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LOCAL MULTI-HAZARD MITIGATION PLAN

September 2007

NORTH COUNTY TRANSIT DISTRICT
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Plan Background

The Federal Disaster Mitigation Act of 2000 (DMA2K) requires all local governments, including cities, counties, and special districts to have an approved Local Multi-Hazard Mitigation Plan (LMHMP) as a precondition for receipt of Hazard Mitigation Grants after November 1, 2004. LMHMPs must be submitted to the State Office of Emergency Services (OES) and the Federal Emergency Management Agency (FEMA) for approval.

Purpose of this Local Multi-Hazard Mitigation Plan

The purpose of this LMHMP is to provide the platform for the integration of hazard mitigation strategies in day-to-day policies, practices, and programs of the North County Transit District (NCTD). Secondly, the plan will include an appraisal of the risk and vulnerability from natural hazards to NCTD's assets, critical facilities, infrastructure, economy, and user population. Thirdly, the plan will evaluate local capabilities to respond to and recover from major disasters. Fourth, this plan will ensure NCTD's LMHMP goals and objectives are compatible with existing hazard mitigation elements within NCTD's Emergency Operations Plan. Fifth, the hazard mitigation plan will result in the identification of prioritized, cost effective mitigation actions and projects to address identified vulnerabilities. Lastly, the North County Transit District's LMHMP will conform to all guidance from FEMA and OES thereby qualifying NCTD for all manner of federal mitigation grant programs.

Historically, survival in California has been dependent on planning for the impacts of natural disasters. Wildland and urban/wildland fires, floods, earthquakes, landslides, volcanoes, freezes, and severe weather ravage parts of the California landscape on a regular basis and always have. Residents of California live in a place where cultural and environmental resources abound and are directly linked to the overall economic well being of the State. Planning to protect these assets should be an integral element of any governmental agency's land use planning program.

In addition to meeting federal and state requirements, the LMHMP provides a framework for ongoing hazard mitigation planning for NCTD. The LMHMP includes resources and information to assist NCTD staff, citizens, and other interested parties in participating in planning for and mitigating against technological, natural, and man-made hazards. The LMHMP provides a list of action items that are designed to assist NCTD in reducing risk and preventing loss from future hazard events.

Plan Development and Contents

The LMHMP was developed under the guidance of the Hazard Mitigation Planning Team, with input from the Mitigation Advisory Committee and other NCTD staff, NCTD users, governmental agencies, and other stakeholders. Federal law and FEMA regulations determine most of the content of the LMHMP. In the beginning of several portions of the narrative, the sections of the law that have determined the content are presented in italics.

The LMHMP includes a history of NCTD; the identification and assessment of risks associated with significant potential natural hazards or man-made hazards; and proposed mitigation measures to address identified hazards. The LMHMP also includes information on how it will be implemented, monitored, and updated. The potential dollar losses due to damage or destruction of NCTD facilities are also identified. In addition, the LMHMP outlines a participation process that ensures input from community agencies and residents.

Consulting Services

Project management support, technical writing, and planning services for this project were provided under contract by James Thernes & Associates, Inc.

- Project Management Services: James Thernes, President
- Planning Services: Anita Dragan, Mitigation & Planning Director

Mapping

We would like to thank the San Diego County Office of Emergency Services, Federal Emergency Management Agency, and NCTD's GIS Department for providing the maps utilized in the plan.

Note: Care was taken in the creation of the maps utilized in this plan, and they are provided "as is." NCTD cannot accept responsibility for any errors, omissions, or positional accuracy; therefore, there are no warranties that accompany these products (the maps). Although information from State, County, and NCTD sources may have been used in the creation of these products, in no way does this product represent or constitute a land survey. Users are cautioned to field verify information on this product before making any decisions.

SECTION ONE

BACKGROUND
&
GENERAL INFORMATION

BACKGROUND & GENERAL INFORMATION

1.1 Definition of Hazard Mitigation

Hazard mitigation is defined as "any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards." Section 323 of DMA2K amended the Stafford Act (Public Law 93-288) to make local governments more responsible for pre-disaster mitigation actions. The law reiterates its emphasis on the use of minimum standards. It requires, as a condition of receiving federal disaster assistance,

> ***"…that any repair and reconstruction shall be done in accordance with the minimum standards of safety, decency and sanitation, and in accordance with applicable codes, specifications, and standards."***

Federal law requires that local jurisdictions have an approved LMHMP as a condition for receiving both pre-disaster and post-disaster hazard mitigation grants. It also requires that the state or local governments who receive federal assistance must evaluate the hazards of the area in which the assistance is to be used. More importantly the law requires that state and local governments take actions to mitigate those hazards, including the implementation of safe land use and construction practices.

To be effective, hazard mitigation actions must be taken in advance of a disaster. After disaster strikes, mitigation opportunities exist only during recovery and even those opportunities can be limited by the absence of advance planning. Nevertheless, the immediate post-disaster period does present special opportunities for mitigation. The Stafford Act provides disaster assistance under Section 406, emergency response and recovery with mitigation components and mitigation through Sections 322 - Minimum Standards and 323 - Pre-disaster Mitigation Program and Sub-part N – Hazard Mitigation Grant Program (Post-Disaster).

The California Disaster Assistance Act (CDAA) provides funding for mitigation opportunities presented during repairs to damaged buildings or infrastructure resulting from a current disaster, particularly those opportunities aimed at reducing hardship and loss from future events. Also, during the recovery period, decision makers are more inclined to take the required actions necessary to avoid additional damage or losses in the future.

Hazard mitigation includes, but is not limited to such activities as:

- Hardening structures and facilities at risk using structural and non-structural means;
- Identifying hazard-prone areas, developing standards for prohibited or restricted use, and developing and adopting development ordinances and regulations that support mitigation;
- Fuel reduction in wildlands and wildland/urban interface areas; and
- Habitat preservation and restoration in creeks, streams, and other waterways; storage of excess runoff.

Hazard Mitigation may occur during any phase of a threat, emergency, or disaster. Opportunities for mitigation activities exist in all phases of the disaster cycle – *preparedness* (before), *response* (during) and *recovery* (after) phases

For example, in locations with active earthquake faults, it is known that older wooden railroad trestles and bridges do not meet today's minimum life safety codes. By identifying the locations of these structures in advance (Preparedness), local first responders (Response), can familiarize themselves with these high risk facilities. Advance identification also provides an opportunity to retrofit the structure (Mitigation), so that the potential for injury or loss of life or property can be reduced.

1.2 Why Develop a Local Multi-Hazard Mitigation Plan?

DMA2K regulations establish a process that will produce a reality based LMHMP that considers the natural hazards that may be faced by a jurisdiction. Through the hazard identification and risk analysis process, NCTD will determine those natural, man-made, and technological hazards that it is likely to deal with in the future. This information then forms the basis of the District's strategy to engage in activities aimed at reducing or eliminating the impact of those identified hazards.

The primary reason to develop a LMHMP is evident in the overall effectiveness of the locally based hazard mitigation programs in California. California is the most disaster-prone state in the nation, and it has the nation's largest population. Examining disasters elsewhere in the nation and contrasting them to what happens here demonstrates the effectiveness of California's mitigation activities.

NCTD's mitigation plan recognizes that the natural hazards that have affected their services and facilities over the past years will also affect them in the future. Those hazards include, but are not necessarily limited to, flooding, coastal storms, mudslide, and earthquake. In developing NCTD's LMHMP and mitigation policy, recognition had to be given to the fact that these hazards and other similar events are naturally occurring processes that have the potential to occasionally disrupt their services and facilities. Fortunately, there are actions that can be taken to reduce future loss and risk. Some of those actions, such as erosion control, construction based on the California Uniform Building Code's seismic requirements, and brush fire fuels reduction have already been implemented by NCTD and are integrated into this LMHMP.

Other activities that have mitigation as a core element include the development and implementation of a System Safety Program Plan and System Security Plan, a Storm Water Management Plan, Storm Water Pollution Prevention Plan, as well as a Passenger Train Emergency Response Plan. In addition, NCTD has Memos of Agreement (MOA) and Memos of Understanding (MOU) with several entities for emergency assistance, mutual aid, and security and law enforcement. They also work with the US Fish &Wildlife Service and California Fish & Game in the areas of natural resource protection.

