, and a personal inquiry or locator system could be essential to maintain morale. Emergency operations could be seriously hampered by the loss of communications and damage to transportation routes within, and to and from, the disaster area and by the disruption of public utilities and services.

The economic impact on the Little Lake City School District from a major earthquake would be considerable in terms of loss of employment and loss of tax base. Also, a major earthquake could cause serious damage and/or outage of computer facilities. The loss of such facilities could curtail or seriously disrupt the operations of banks, insurance companies and other elements of the financial community. In turn, this could affect the ability of local government, business and the population to make payments and purchases.

In California, each earthquake is followed by revisions and improvements in the Building Codes. The 1933 Long Beach Earthquake resulted in the Field Act, affecting school construction. The 1971 Sylmar Earthquake brought another set of increased structural standards. Similar re-evaluations occurred after the 1989 Loma Prieta and 1994 Northridge earthquakes. These code changes have resulted in stronger and more earthquake resistant structures.

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. This state law was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. Surface rupture is the most easily avoided seismic hazard.[iv]

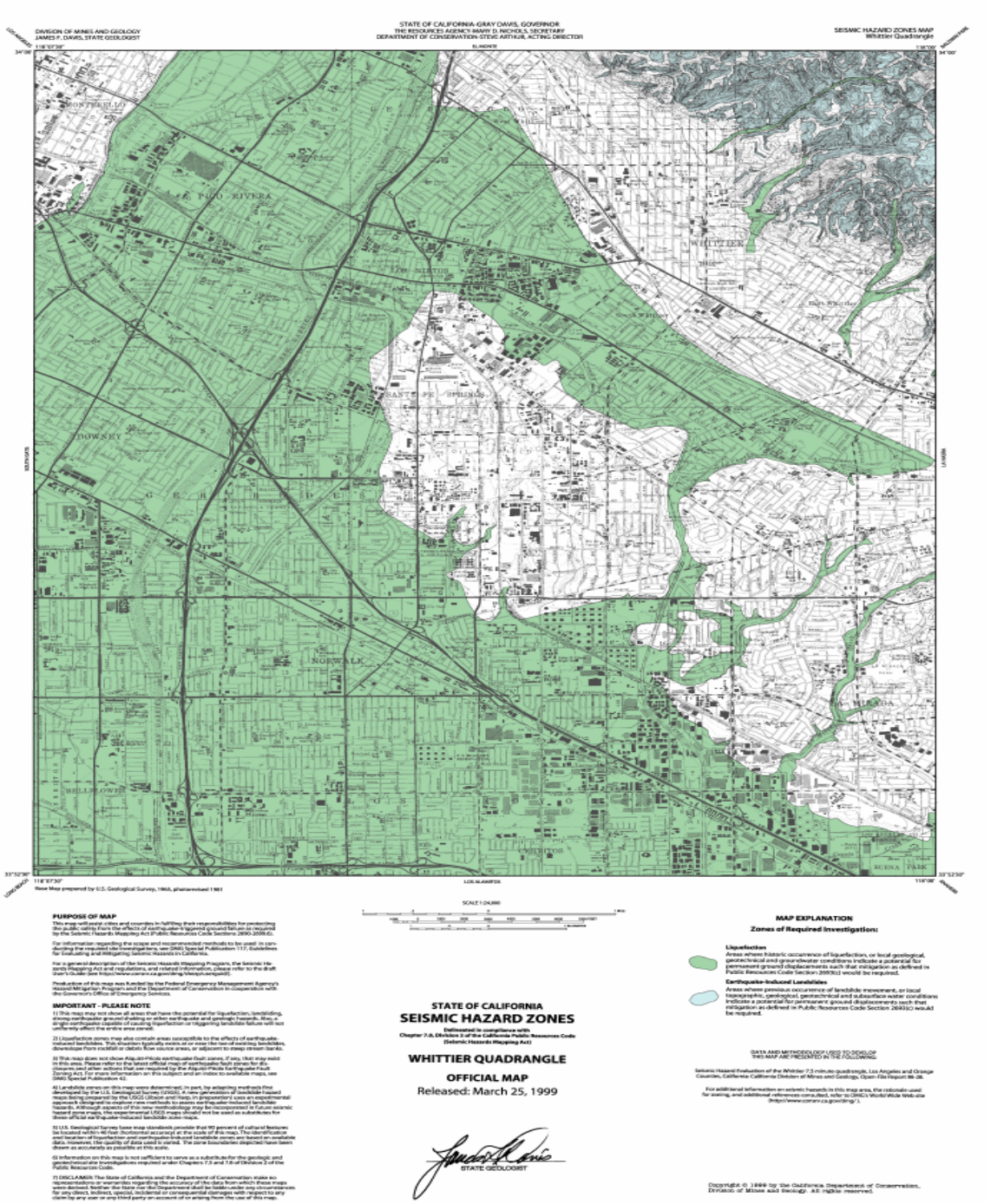
The Seismic Hazards Mapping Act, passed in 1990, addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides.[v] The State Department of Conservation operates the Seismic Mapping Program for California. Extensive information is available at their website: http://gmw.consrv.ca.gov/shmp/index.htm