The development, approval, and implementation of this LMHMP is another action that can dramatically reduce future risk and loss, especially because it evaluates risk and identifies mitigation actions; the LMHMP will also assist NCTD in qualifying for several types of funding

offered by FEMA, including Pre-Disaster Mitigation Project funds (funding for projects that are implemented before a disaster occurs), as well as Hazard Mitigation Grants (post-disaster funds for hazard reduction projects). In addition, the LMHMP assists NCTD in efforts to access other types of Federal disaster assistance, including funds for permanent repairs. This increased eligibility for grant programs affords NCTD an opportunity to prepare for the future and work with our neighbors to protect our community.

Although the activities in the plan are directed specifically toward NCTD facilities and services, it may be more cost effective and beneficial to implement some of the activities in cooperation with other entities, who themselves would stand to gain from the implementation of the proposed mitigation activities. The LMHMP encourages involvement with other jurisdictions and agencies in the development and implementation of hazard mitigation activities.

In summary, the development of a LMHMP can be the foundation for saving lives, protecting property, preserving natural and cultural resources, protecting economic assets, and developing a more disaster resistant community.

NCTD Board of Directors adopted this LMHMP on Septermber 20, 2007, by resolution 07-07. A copy of that resolution precedes the Table of Contents.

1.3 Purpose of the Plan

The purpose of this plan is to integrate Hazard Mitigation strategies into the day-to-day activities and programs of NCTD.

As the costs of damage from natural disasters have continued to increase, governmental and local agencies, as well as the general public have come to realize the importance of identifying effective ways to reduce vulnerability and losses. Local Multi-Hazard Mitigation Plans assist entities and jurisdictions in reducing impacts from hazards by recognizing vulnerability in relation to risk, identifying resources, creating an orderly data collection process, and developing strategies for risk reduction, while helping to guide and coordinate mitigation activities.

The resources and information within the LMHMP:

- Establish a basis for coordination and collaboration among agencies and the public;
- Assist in the integration of mitigation goals and objectives with other NCTD plans;
- Identify existing mitigation projects and prioritize future projects;
- Assist in meeting the requirements of federal mitigation programs; and
- Lay the foundation for future LMHMP updates and LMHMP maintenance.

In addition, the LMHMP is designed to ensure the long term values of the community are not compromised in the course of preparing for, responding to, or recovering from natural and man-made hazards.

1.4 Land Use and Hazard Mitigation Planning In California

Historically, survival in California has been dependent on planning for the impacts of natural disasters. Wildland and urban/wildland fires, floods, earthquakes, landslides, volcanoes, freezes, and severe weather ravage parts of the California landscape on a regular basis and always have. Residents of California live in a place where cultural and environmental resources abound and are directly linked to the overall economic well being of the State. Planning to protect these assets should be an integral element of any governmental agency'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.

Planning for a natural hazard means that local plans must include inventories, policies, and ordinances to guide development in hazard areas. These inventories should include the compendium of hazards facing the community, the built environment at risk, the personal property that may be damaged by hazard events and most of all, the people who may be affected by these hazards.

All mitigation is local, and the primary responsibility for development and implementation of risk reduction strategies and policies lies with local jurisdictions. Local jurisdictions, however, are not alone. Partners and resources exist at the regional, state, and federal levels of government. Numerous California state agencies have a role in natural hazards and natural hazard mitigation.

Federal Law

Federal legislation has historically provided funding for disaster relief, recovery, and some hazard mitigation planning. The DMA2K is the latest legislation in this area (Public Law 106-390). The new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. As such, DMA2K establishes a pre-disaster hazard mitigation program and new requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP).

Section 322 of DMA2K specifically addresses mitigation planning at the state and local levels. It identifies new requirements that allow HMGP funds to be used for planning activities and increases the amount of HMGP funds available to states that have developed a comprehensive, enhanced mitigation plan prior to a disaster. States and communities must have an approved mitigation plan in place prior to receiving post-disaster HMGP funds. Local and tribal mitigation plans must demonstrate that their proposed mitigation measures are based on a sound planning process that accounts for both risk and their capabilities to deal with the risks.

State Law

Several statutes and executive orders are relevant to disaster mitigation planning in California. Among the most important are:

- California Earthquake Hazards Reduction Act of 1986
- Health & Safety Code Sec. 19211

- Health & Safety Code Sec. 19181
- Executive Order W-18-19
- Executive Order W-9-91
- Public Resources Code Sec. 2621, et seq. (Alquist-Priolo Earthquake Fault Zoning Act)

In addition, the state has instituted a number of programs related to disaster mitigation. These include:

- Caltrans Seismic Retrofit Program
- California Fire Alliance
- California Earthquake Authority Seismic Retrofit Program
- National Flood Plain Insurance Program (administered by the Department of Water Resources)
- Residential Retrofit Program
- Office of Planning and Research general plan guidelines documents

State Agencies

There are several state agencies with responsibility for hazard mitigation activities, all participate as core agencies on the State Hazard Mitigation Team (SHMT).

The core membership of the SHMT includes state agencies that deal with fire, water resources, forestry, emergency services, transportation, conservation, and more. The SHMT assisted in the promulgation of the first State of California multi-hazard mitigation plan, approves updates to the current plan, and recommends mitigation actions for implementation by state and local government.

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. OES is the caretaker for the State Multi-Hazard Mitigation Plan and Chairs the State Hazard Mitigation Team.

The Southern *California Earthquake Center (SCEC)* gathers information about earthquakes, integrates this information on earthquake phenomena, and communicates it to end-users and the general public. Their work is intended 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 state land and administers forest practices and regulations, including landslide mitigation, on non-federal lands.

The *California Geologic Society (CGS)* is responsible for geologic hazard characterization, public education, the development of partnerships aimed at reducing risk, and developing exceptions to state mandated tsunami zone restrictions, based on scientific refinement of tsunami inundation zone delineation.

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

Relationship NCTD's LMHMP to State and County Hazard Mitigation Plans

The State of California has a solid record of legislation, commissions, executive orders, regulations, codes and standards, task forces, programs, policies, and planning requirements that provide the underpinning for the State Multi-Hazard Mitigation Plan and local hazard mitigation plans.

Those state agencies responsible for managing response and recovery from the impacts of fires, floods, landslides, and earthquakes have participated for 15 years with the Governor's Office of Emergency Services in the development of single disaster hazard mitigation plans. The hazard profiles established by these agencies and expressed in the State Hazard Mitigation Plan provide the underpinning for both the San Diego County Plan and the NCTD Plan.

This Local Multi-Hazard Mitigation Plan mirrors the State Plan. The Steering Committee will review all the goals and objectives adopted by the state, review priorities chosen, identify mitigation actions recommended by the state plan, and reference state sources of information as needed.

General Planning Requirements

State law requires each city and county to adopt a General Plan. The General Plan is the master document or constitution that governs land use and development within a community. State law gives cities and counties wide latitude in formatting a General Plan, but every General Plan must satisfy the basic content requirements of seven mandatory components, which include land use, transportation, housing, open space, conservation, noise, and safety.

No one element of the General Plan has greater legal status or importance over any other. Rather, when complete, the General Plan serves as an integrated, internally consistent, and compatible statement of local policies. In recognition of local differences, State law empowers counties to tailor the General Plan to locally relevant issues. Optional elements may also be adopted to more fully reflect local conditions and interests.

The State's *General Plan Guidelines* recommend that for every locally relevant issue, the city or county should articulate one or more broad objectives, establish more specific policies that would help achieve those objectives, and finally, devise implementation measures (specific action items or funding programs) to implement the policies. Before starting this process, adequate and accurate data and information must be collected and analyzed to provide the basis for sound policy decisions.

Specific Plans

A specific plan is a tool for the systematic implementation of the general plan. It effectively establishes a link between implementing policies of the general plan and the individual development proposals in a defined area. A specific plan may be as general as setting forth broad policy concepts or as detailed as providing direction to every facet of development from the type, location, and intensity of uses to the design and capacity of infrastructure and may include the resources used to finance public improvements or design guidelines for a subdivision. The adoption of a specific plan is a legislative act similar to adoption of a general plan or zoning ordinance. Therefore, specific plans may be subjected to voter initiative and referenda (*Yost v. Thomas* (1984) 36 Cal.3d 561 and *DeVita v. County of Napa*, (1995) 9 Cal. 4th 763).

1.5 Transit District History & Services

The Organization

The North County Transit District (NCTD) is the agency responsible for public transportation in North San Diego County. It began as the North San Diego County Transit Development Board and was created by California Senate Bill 802 in September 1975. The primary purpose of the Board was to plan, construct, and operate public transit systems in the area of its jurisdiction. Operation of these systems could either be directly or through a contractor. In January of 2003, a new state law was enacted that transferred almost all future transit planning, development, programming, and construction to San Diego's Regional Planning Agency (SANDAG). NCTD was charged with continuing to provide the integrated public transit services it had been providing and was also given the responsibility of building and operating a light rail project. In January of 2006, the name was officially changed to North County Transit District; it had been commonly referred to by this name for several years.

The mission of the NCTD is to deliver safe, convenient, reliable, and user friendly public transportation services. Their vision is to build an integrated transit system that enables users to travel easily and efficiently throughout the North County region. The NCTD is governed by a Board of Directors comprised of a representative from each of the incorporated cities within the Transit District plus the Supervisor for the County's Fifth District. The Fifth District includes the unincorporated areas of North County and the cities of Carlsbad, Oceanside, Vista, and San Marcos.

Please reference **Figure 1.1** for NCTD organizational chart.

Chart 1

Executive Director & Senior Staff

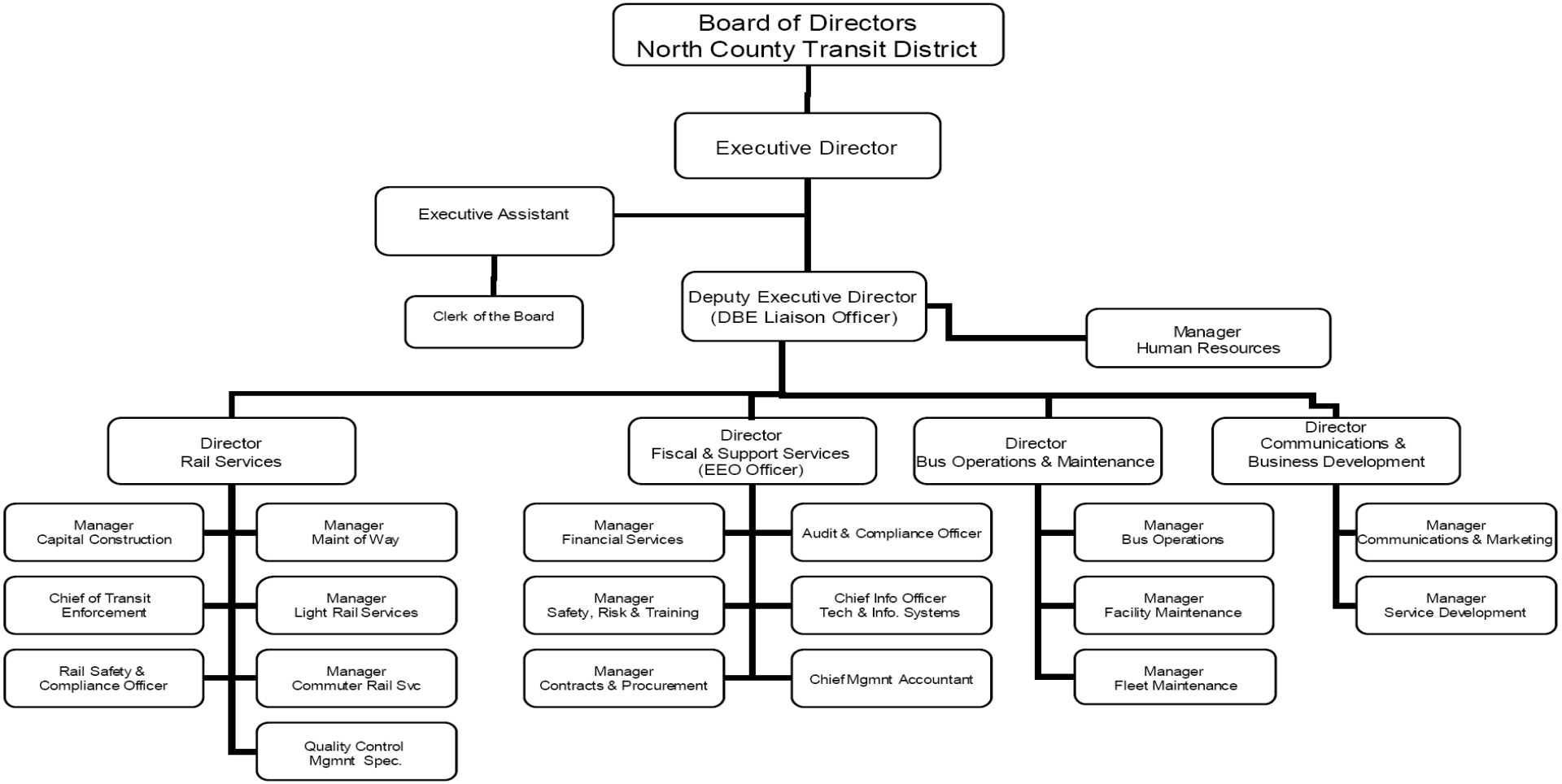

Figure 1.1

Services and Service Area

NCTD operates the **BREEZE** bus service and manages the **COASTER**, a commuter rail service. Initially, NCTD operated the COASTER under contract with AMTRAK. However, Federal regulations require that NCTD periodically seek proposals for the operation and maintenance of the COASTER trains and the maintenance of way for the rail line. In July 2006, AMTRAK was replaced by TransitAmerica Services Inc. NCTD is currently constructing the **SPRINTER**, a light rail service that will operate between Oceanside, Vista, San Marcos and Escondido, which is scheduled to begin operation in late 2007. Veolia Transportation will be the vehicle operations and vehicle maintenance contractor for the **SPRINTER** and TransitAmerica will provide maintenance of way services.

The geographical service area of NCTD includes 1,020 square miles and has a resident population of 842,000+. It extends from Del Mar in the south, traveling northeast to Escondido, north to the Riverside County line and west to the Orange County line. The cities of Solana Beach, Encinitas, Carlsbad, Oceanside, Vista and San Marcos are included in the service area, as well as unincorporated communities such as Fallbrook and Ramona; Camp Pendleton Marine Base is also part of the NCTD service District.

The **BREEZE bus** system consists of 165 vehicles, with 53 regular routes; it carries more than 11 million passengers a year. There are also special express buses for specific sporting and special events in the City of San Diego. Seventy-nine (79) of the buses operate on **C**ompressed **N**atural **G**as (CNG), which is part of NCTD's effort to **mitigate** against the environmental impact of using fossil fuels.

The **COASTER** commuter train links coastal cities in northern San Diego County to the City of San Diego. The train begins at NCTD's Oceanside Transit Center and heads south, making several stops along the way; the last stop is the Santa Fe Depot in San Diego.

Figure 1.2

Figure 1.3 – Encinitas Station

The COASTER operates Monday through Saturday; there is no Sunday service and no service on major holidays such as Thanksgiving, Christmas, New Year's, July 4th, Labor Day, and Memorial Day.

The railroad between San Diego and the Orange County line is part of the Los Angeles-San Diego-San Luis Obispo (LOSSAN) corridor; NCTD owns about 38 miles of tracks that extend north from the northern boundary of the City of San Diego to the San Diego County border with Orange County. NCTD also owns a 21 mile branch line between Oceanside and Escondido. Although other entities, such as the Metropolitan Transit Development Board may own other portions of track, NCTD maintains the entire LOSSAN corridor in San Diego County; reference **Figure 1.4** on Page 19 for a graphic representation of NCTD major facility locations.

Demographics

The population and economy of the NCTD service area will follow the general growth trends for the County, which include a projected 33% increase in population by the year 2030 and diminishing availability of land suitable for development; reference **Appendix A** for current demographics and population information, as well as projections through the year 2030.

1.6 Utility Providers

Power and Gas

San Diego Gas & Electric is the public utility that provides electricity and natural gas to all of NCTD's facilities. Those facilities include office buildings, maintenance facilities, transit centers, railway track and rights-of-way, train stations, and approximately 2,200 bus stops.