Vulnerability Assessment

The effects of earthquakes span a large area, and large earthquakes occurring in many parts of the Southern California region would probably be felt throughout the region. However, the degree to which the earthquakes are felt, and the damages associated with them may vary. At risk from earthquake damage are large stocks of old buildings and bridges: many high tech and hazardous materials facilities: extensive sewer, water, and natural gas pipelines; earth dams; petroleum pipelines; and other critical facilities and private property located in the county. The relative or secondary earthquake hazards, which are liquefaction, ground shaking, amplification, and earthquake-induced landslides, can be just as devastating as the earthquake.

The California Geological Survey has identified areas most vulnerable to liquefaction. Liquefaction occurs when ground shaking causes wet granular soils to change from a solid state to a liquid state. This results in the loss of soil strength and the soil's ability to support weight. Buildings and their occupants are at risk when the ground can no longer support these buildings and structures.

Map 5-3: Liquefaction and EQ-Induced Landslide Areas in the District
(Source: California Seismic Hazard Zones)
(Key: Green indicates area prone to liquefaction following earthquakes; Blue indicates area prone to landslides following earthquakes)



Risk Analysis

Risk analysis is the third phase of a hazard assessment. Risk analysis involves estimating the damage and costs likely to be experienced in a geographic area over a period of time.[vi] Factors included in assessing earthquake risk include population and property distribution in the hazard area, the frequency of earthquake events, landslide susceptibility, buildings, infrastructure, and disaster preparedness of the region. This type of analysis can generate estimates of the damages to the region due to an earthquake event in a specific location. FEMA's software program, HAZUS, uses mathematical formulas and information about building stock, local geology and the location and size of potential earthquakes, economic data, and other information to estimate losses from a potential earthquake.[vii] The HAZUS software is available from FEMA at no cost.

For greater Southern California there are multiple worst case scenarios, depending on which fault might rupture, and which communities are in proximity to the fault. But damage will not necessarily be limited to immediately adjoining communities. Depending on the hypocenter of the earthquake, seismic waves may be transmitted through the ground to unsuspecting communities. In the Northridge 1994 earthquake, Santa Monica suffered extensive damage, even though there was a range of mountains between it and the origin of the earthquake.

Damages for a large earthquake almost anywhere in Southern California are likely to run into the billions of dollars. Although building codes are some of the most stringent in the world, ten's of thousands of older existing buildings were built under much less rigid codes. California has laws affecting unreinforced masonry buildings (URM's) and although many building owners have retrofitted their buildings, hundreds of pre-1933 buildings still have not been brought up to current standards. The Little Lake City School District has no unreinforced masonry buildings.

Non-structural bracing of equipment and contents is often the most cost-effective type of seismic mitigation. Inexpensive bracing and anchoring may be the most cost effective way to protect expensive equipment. Non-structural bracing of equipment and furnishings will also reduce the chance of injury for the occupants of a building.

District Earthquake Issues

What is Susceptible to Earthquakes?
Earthquake damage occurs because humans have built structures that cannot withstand severe shaking. Buildings, airports, schools, and lifelines (highways and utility lines) suffer damage in earthquakes and can cause death or injury to humans. The welfare of homes, major businesses, and public infrastructure is very important. Addressing the reliability of buildings, critical facilities, and infrastructure, and understanding the potential costs to government, businesses, and individuals as a result of an earthquake, are challenges faced by the District.

Dams

According to the City of Santa Fe Springs General Plan, the City's, and therefore the Little Lake City School District's greatest threat from dam inundation comes from the Whittier Narrows Dam located 5 miles northwest of the city's northern boundary. This earth filled dam was built in 1956 and has a capacity of 9.75 million gallons of water. The Santa Fe Springs Multi-Hazard Functional Plan states there is a low risk that the city will experience flooding due to dam failure. If dam inundation were to occur, the northern most part of Santa Fe Springs would become flooded approximately one hour after dam failure. If a dam failure occurs the flood inundation area would be between Norwalk Boulevard on the east and the Los Angeles River to the west.

The water level is predicted to be five feet in depth, gradually declining to four feet at the southern end of the City's impacted area.

There are a total of 103 dams in Los Angeles County, owned by 23 agencies or organizations, ranging from the Federal government to Homeowner Associations.[viii] These dams hold billions of gallons of water in reservoirs. Releases of water from the major reservoirs are designed to protect Southern California from flood waters and to store domestic water. Seismic activity can compromise the dam structures, and the resultant flooding could cause catastrophic flooding. Following the 1971 Sylmar Earthquake the Lower Van Norman Dam showed signs of structural compromise, and tens of thousands of persons had to be evacuated until the dam could be drained. The dam has never been refilled.

The inundation hazards of the Whittier Narrows Dam cannot be controlled within the city. Flooding from city reservoirs can be prevented by the construction of earthquake resistant dams and reservoirs. Future reservoirs should be located away from the Whittier fault zone.

Buildings

The built environment is susceptible to damage from earthquakes. Buildings that collapse can trap and bury people. Lives are at risk and the cost to clean up the damages is great. In most California communities, including the Little Lake City School District, many buildings were built before 1993 when building codes were not as strict. School structures are built in compliance with State of California building standards, not those controlled by the local jurisdictions.

Retrofitting of school facilities was mandated by the Department of State Architect. Given the retrofitting program, the number of buildings at risk has been decreased significantly. Even though the school facilities may be better off that does not change the fact that students and staff live in unreinforced masonry buildings vulnerable to damage from earthquakes. The California Seismic Safety Commission makes annual reports on the progress of the retrofitting of unreinforced masonry buildings.

Infrastructure and Communication

Students and staff of the Little Lake City School District commute frequently by automobiles and public transportation such as buses and light rail. An earthquake can greatly damage bridges and roads, hampering emergency response efforts and the normal movement of people and goods. Damaged infrastructure strongly affects the economy of the community because it disconnects people from work, school, food, and leisure, and separates businesses from their customers and suppliers.

Bridge Damage

Even modern bridges can sustain damage during earthquakes, leaving them unsafe for use. Some bridges have failed completely due to strong ground motion. Bridges are a vital transportation link - with even minor damages making some areas inaccessible. Because bridges vary in size, materials, location and design, any given earthquake will affect them differently. Bridges built before the mid-1970' s have a significantly higher risk of suffering structural damage during a moderate to large earthquake compared with those built after 1980 when design improvements were made.

Much of the interstate highway system was built in the mid to late 1960's. The bridges located within the Little Lake City School District are state, county or privately owned (including

railroad bridges). Caltrans has retrofitted most bridges on the freeway systems; however there are still some county maintained bridges that are not retrofitted. The FHWA requires that bridges on the National Bridge Inventory be inspected every 2 years. Caltrans checks when the bridges are inspected because they administer the Federal funds for bridge projects.

Damage to Lifelines

Lifelines are the connections between communities and outside services. They include water and gas lines, transportation systems, electricity, and communication networks. Ground shaking and amplification can cause pipes to break open, power lines to fall, roads and railways to crack or move, and radio and telephone communication to cease. Disruption to transportation makes it especially difficult to bring in supplies or services. Lifelines need to be usable after an earthquake to allow for rescue, recovery, and rebuilding efforts and to relay important information to the public.

Disruption of Critical Services

Critical facilities include all Little Lake City School District facilities that provide important services to the community. These facilities and their services need to be functional after an earthquake event. Many critical facilities are housed in older buildings that are not up to current seismic codes.

Businesses

Seismic activity can cause great loss to businesses, both large-scale corporations and small retail shops. When a company is forced to stop production for just a day, the economic loss can be tremendous, especially when its market is at a national or global level. Seismic activity can create economic loss that presents a burden to large and small shop owners who may have difficulty recovering from their losses.

Forty percent of businesses do not reopen after a disaster and another twenty-five percent fail within one year according to the Federal Emergency Management Agency (FEMA). Similar statistics from the United States Small Business Administration indicate that over ninety percent of businesses fail within two years after being struck by a disaster.[ix] These businesses could easily be providers of services to the District. There disruption would become a disruption to the District.