Water/Sewer/Storm Drainage

Because the NCTD service area encompasses many jurisdictions, they contract with several agencies for water, sanitary sewer, and/ or storm drainage services. All the contracted agencies are regulated by local and Regional Water Quality Control Boards and they include:

- City of Oceanside
- Vista Irrigation District
- Marine Corps Base Camp Pendleton
- Santa Fe Irrigation District
- City of Escondido
- Carlsbad Municipal Water District
- San Dieguito Water District
- City of San Diego

The drainage systems at NCTD facilities have been constructed to keep operations running smoothly and drain the facilities efficiently. In most cases, runoff is conveyed via surface flow to the nearest public street. Some facilities have onsite drainage systems with inlets and pipes that connect to off-site drainage systems belonging to adjacent municipalities. Drainage systems along the NCTD rights-of-way are aimed at allowing continuous, safe operation of the railroad. The systems include

perpendicular channels and pipes for drainage to cross the right-of-way and parallel channels and pipes to convey runoff to the perpendicular channels/pipes.

Solid, Hazardous, and Universal Waste

Solid waste is hauled away and disposed of by a licensed solid waste contractor. Hazardous and universal waste is collected and disposed of by a contractor licensed by the State of California to provide such services.

Telecommunications

Land line communication services are provided by AT&T, fiber optic cable is provided by Verizon, Nextel/Sprint are cellular phone providers, and AT&T provides network connectivity services. Radio communications system maintenance for the *Coaster's* voice and data (signal) radio systems is provided via contract by TransitAmerica. Dispatch services are provided by Metrolink for the *Coaster*; Veolia Transportation will dispatch the *Sprinter*.

1.7 Rivers and Watersheds

Rivers, Creeks, and Lagoons

North County Transit District facilities and/or rights-of-way are located next to or cross over rivers and creeks and are located alongside of or in proximity to several lagoons and bays. A listing of the major watercourses includes:

- Santa Margarita, San Luis Rey, San Dieguito, and San Diego Rivers;
- Buena Vista, Agua Hedionda, San Marcos, Escondido, San Mateo, San Onofre, and Los Penasquitos Creeks;
- Los Penasquitos, San Dieguito, San Elijo, Batiquitos, Agua Hedionda, and Buena Vista Lagoons; and
- Mission and San Diego Bays

Watersheds

NCTD facilities and rights-of-way fall within several watersheds; reference **Figure 1.5** on Page 20 for the watershed locations of facilities and the major watercourses within the area. The eight main watersheds within the NCTD service area include:

- Pueblo San Diego and San Diego
- Penasquitos
- Santa Margarita
- San Luis Rey
- San Dieguito
- San Juan
- Carlsbad