Individual Preparedness

Because the potential for earthquake occurrences and earthquake related property damage is relatively high in the Little Lake City School District, increasing individual preparedness (students and staff) is a significant need. Strapping down heavy furniture, water heaters, and expensive personal property, and anchoring buildings to foundations are just a few steps individuals can take to prepare for an earthquake.

Death and Injury

Death and injury can occur both inside and outside of buildings due to collapsed buildings, falling equipment, furniture, debris, and structural materials. Downed power lines and broken water and gas lines can also endanger human life.

Fire

Downed power lines or broken gas mains may trigger fires. When fire stations suffer building or lifeline damage, quick response to extinguish fires is less likely. Furthermore, major incidents

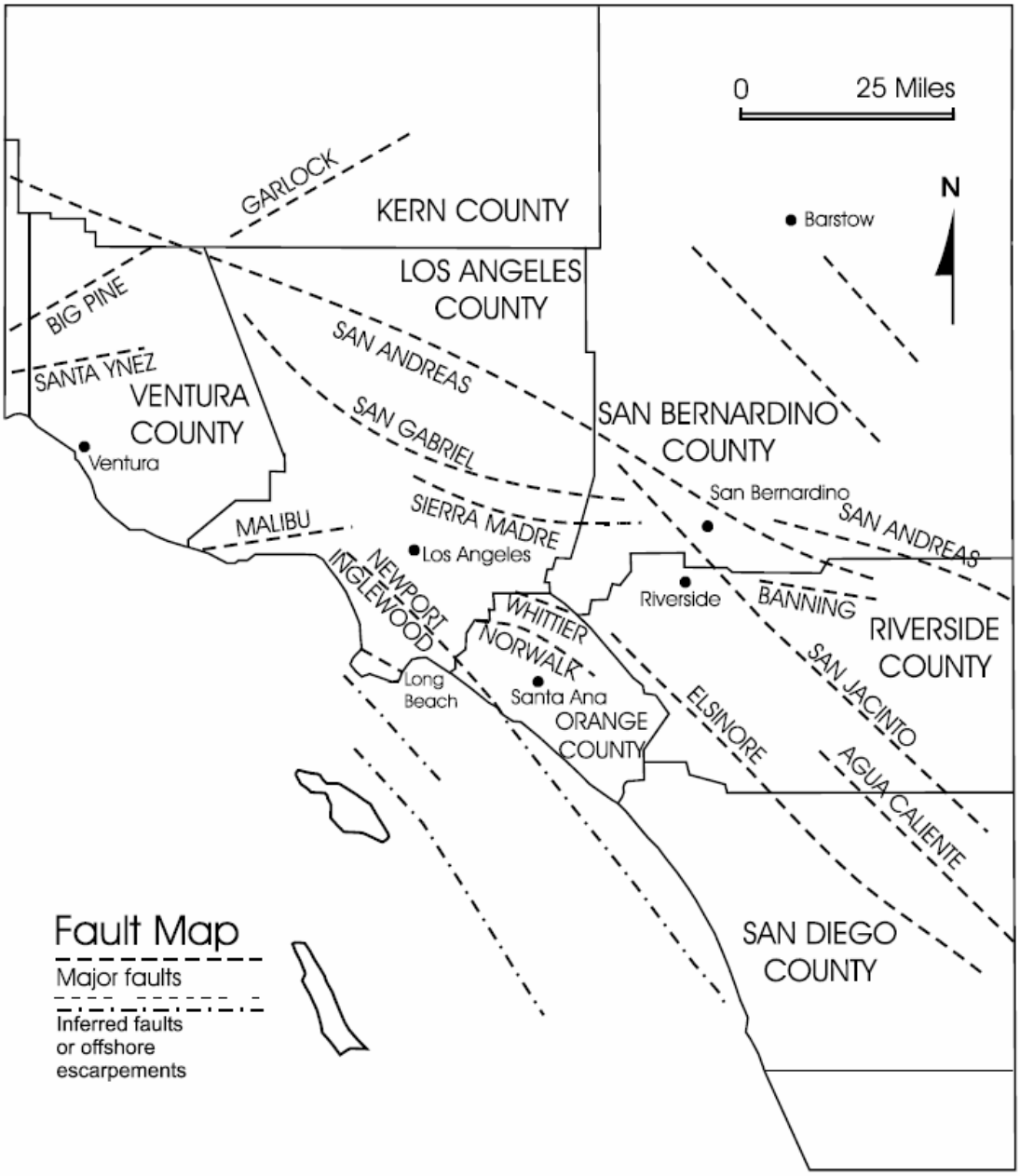
will demand a larger share of resources, and initially smaller fires and problems will receive little or insufficient resources in the initial hours after a major earthquake event. Loss of electricity may cause a loss of water pressure in some communities, further hampering fire-fighting ability.

Debris

After damage to a variety of structures, much time is spent cleaning up bricks, glass, wood, steel or concrete building elements, office and home contents, and other materials. Developing a strong debris management strategy is essential in post-disaster recovery. Disasters do not exempt the Little Lake City School District from compliance with AB 939 regulations.

Earthquake – Attachment 1

Southern California Earthquake Fault Map



Earthquake - Attachment 2

Earthquake Probable Events
(Source: Southern California Earthquake Data Center)

Elsinore Fault Zone
TYPE OF FAULTING: right-lateral strike-slip
LENGTH: about 180 km (not including the Whittier, Chino, and Laguna Salada faults)
NEARBY COMMUNITIES: Temecula, Lake Elsinore, Julian
LAST MAJOR RUPTURE: May 15, 1910; Magnitude 6 -- no surface rupture found
SLIP RATE: roughly 4.0 mm/yr
INTERVAL BETWEEN MAJOR RUPTURES: roughly 250 years
PROBABLE MAGNITUDES: M_w6.5 - 7.5
MOST RECENT SURFACE RUPTURE: 18th century A.D.(?)

Newport-Inglewood Fault Zone
TYPE OF FAULTING: right-lateral; local reverse slip associated with fault steps
LENGTH: 75 km
NEAREST COMMUNITIES: Culver City, Inglewood, Gardena, Compton, Signal Hill, Long Beach, Seal Beach, Huntington Beach, Newport Beach, Costa Mesa
MOST RECENT MAJOR RUPTURE: March 10, 1933, M_W6.4 (but no surface rupture)
SLIP RATE: 0.6 mm/yr
INTERVAL BETWEEN MAJOR RUPTURES: unknown
PROBABLE MAGNITUDES: M_w6.0 - 7.4
OTHER NOTES: Surface trace is discontinuous in the Los Angeles Basin, but the fault zone can easily be noted there by the existence of a chain of low hills extending from Culver City to Signal Hill. South of Signal Hill, it roughly parallels the coastline until just south of Newport Bay, where it heads offshore, and becomes the Newport-Inglewood - Rose Canyon fault zone.

San Andreas Fault Zone
TYPE OF FAULT: right-lateral strike-slip
LENGTH: 1200 km 550 km south from Parkfield; 650km northward
NEARBY COMMUNITY: Parkfield, Frazier Park, Palmdale, Wrightwood, San Bernardino, Banning, Indio
LAST MAJOR RUPTURE: January 9, 1857 (Mojave segment); April 18, 1906 (Northern segment)
SLIP RATE: about 20 to 35 mm per year
INTERVAL BETWEEN MAJOR RUPTURES: average of about 140 years on the Mojave segment; recurrence interval varies greatly -- from under 20 years (at Parkfield only) to over 300 years
PROBABLE MAGNITUDES: M_w6.8 - 8.0

San Fernando Fault Zone
TYPE OF FAULTING: thrust
LENGTH: 17 km
NEAREST COMMUNITIES: San Fernando, Sunland
LAST MAJOR RUPTURE: February 9, 1971, M_w6.6
SLIP RATE: 5 mm/yr (?)
INTERVAL BETWEEN MAJOR RUPTURES: roughly 200 years
PROBABLE MAGNITUDES: M_w6.0 - 6.8
OTHER NOTES: Dip is to the north. The slip rate is not well known, but trenching studies indicate recurrence interval as between 100 and 300 years.

San Jacinto Fault Zone
TYPE OF FAULTING : right-lateral strike-slip; minor right-reverse

LENGTH: 210 km, including Coyote Creek fault
NEARBY COMMUNITIES: Lytle Creek, San Bernardino, Loma Linda, San Jacinto, Hemet, Anza, Borrego Springs, Ocotillo Wells
MOST RECENT SURFACE RUPTURE: within the last few centuries; April 9, 1968, M_w6.5 on Coyote Creek segment
SLIP RATE: typically between 7 and 17 mm/yr
INTERVAL BETWEEN SURFACE RUPTURES: between 100 and 300 years, per segment
PROBABLE MAGNITUDES: M_w6.5 - 7.5