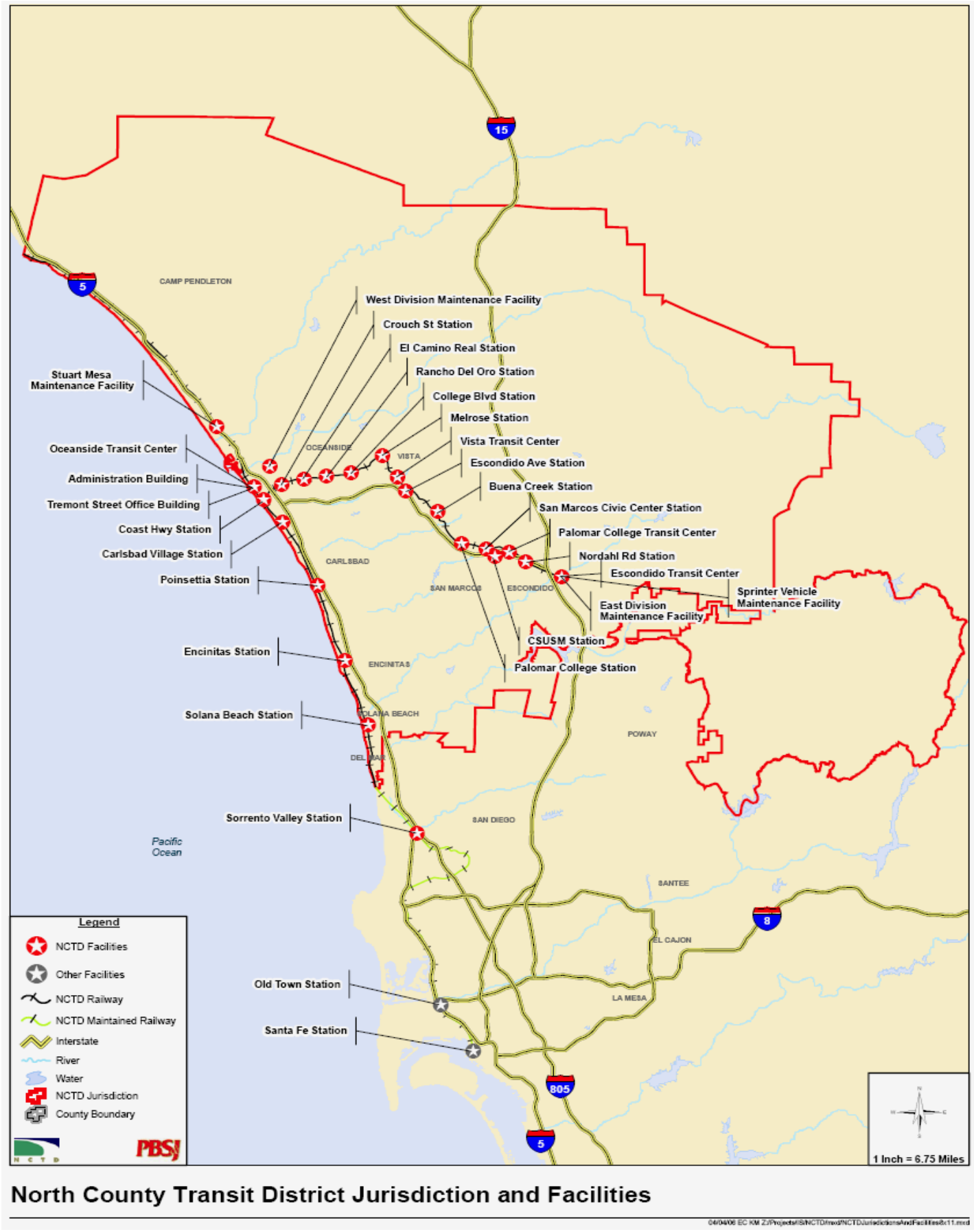

Figure 1.4 – Major NCTD Facilities

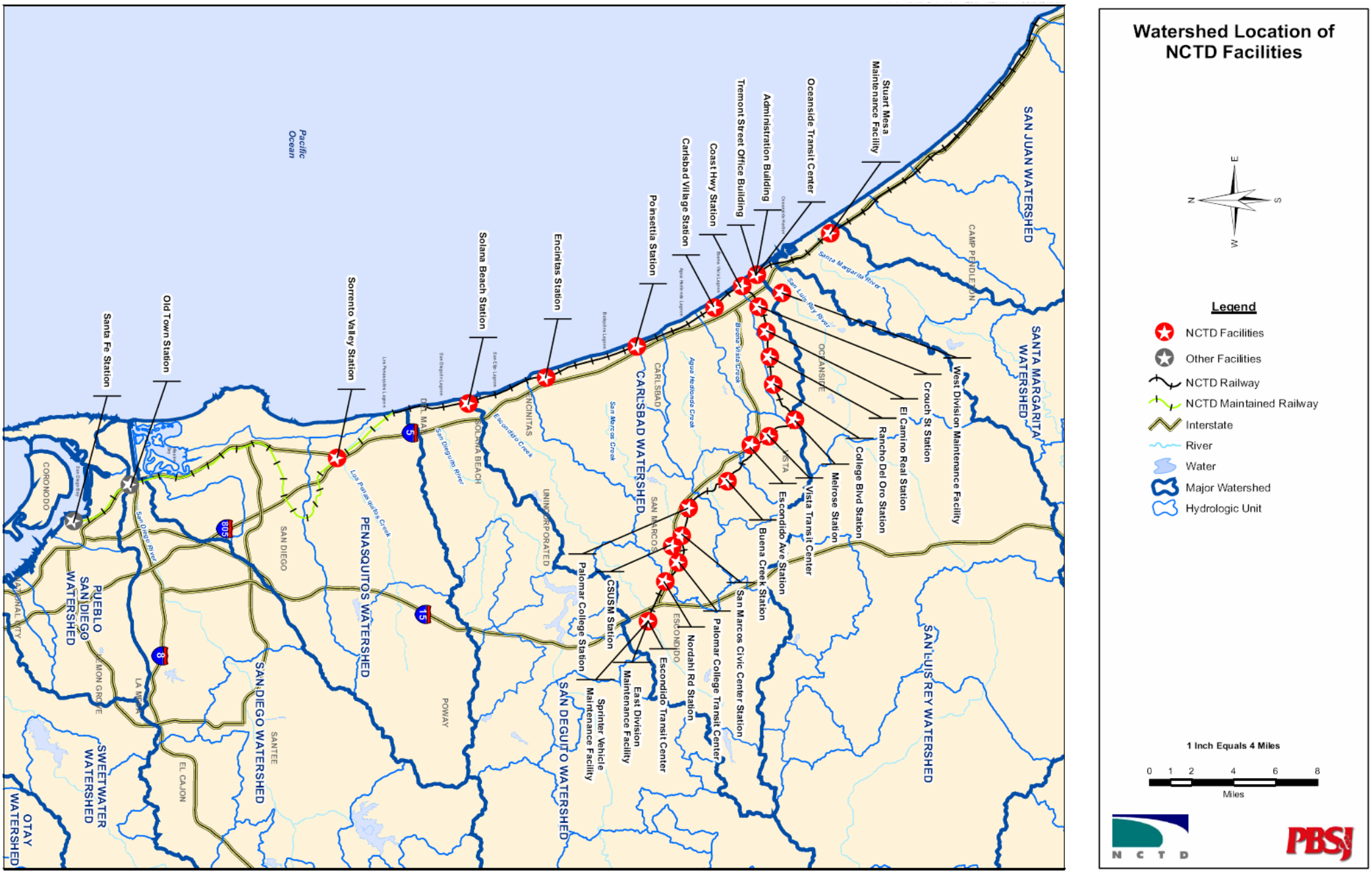

Figure 1.5 – Watershed Locations of NCTD Facilities

SECTION TWO

PLANNING PROCESS

PLANNING PROCESS

Requirement §201.6(b): *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process* ***shall*** *include:*

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

Requirement §201.6(c) (1): *The plan* ***shall*** *document the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

2.1 The Process

Background

The North County Transit District has long recognized the importance of disaster mitigation as part of an integrated program to assure the safety of its users and its facilities. Since its inception, NCTD has engaged in mitigation activities as part of its overall facilities management process. Those activities have included flood control, brush fire fuels reduction activities, and erosion/mudslide prevention projects. For a more detailed description of previous and on-going mitigation activities, see discussion in **Part 5 – Capability Assessment**. The integration of mitigation into all planning activities and NCTD programs is discussed later.

NCTD was not included as a special district within the San Diego County Multi-Jurisdictional Hazard Mitigation Plan; however, all of the cities and unincorporated areas that are within the area NCTD serves were included. As the importance and potential impact of DMA2K became apparent to NCTD directors and staff, the decision was made to develop a LMHMP that was specific to the unique situation of a special district such as North County Transit.

NCTD hired the consultant firm of **James Thernes & Associates, Inc. (JT&A**) to work with staff to develop and submit a pre-disaster mitigation planning grant application to FEMA. JT&A was familiar to the District and had successfully provided technical support to NCTD on other FEMA related NCTD projects.

The grant application was approved, and NCTD requested that JT&A continue to work with them in support of developing a LMHMP. JT&A's primary responsibilities were to provide technical support to the Core Mitigation Planning Team and the Mitigation Advisory Committee, research risk assessment information, oversee the community outreach process and public

meetings, and to assemble and edit the administrative, preliminary, and final drafts of the Plan and other associated materials.

Overall, the LMHMP was developed under four broad tasks, which followed in order:

- **Organize Resources**
- **Assess Risks**
- **Develop Mitigation Plan**
- **Implement the Plan and Monitor Progress**

Core Mitigation Planning Team & Advisory Committee

The first step in the mitigation process is to **Organize Resources.** Once this is accomplished, the planning team can be built, community support can be assessed, and the public can be engaged.

Representatives from all major departments, including Rail, Bus, Facilities Management, Safety, Risk Management, Security, Real Estate, Fleet Management, Marketing, Finance, Human Resources, Operations, and Maintenance attended the kick-off planning meeting. During the course of the initial meeting, it was determined that the Core Planning Team would consist of:

- Rich Walker, Manager – Maintenance of Way
- Tom Gallagher, Manager – Facility Maintenance
- Lee Kuhns – Right-of-Way Coordinator
- Kristin Thomas, Environmental Project Planner
- Ed Singer, Real Estate Assets Administrator
- Jim Thernes & Anita Dragan, JT&A

Initially, Lee Kuhns lead the LMHMP development at the staff level. During the weeks following the first meeting, Kristin Thomas took the lead. After the kick-off meeting, NCTD changed the composition of the Core Planning Team. The members of the Core Planning Team that were, and will remain, involved in developing the LMHMP are listed at the end of this section. In addition, other staff formed a Mitigation Advisory Committee. The Advisory Committee reviews LMHMP drafts as they are developed, participates in Planning Meetings as their schedules allow, and brings their mitigation concerns and suggestions to the Planning Team, as necessary. Reference **Appendix B** for planning meeting agendas, meeting notes, and sign-in sheets. A listing of Planning Team members and their contact information appears at the end of this narrative.

Review of Existing Plans, Studies and other Technical Information

The planning process began with a review of existing literature on risk assessment, hazard identification and mitigation planning. This included, but was not limited to, material produced by FEMA and OES.

- **FEMA –** Getting Started: Building Support for Mitigation Planning; Understanding Your Risks: Identifying Hazards and Estimating Losses; Developing the Mitigation Plan: Identifying Mitigation Actions and Implementation Strategies;

- **OES –** Disaster Recovery and Mitigation Handbook.

The FEMA produced guide books provided direction to the planning process, helped in assessing risks and vulnerabilities, and served as templates for developing the MHMP. In addition, the requirements of the National Incident Management System (NIMS) and the California Standardized Emergency Management System (SEMS) were reviewed in the light of the mitigation planning process. Federal, county, and state agency produced fire, earthquake, and flood histories and projections were reviewed. Other pertinent literature on natural hazards and a diverse group of websites were reviewed for historical hazard data and vulnerability assessments.

The San Diego County Multi-Jurisdictional Hazard Mitigation Plan was reviewed to assure that the District's plan was in keeping with the County's overall mitigation strategy and the hazards identified by NCTD were as inclusive as those in the County Plan. Information from that Plan has been included directly or by inference into the NCTD plan. Other multi-hazard mitigation plans that have been approved by FEMA for special districts were also reviewed.

Anecdotal information from conversations with commuters during the implementation of the Planning Survey, historical and contemporary information from newspaper articles, and similar sources was also used in identifying and describing past hazard events.

The "Crosswalk" reference document developed by FEMA for the review and approval of local mitigation plans was used to assure that the NCTD Plan included all of the required elements. The Unified San Diego County Emergency Services Organization Operational Area Emergency Plan was also reviewed, as well as several of the various codes and ordinances that might affect NCTD's mitigation planning.

In addition, documents produced by NCTD were reviewed and essential elements are included directly or by inference in the mitigation plan. Those documents include:

- System Safety Program; System Security Plan;
- Emergency Plan – All Departments; Passenger Train Emergency Response Plan;
- Short Range Transit Plan;
- Stormwater Pollution Prevention Plan; and EIRs for several projects.

Current hazard mitigation activities (or the lack thereof) were identified and evaluated by the Planning Team. The evaluation of current activities allowed those activities to be reviewed in relation to the NCTD hazard risk assessment, which in turn, identified those hazards that required additional or initial mitigation activities. Mitigation options for each hazard were then identified, analyzed, and prioritized. These options or alternatives became the core of the NCTD's action plan.

2.2 Public Involvement

Community Planning Survey

The NCTD provided several opportunities for the public to provide input into the planning process. A Community Planning Survey was distributed to NCTD staff and service users at

several locations. In addition, random members of the general public also responded to the planning survey. The survey asked questions about perceived threats/hazards, levels of concern, and planning priorities. **Appendix C** contains a sample survey instrument. A narrative detailing and analyzing some of the results of the survey is presented in **Part 3 – Risk Assessment;** survey results are also detailed in **Part 4 – Mitigation Goals, Objectives, and Actions.**

Public Meeting & Review

A public meeting was scheduled for May 15, 2007. The primary purpose of the meeting was to get feedback from the community on the draft LMHMP. Unfortunately, no community members attended the meeting. The public meeting agenda, meeting notes, and sign-in sheet are included in **Appendix D.**

NCTD published a notice of the meeting in the *North County Times* newspaper on April 29, 2007. In the announcement, the date, time, and location of the meeting were indicated. Public was also informed how to access copies of the preliminary draft. Because of the lack of community attendance to the public meeting, NCTD decided to announce the completion of the draft and its availability for public review again. Another notice was published in the in the *North County Times* on May 16, 2007. Copies of those notices are included in **Appendix D**.