Sierra Madre Fault System
TYPE OF FAULTING: reverse
LENGTH: the zone is about 55 km long;
total length of main fault segments is about 75 km, with each segment measuring roughly 15 km long
NEARBY COMMUNITIES: Sunland, Altadena, Sierra Madre, Monrovia, Duarte, Glendora
MOST RECENT SURFACE RUPTURE: Holocene
SLIP RATE: between 0.36 and 4 mm/yr
INTERVAL BETWEEN SURFACE RUPTURES: several thousand years (?)
PROBABLE MAGNITUDES: M_w6.0 - 7.0 (?)
OTHER NOTES: This fault zone dips to the north. It was not the fault responsible for the 1991 Sierra Madre earthquake.

Whittier Fault
TYPE OF FAULTING: right-lateral strike-slip with some reverse slip
LENGTH: about 40 km
NEARBY COMMUNITIES: Yorba Linda, Hacienda Heights, Whittier
MOST RECENT SURFACE RUPTURE: Holocene
SLIP RATE: between 2.5 and 3.0 mm/yr
INTERVAL BETWEEN MAJOR RUPTURES: unknown
PROBABLE MAGNITUDES: M_w6.0 - 7.2
OTHER NOTES: The Whittier fault dips toward the northeast.

End Notes

[1] http://pubs.usgs.gov/gip/earthq3/when.html

[ii] http://www.gps.caltech.edu/~sieh/home.html

[iii] Planning for Natural Hazards: The California Technical Resource Guide, Department of Land Conservation and Development (July 2000)

[iv] http://www.consrv.ca.gov/CGS/rghm/ap/

[v] Ibid

[vi] Burby, R. (Ed.) Cooperating with Nature: Confronting Natural Hazards with Land Use Planning for Sustainable Communities (1998), Washington D.C., Joseph Henry Press.

[vii] FEMA HAZUS http://www.fema.gov/hazus/hazus2.htm (May 2001).

[viii] Source: Los Angeles County Public Works Department, March 2004

[ix] http://www.chamber101.com/programs_committee/natural_disasters/DisasterPreparedness/Forty.htm

Appendix B:
Public Participation

Public participation is a key component to any strategic planning process. It is very important that such broad-reaching plans not be written in isolation. Agency participation offers an opportunity for impacted departments and organizations to provide expertise and insight into the planning process. Citizen participation offers citizens the chance to voice their ideas, interests, and opinions. The Federal Emergency Management Agency also requires public input during the development of mitigation plans.

The Little Lake City School District Natural Hazards Mitigation Plan integrates a cross-section of public input throughout the planning process. To accomplish this goal, the Multi-Jurisdictional Planning Team developed a public participation process through five components: (1) developing a Planning Team comprised of knowledgeable individuals representative of the District, City of Whittier, City of Santa Fe Springs, Whittier City School District, East Whittier City School District, and Whittier Union High School District; (2) soliciting the assistance of local media representatives and community newsletters to announce the progress of the planning activities and to announce the availability of the Draft Natural Hazards Mitigation Plan; (3) creating opportunities for the citizens and public agencies to review the Draft Natural Hazards Mitigation Plan; (5) conducting public meetings at the Board of Education where the public had an opportunity to express their views concerning the Draft Natural Hazards Mitigation Plan.

Integrating public participation during the development of the Natural Hazards Mitigation Plan has ultimately resulted in increased public awareness. Through public involvement, the mitigation plan reflects district issues, concerns, and new ideas and perspectives on mitigation opportunities and plan action items.

Natural Hazards Mitigation Committee

Hazard mitigation in the District has been overseen by the Assistant Superintendent of Business Services. The Assistant Superintendent served on the Multi-Jurisdictional Planning Team and guided the development of the plan, and assisted in developing plan goals and action items, identifying stakeholders and plan reviewers, and sharing local expertise to create a more comprehensive plan. A LLCSD Natural Hazards Mitigation Committee will be formed consisting of members with an understanding of how the District is structured and how its students and staff may be affected by natural hazard events.

Meetings

The following meetings and workshops were facilitated by the District's consultant, Carolyn J. Harshman of Emergency Planning Consultants:

Meeting #1: Pre-Training April 5, 2004

The meeting was hosted by the City of Santa Fe Springs. Emergency Planning Consultants delivered pre-training to the Planning Team and Working Groups. The pre-training consisted of the history of the Disaster Mitigation Act of 2000, the purpose and

role of hazard mitigation, and the planning process. The Pre-Training lasted approximately 2 hours.