In addition to posting the LMHMP on the NCTD web site, copies of the draft were made available to the public at the main NCTD administrative offices and the Oceanside and Escondido Transit Centers. Copies to other agencies, such as SANDAG and to the cities within the NCTD service area were either hand-delivered or mailed with a cover letter asking for comments and encouraging participation in the public meeting. All comments received during the commentary period and review period were evaluated by the Planning Team and selected members of the Mitigation Advisory Council; as deemed appropriate, they were included into the LMHMP.

The Mitigation Advisory Committee also reviewed the draft plan. Their suggestions were considered by the Planning Team and incorporated, as deemed appropriate.

2.3 Coordination with Other Agencies

Day-to-day operations require that the NCTD work cooperatively with several local jurisdictions, regulatory agencies, and other state and federal agencies. Consequently, several of these agencies and jurisdictions were invited to participate in the planning process by attending planning meetings and/or by reviewing the draft plan and providing comments and suggestions. The following is a list of those agencies that participated or were invited to participate in the planning process.

- San Diego County Office of Emergency Services; SANDAG;
- American Red Cross – San Diego & Imperial Counties Chapter; TransitAmerica;
- California Department of Forestry; US Fish & Wildlife Service;
- Cities of San Diego, Oceanside, Carlsbad, Encinitas, Solana Beach, Del Mar, San Marcos, Vista, and Camp Pendleton Marine Corps Base.

All comments received were reviewed and modifications were made to the draft LMHMP, if necessary. The Core Mitigation Planning Team also reviewed the final draft LMHMP, prior to submittal to the NCTD Board of Directors for review and approval.

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SECTION THREE

RISK ASSESSMENT

RISK ASSESSMENT

***Requirement** §201.6(c)(2): The plan **shall** include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.*

***Requirement §201.6(c)(2)(i):** [The risk assessment **shall** include a] description of the type … of all natural hazards that can affect the jurisdiction.*

3.1 Risk Assessment Process

Introduction

As indicated previously, the mitigation plan process includes four broad tasks:

- **Organize Resources**
- **Assess Risks**
- **Develop Mitigation Plan**
- **Implement the Plan and Monitor Progress**

NCTD organized resources during the beginning of the planning process. Once that was accomplished, the process of assessing risks could begin. A risk assessment helps answer questions about "what if" situations, such as "what if there is major flooding along the San Luis Rey River?"

The risk assessment process enabled NCTD to better understand their vulnerability to natural, man-made, or technological hazards. The information gathered during the process can serve as a basis for emergency management planning, as a justification for preparedness related expenditures, and as a foundation for mitigation actions and recovery policy decisions. The data from the risk assessment is the framework NCTD used to develop and prioritize mitigation strategies and actions, in the hope of reducing risk and vulnerability from future hazard events.

The risk assessment process followed the methodology described in the FEMA publication "*Understanding Your Risks – Identifying Hazards and Estimating Losses,*" and it was based on a five-step process:

- Identifying Hazards
- Profiling Hazards
- Inventorying Assets
- Assessing Vulnerability/Estimating Losses
- Analyzing Development Trends

3.2 Identifying Hazards

Risk Assessment Research, Document Review, and Planning Survey

Several activities were involved in identifying hazards and profiling past hazard events. The Planning Team reviewed existing literature, technical data, and maps produced by the California Department of Forestry (CDF), the CDF Fire and Resource Assessment Program, OES, and FEMA, as well as San Diego County documents, including assessor's parcel maps, emergency operations plans, and the *San Diego County Multi-Jurisdictional Hazard Mitigation Plan*. Newspaper articles, journals, climatic data, development trends, and watershed information were examined, as well as documents produced for NCTD by specialized engineering and environmental analysis firms and the US Fish & Wildlife Service. Documents included, but were not limited to, Environmental Impact Reports, Environmental Assessments, reports on soil stabilization, biological opinions, and the environmental impacts of proposed projects.

The *State of California Multi-Hazard Mitigation Plan* was also reviewed. Anecdotal information on previous natural disasters affecting NCTD's service area was gathered during interviews with long-term NCTD managerial staff. As appropriate, information from these sources has been incorporated into this LMHMP. In particular, hazard and risk assessment information generated for San Diego County by URS Corporation and information produced by federal, state, or local agencies, including graphics, has been used to support the risk assessment narrative. Specific sources of information include, but are not limited to:

- American Red Cross – San Diego & Imperial Counties Chapter;
- San Diego Association of Governments (SANDAG);
- CALTRANS;
- California Geological Survey;
- San Diego County Dept. of Sanitation & Flood Control;
- San Diego County Water Authority;
- FEMA Flood Insurance Rate Map;
- Southern California Earthquake Data Center;
- California Department of Fish and Game;
- California Department of Forestry (CDF);
- CDF Fire and Resource Assessment Program;
- San Diego Geographic Information Source;
- FEMA Hazards Website;
- National Oceanic & Atmospheric Administration (NOAA);
- NOAA Coastal Storms Program;
- Transit America, AMTRAK; and
- Other similar sources.

Technological hazards, such as those created by man-made conditions or originating within the human environment (bio-terrorism, hazardous material spills, e.g.), were also considered. Technological hazards frequently have a significant impact on a localized area and are highly unpredictable, which is of particular concern considering the daily number of NCTD users.

In addition to research into existing materials and conversations with NCTD, FEMA, and OES staff, a community planning and perceived hazards survey instrument (Reference **Appendix D**) was distributed to NCTD users, staff members, and the general community. The survey asked individuals about the types of disasters they felt were the greatest threat to NCTD services and facilities and what NCTD planning priorities should be.

The results of the community survey are detailed later in Part 3.

3.3 Hazards Screening

Listing of Hazards

In keeping with those hazards that our research and the County of San Diego Multi-Jurisdictional Hazard Mitigation Plan have identified as prevalent within the County, **Figure 3.1** is a list of the hazards NCTD is likely to deal with; they are profiled within the plan. A summary of why each hazard was included is also listed. Technological/man-made hazards were also considered, although not required. In addition, several hazards noted by FEMA were not profiled; those hazards and the reasons they were not included are listed in Figure **3.2**.

Some hazards were combined – such as coastal storms, tsunami and erosion – because the same NCTD facilities/rights-of-way would be affected by all three of the hazards. Liquefaction is discussed within the earthquake narrative. A fire within COASTER or SPRINTER stations, transfer points and transit centers is not likely to result in a multiple structure fire; human caused fires under bridges and trestles is the greatest fire hazard. Brush fires along the right-of-way pose a threat in that they can cause a temporary disruption of services, but are not a significant threat to people and facilities. Consequently, wild fires and structure fires are discussed together.

Figure 3.1 – Hazards Profiled

HAZARD	REASON INCLUDED
Coastal Storms, Tsunami and Erosion	* Between 1950 and 2000, there were 9 proclaimed States of Emergency due to coastal storms; * NCTD has had to engage in soils/slope stabilization measures along coastal route.
Dam Failure	* There are several dams in the NCTD service area; * Many dams are more than 50 years old.
Earthquake	* There are active fault zones within or in proximity to NCTD facilities (including tracks/rights-of-way).
Floods	* A significant portion of the NCTD service area lies within the 100 year flood plain; * 11 proclaimed emergencies due to floods between 1950 and 2000 in San Diego County.

Figure 3.1 – Hazards Profiled (cont'd)

HAZARD	REASON INCLUDED
Landslide	* NCTD service area contains some steep coastal slopes and bluffs, as well as slopes within or near fault zones which create a risk of landslide; * There have been two proclaimed States of Emergency because of landslide within San Diego County.
Wildfire/Structural Fire	* Wildfires/brush fires are not uncommon in certain parts of the NCTD service area; * There were seven (7) States of Emergency declared because of wildfire within the County between 1950 and 2004.
Hazardous Materials Release	* San Diego County has between 226 and 250 hazardous material spills a year; * There are facilities within the NCTD service area that handle or process hazardous materials.
Terrorism/Disruption of Mass Transit	* NCTD is a transportation services agency; its facilities are a potential target for an act of terrorism.

Once historical and current information were reviewed, the Planning Team decided that several hazards listed by FEMA were not prevalent within the NCTD service area and posed only a minor threat, compared to other hazards.

Figure 3.2 – Non-Profiled Hazards

HAZARD	REASON NOT INCLUDED
Avalanche	* Mountain snowfall in County is not significant; minor threat compared to coastal storms, flood, wildfire, etc.
Drought	* Water conservation and water management programs are extensive throughout the County; * Drought does not have significant impact on NCTD services or facilities.
Expansive soils	* Minor threat to very limited area of NCTD Services.
Extreme heat	* No historical documentation as a hazard in San Diego County.

Figure 3.2 – Non-Profiled Hazards (cont'd)

HAZARD	REASON NOT INCLUDED
Hailstorm	* No historical documentation as hazard in San Diego County.
Land Subsidence	* Almost all soils within NCTD service area are granitic; * No historical documentation as hazard in San Diego County.
Severe Winter Storm	* Minor threat in mountain areas; no historical documentation as hazard in NCTD service area.
Tornado	* No historical documentation as hazard in any area of San Diego County.
Volcano	* No active volcanoes in San Diego County.
Windstorm	* Maximum reported wind speed in the NCTD service area has never reached more than 60mph; occurrence of high winds is rare; unlike fire, flood and coastal storms, winds have not caused major damage or injury.

3.4 Hazard Profiles

Requirement §201.6(c)(2)(i): *[The risk assessment **shall** include a] description of the … location and extent of all natural hazards that can affect the jurisdiction. The plan **shall** include information on previous occurrences of hazard events and on the probability of future hazard events.*

The following paragraphs contain a description of the potential hazards faced by NCTD, their extent, frequency, and probability of future events. The hazards are presented in no specific order, and there is no connection to their level of importance in the manner that they are presented. Hazardous materials release is discussed in general terms only and the discussion of NCTD mitigation activities vis-à-vis hazardous materials does not include specifics on locations.

Although we researched terrorism hazards associated with mass transit, they are not discussed. Because these are very sensitive issues and the release of mitigation plans and information could actually pose a threat, NCTD believes that this information would be exempt from public distribution and disclosure by Section 6254 (99) of the California Government Code. NCTD will prepare, upon request from FEMA and the advice of its counsel, a document that discloses this proprietary information, for FEMA's eyes only.

NCTD relied heavily on information gathered and researched by URS Engineering, the consultant who assisted San Diego County in the preparation of the County Multi-Jurisdictional Mitigation Plan, when preparing the hazard profiles.

Coastal Storms, Tsunami, and Erosion

Description

These hazards are discussed together because the issues and risks are similar and are limited to coastal areas. Storms are a regular and recurring feature along the coast line of the Pacific Ocean. The most hazardous and damage causing feature of a coastal storm is called a "storm surge." Storm surges are large waves of ocean water that race across the coastline when an ocean storm makes landfall. These surges can deluge coastal lands, wash out dunes, cause serious erosion, and localized flooding.

Coastal erosion is typically described as the horizontal retreat of the shoreline. It usually occurs because more sediment is lost along a particular shoreline than the body of water (ocean) redeposits. Several locations along the route of the COASTER commuter train, in particular, are subject to coastal erosion and are located in a FEMA VE Zone, which means they are at high risk of erosion. A "VE" Zone is an area that is subject to flooding with high velocity wave action; the VE designation is used in those areas where the wave height component of flooding is three (3) feet or greater. Erosion prevention, mitigation, and repair activities such as the reinforcement of cliffs and the construction of seawalls have been ongoing in various San Diego County coastal locations. NCTD has also engaged in specific erosion mitigation activities, such as the soil stabilization along the Del Mar Bluffs, which are detailed in **Part 5 – Capability Assessment**.

A tsunami can be described as a series of long ocean waves generated by the abrupt displacement of an enormous volume of water. Underwater earthquakes, volcanic eruptions, large landslides, and similar events can cause a tsunami. In the ocean, tsunami waves can travel between 450 and 600 miles per hour. However, as a tsunami gets closer to the coast, the speed is reduced, the wavelength shortens and the height increases geometrically. Some low-lying areas could become inundated and debris can be deposited for more than one-half mile inland.

Previous Occurrences

As indicated in **Figure 3.1**, there have been several storm related states of emergency in San Diego County. The most damaging **coastal storms** for the NCTD service area have been those driven by "El Niño," including:

- 1983 – January & February
- 1977 – 1978 – Winter
- 1997 – 1998 – Winter
- 2004 – 2005 – Winter

The storms in 1983 caused more than 116 million dollars in damage in San Diego County. Serious coastal storm events are more likely to occur in the months between October and February.

Coastal erosion can be seen in various locales within the NCTD service area. In 2000, unstable cliffs at Beacon's Beach in Encinitas caused a landslide that killed a woman sitting on the beach. The Del Mar Bluffs, in the City of Del Mar, have a history of landslides and are subject to

constant erosion and surface failures. NCTD's rail alignment runs on top of the bluffs for some distance. Consequently, NCTD has engaged in several activities to maintain the viability of rail service and to mitigate against the impact of further erosion and slope destabilization; reference discussion in **Part 5 – Capability Assessment**.

Tsunami wave heights and run-up elevations along the San Diego Coast that have been recorded indicate that they are not outside the normal range of tides. NOAA recorded a tsunami wave height of 2.1 ft on May 22, 1960; damage during this event was limited to approximately 260 feet of dock and the sinking of a barge in the Quivera Basin. Other tsunamis that have affected the coastline include:

- 1950 – 2.1 wave height
- 1952 – 2.3 wave height
- 1957 – 1.5 wave height
- 1960 – 4.6 wave height
- 1964 – 3.7 wave height

NOAA points out that wave height is not necessarily connected to the amount of damage that occurs. For example, the 2.1 wave height in 1950 caused more damage than the 3.7 wave height in 1964.

Location of Hazard and Probability of Future Occurrences

Figure 3.3, on the following two pages, displays the location and extent of coastal storms, coastal erosion and tsunamis. Originally, 4 maps were developed by URS for the San Diego County Hazard Mitigation Plan. However, only 2 of the maps are relevant for the NCTD. At greatest risk of damage from these hazards are the facilities and rights-of-way for the COASTER commuter train; the route travels south along the coast from Oceanside to the Santa Fe Depot in San Diego. Based on the information in Figure 3.3, wind speed damage would be minor. In areas such as the Del Mar Bluffs, the risk of coastal erosion is highest, especially if the soils become oversaturated with rainwater.

Historical and anecdotal information indicates that the greatest damage from a tsunami will occur in proximity of the coast where harbors, waterfront structures, small water craft, etc. would be affected. Flooding in other portions of the NCTD service area might also be a hazard that accompanies a tsunami; Figure 3.3 shows the run-up projections (potential for flooding).

A significant portion of the COASTER route lies along areas where the risk of coastal storms, coastal erosion and tsunami is either high or moderate.

The probability of future occurrences is high. Considering both the past and recent history and prevalence of these hazards in San Diego County, there is no doubt that there will be future occurrences. The question for the NCTD is not “if” but “when” and how to mitigate against the impact.