Meeting #2: Kick-Off Meeting April 5, 2004
EPC facilitated a workshop where participants had an opportunity to learn about various natural hazards, assess and rank the local threats, examine hazard maps, and complete the FEMA Worksheets contained in FEMA 386-2 Understanding Your Risks. Part of the discussion included a presentation by EPC of historical disaster events across the country. Those slides served as a backdrop for discussing potential mitigation activities.

There was an extensive discussion on various methods of engaging the public in the mitigation process. The Planning Team prepared a draft media release and discussed a public opinion survey provided by EPC. EPC committed to revising the media release and survey and distributing electronic copies to each of the Planning Team entities. The Kick-Off Meeting lasted approximately 7 hours.

Meeting #3 Pre-Training: Mitigation June 8, 2004
The meeting was hosted by the City of Whittier and held at the East Whittier City School District Offices. EPC delivered pre-training to the Planning Team. The pre-training consisted of the concepts and issues related to developing mitigation actions. The pre-training lasted approximately 1 hour.

Meeting #4 Mitigation Actions June 8, 2004
EPC delivered the Draft Hazard Analysis and the Planning Team discussed missing information, data, and maps. EPC distributed copies of the Mitigation Actions Planning Tools to assist the Team in developing Goals and Action Items appropriate to their natural hazards. The Planning Tools provided a process for collecting the mitigation actions presently in practice in the Little Lake City School District, as well as identifying future mitigation actions.

Throughout the planning process, the consultant reminded the Planning Team of the importance of considering Benefit/Cost issues including: social issues, political realities, economic benefits, and environmental concerns. During Meeting #4, the consultant introduced the Planning Team to the STAPLEE Tool (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) as one of many means available to prioritize mitigation actions. Following a discussion of a range of benefit/cost issues, the Planning Team voted to cluster the action items by hazard as follows: #1 Multi-Hazard, #2 Earthquakes, #3 Floods. The Team was unanimous in its belief that the Multi-Hazard actions would yield the greatest benefit to the jurisdiction.

The consultant provided a Planning Tool listing over 300 sample mitigation actions for use by the District. The sample actions represented a broad range of solutions from the following categories: Building Standards, Fiscal & Taxation, Land Use & Zoning, Public Awareness, and Capital Improvements.

Goals and Priorities
A brainstorming process was then conducted to develop the goals for the Plan. EPC reminded the Team of the importance of benefit/cost analysis when identifying goals and action items. As discussed in the Mitigation Workshop on June 8th, the District considered benefit and cost throughout the brainstorming process. The entire Multi-Jurisdictional Planning Team agreed to adopt the same mitigation goals. Following a discussion of alternative ranking techniques, the District decided to cluster the rankings of the hazards in the following order: #1 Multi-Hazard, #2 Earthquakes, and #3 Flooding.

The next task was to examine a FEMA-approved Mitigation Plan to get an idea of how mitigation actions are written. Each of the jurisdictions was pleased to announce the broad range of mitigation actions already being practiced. The Planning Tools, developed by EPC, consisted of nearly 300 mitigation actions gathered from dozens of Mitigation Plans across the country.

The Planning Team broke into individual jurisdictions to develop their own mitigation actions, utilizing the sample plans and Planning Tools list. Because of the plan samples and Tools, the process of identifying appropriate mitigations actions was accomplished in a very efficient manner.

Plan Draft and Review
Based on data, research, and interviews from the workshops, Emergency Planning Consultants prepared the Working Draft of the Natural Hazards Mitigation Plan. That document was returned to the District for review and distribution to the plan reviewers (see Appendix B–Attachment 3). Factual and grammatical revisions were made to the document based on input received during the review period. The Draft Natural Hazards Mitigation Plan was then submitted to the District in preparation of the Board of Education meetings.

Public Meetings
Little Lake City School District presented the Draft Natural Hazard Mitigation Plan at two public meetings of the Board of Education. The meetings were held on August 24, 2004 and September 28, 2004. The Board of Education was impressed with the range of mitigation actions already in practice throughout the District.

Invitation Process
The Planning Team representative submitted a press release to local media representatives (see Appendix B–Attachment 1).

Results
At the August 24th Board meeting, the Planning Team representative provided an overview of the planning process. On September 28, 2004 the Planning Team representative presented a report to the Board (see Appendix B–Attachment 2) that provided an overview of the plan and the mitigation actions. All participants were encouraged to present their views and make suggestions on possible mitigation actions. The Planning Team representative then fielded questions from the Board. The discussion

lasted less than one hour and was aired on local cable access for approximately one month.

Adoption

On September 28, 2004 the Board of Education was unanimous in their adoption of the Little Lake City School District Natural Hazards Mitigation Plan (see Appendix B-Attachment 4).

Plan Finalization

Public and Board input was incorporated into the Draft Plan along with any other necessary revisions and documentation. Emergency Planning Consultants presented the District with a Final Draft Natural Hazards Mitigation Plan.

Appendix B- Attachment 1
Media Coverage

Local districts prepare plans to deal with natural hazards

Wave Staff Report

WHITTIER — Four local school districts are in the process of preparing local hazard mitigation plans to minimize potential damage from natural hazards that may occur.

The Whittier Union High School District, the Whittier City School District, the East Whittier City School District and Little Lake School District are working with Emergency Planning Consultants as part of a multi-jurisdictional planning team that includes the cities of Whittier and Santa Fe Springs. The team was created to better utilize the resources of the districts and cities and to more effectively address the hazards that impact the entire area.

"Public input into this process is very important so we encourage residents and business owners to review the document and participate in the public hearing that will be scheduled for later in the year," said Paul Muschetto, Whittier Union High School District associate superintendent.

The planning document will focus on potential impacts from natural hazards including earthquakes, floods and wildfires. In August, after the draft local hazard mitigation plan is completed, a copy of the document will be available for review at each school district office and the respective city halls.

After the public review period, the plan will be forwarded to the respective school boards and city councils for final approval.

Appendix B – Attachment 2
Staff Report

LITTLE LAKE CITY SCHOOL DISTRICT
BUSINESS SERVICES

September 28, 2004

TO: Phillip Pérez, Ed.D., Superintendent
FROM: Maureen Evans, Assistant Superintendent
SUBJECT: **Adoption of Natural Hazards Mitigation Draft Plan**

Background

To meet the requirements of the Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended by the addition of Section 322 of the Federal Emergency Management Agency (FEMA), a public agency must develop and submit a Disaster Mitigation Plan (DMA) to FEMA in order to be eligible for FEMA funding should a natural or man-made disaster occur in the future.

The District, in conjunction with the Cities of Santa Fe Springs and Whittier, and Whittier Union High School District, East Whittier School District, and Whittier City School District, developed a Natural Hazards Mitigation Draft Plan with the assistance of Emergency Planning Consultants. As outlined by FEMA, the District plan addresses the three major criteria embedded in Section 322: 1) evidence of preparation for the possibility of a disaster; 2) assurance that appropriate pre-planning and coordination among governmental agencies has occurred, including the sharing of common public resources; and 3) evidence of interagency communication with the inclusion of opportunity for public input.

The District's Natural Hazards Mitigation Draft Plan has been available for review by the public in the Business Services Office since August 2004.

The Plan is considered a draft until it is approved by FEMA. The Plan must be submitted to FEMA by November 1, 2004.

Recommendation

It is recommended the Board of Education adopt the Natural Hazards Mitigation Draft Plan.

Appendix B – Attachment 3
List of Reviewers

Steve Ritter, Assistant Superintendent, East Whittier City School District

Lee Bean, Director of Facilities, Maintenance and Operations, East Whittier City School District

Paul Muschetto, Associate Superintendent, Whittier Union High School District

Bob Mazzeo, Director of Business Projects, Whittier City School District

Appendix B- Attachment 4
Board of Education Certified Minutes

This is to certify that the following is an exact copy of an excerpt from minutes of the regular meeting of September 28, 2004 of the Little Lake City School District Board of Education:

It was moved by Hilda Zamora and seconded Laurie Rios that the Board of Education approve the following Consent Agenda items, as outlined in reports to be made part of the minutes:

It is recommended the Board of Education adopt the Natural Hazards Mitigation Draft Plan.

A unanimous vote was cast in favor of the motion.

Phillip Pérez, Ed.D., Superintendent

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

On October 4, 2004, before me, Anita K. Hutchinson, a Notary Public in and for said State, personally appeared Phillip Pérez, Ed.D., Superintendent of the Little Lake City School District, known to me to be the person whose name subscribed to the within instrument, and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Notary Public in and for said State

Anita K. Hutchinson

ANITA K. HUTCHINSON
Commission # 1387267
Notary Public - California
Los Angeles County
My Comm. Expires Nov 26, 2006