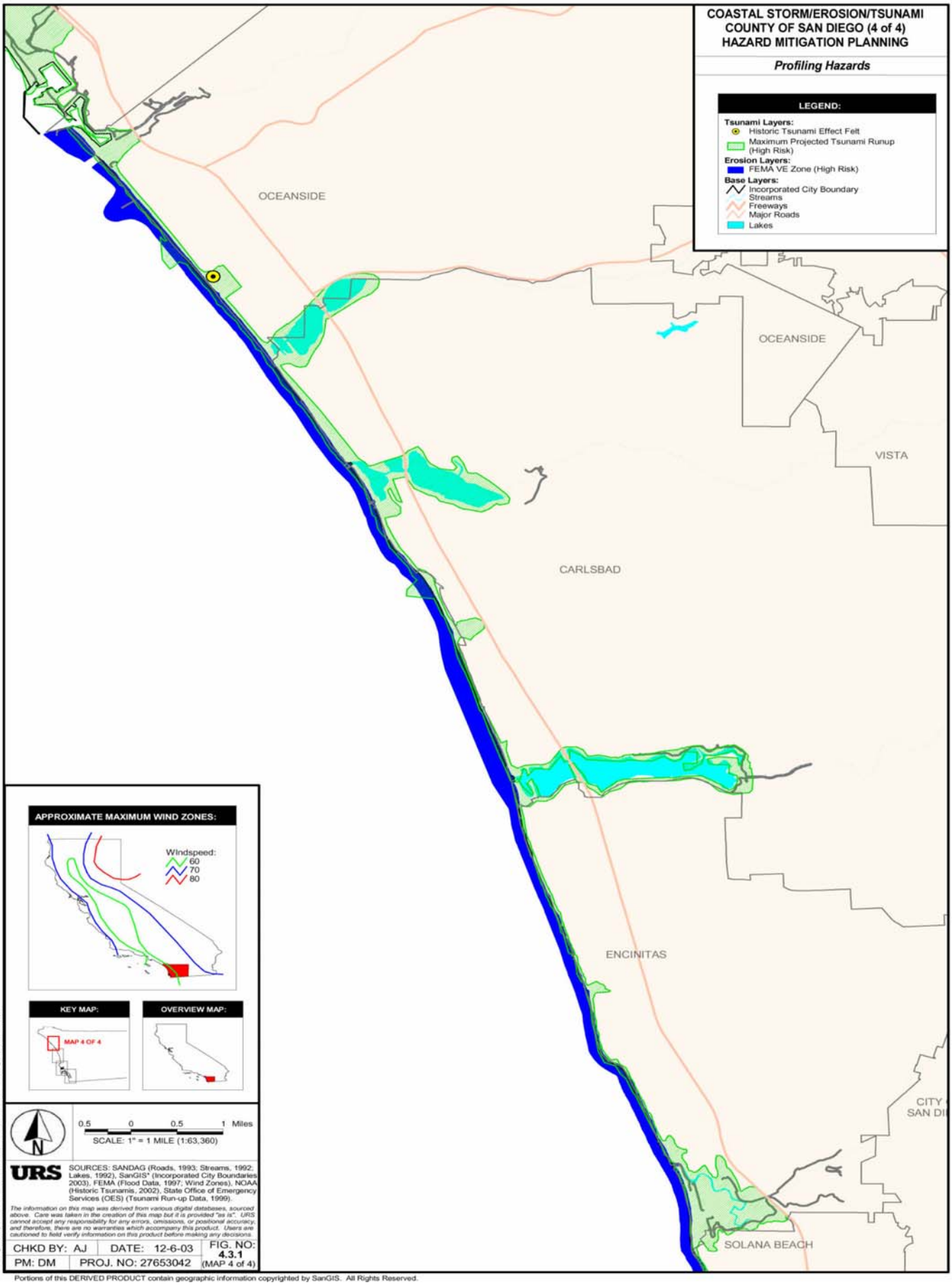


Figure 3.3 – Coastal Storm/Erosion/Tsunami

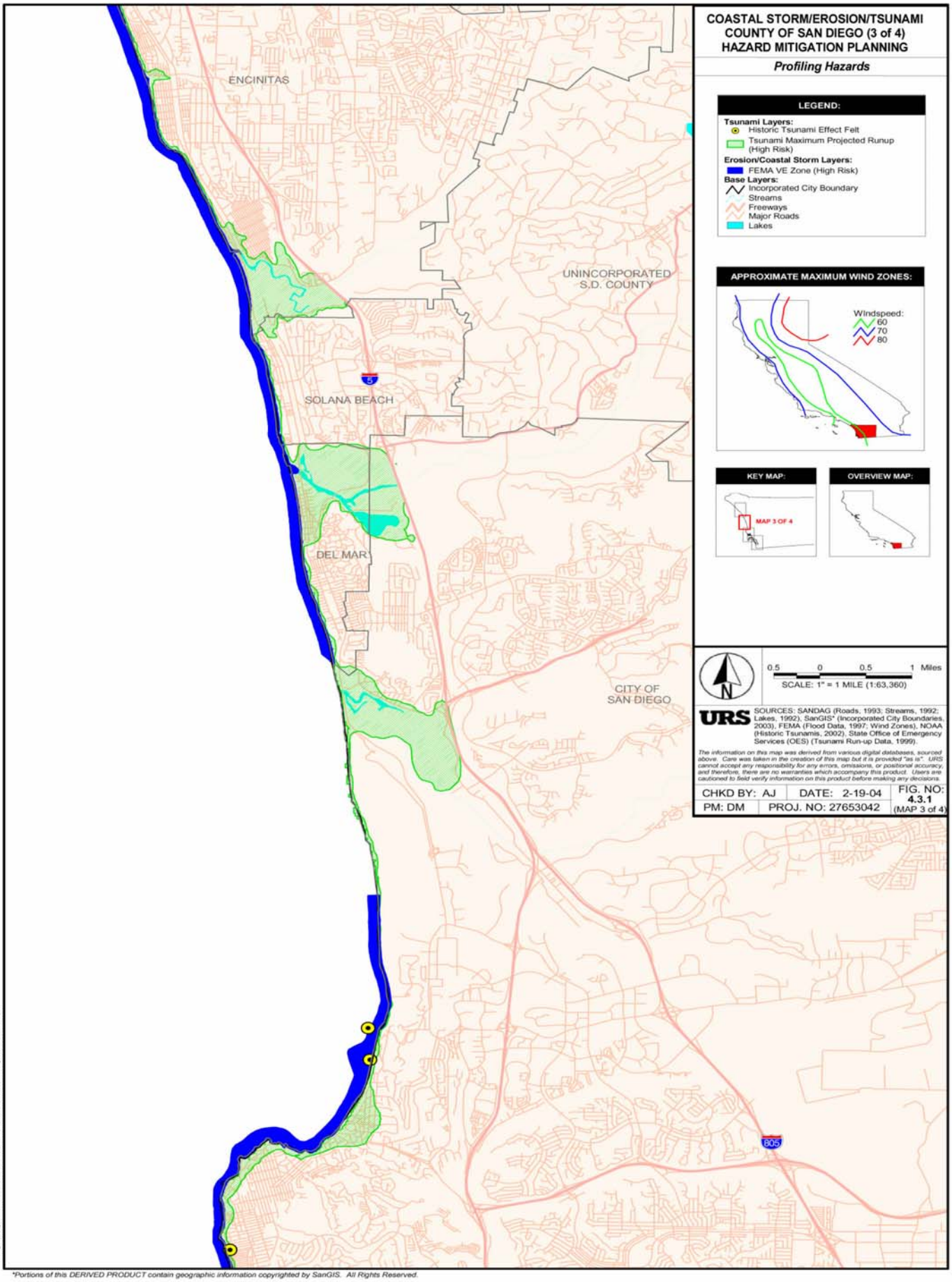


Figure 3.3 – Coastal Storm/Erosion/Tsunami (cont'd)

Dam Failure

Description

When a dam fails, a massive amount of water is released suddenly and often without warning. This carries with it the potential to cause severe floods, which in turn can cause human and economic losses, public service disruption, social discord, and damage to natural and cultural resources.

Dams fail because of old age, poor design, structural damage or failure, or a combination of those causes. Structural damage is often caused by another disaster, such as an earthquake or flood.

Previous Occurrences

There is only one record of a dam failure in San Diego County, and it actually involved the failure of two dams. The Hatfield Flood of 1916 caused both the Sweetwater and Lower Otay Dams to fail, which resulted in 22 deaths. According to the County, most of the deaths were because of the failure of the Lower Otay Dam.

Location of Hazard and Probability of Future Occurrences

Dam failure in the NCTD service area can be characterized as a low probability, high loss event because of the potential of loss of life**.** **Figure 3.4** on the following page, from the San Diego County Plan, indicates the locations of dams within the San Diego County/NCTD service area and the dam's hazard rating. Of the dams located within or in proximity to the NCTD service area, several have a hazard rating of high or significant. Some cities where NCTD facilities are located, such as Del Mar, Carlsbad, and Escondido are within dam inundation areas.

According to the Unified San Diego County Emergency Services Organization Operational Area Emergency Plan, most of the dams in the NCTD service area are at least 50 years old (old age is one of the causes of dam failure). There is structural deterioration and inadequate capacity within spillways in several places. In addition, there has been significant development downstream from several dams, which also increases the risk of a high loss event.

The dams within and near the NCTD service area are owned and operated by a variety of public agencies, which probably makes a comprehensive assessment and upgrade/maintenance program very difficult.

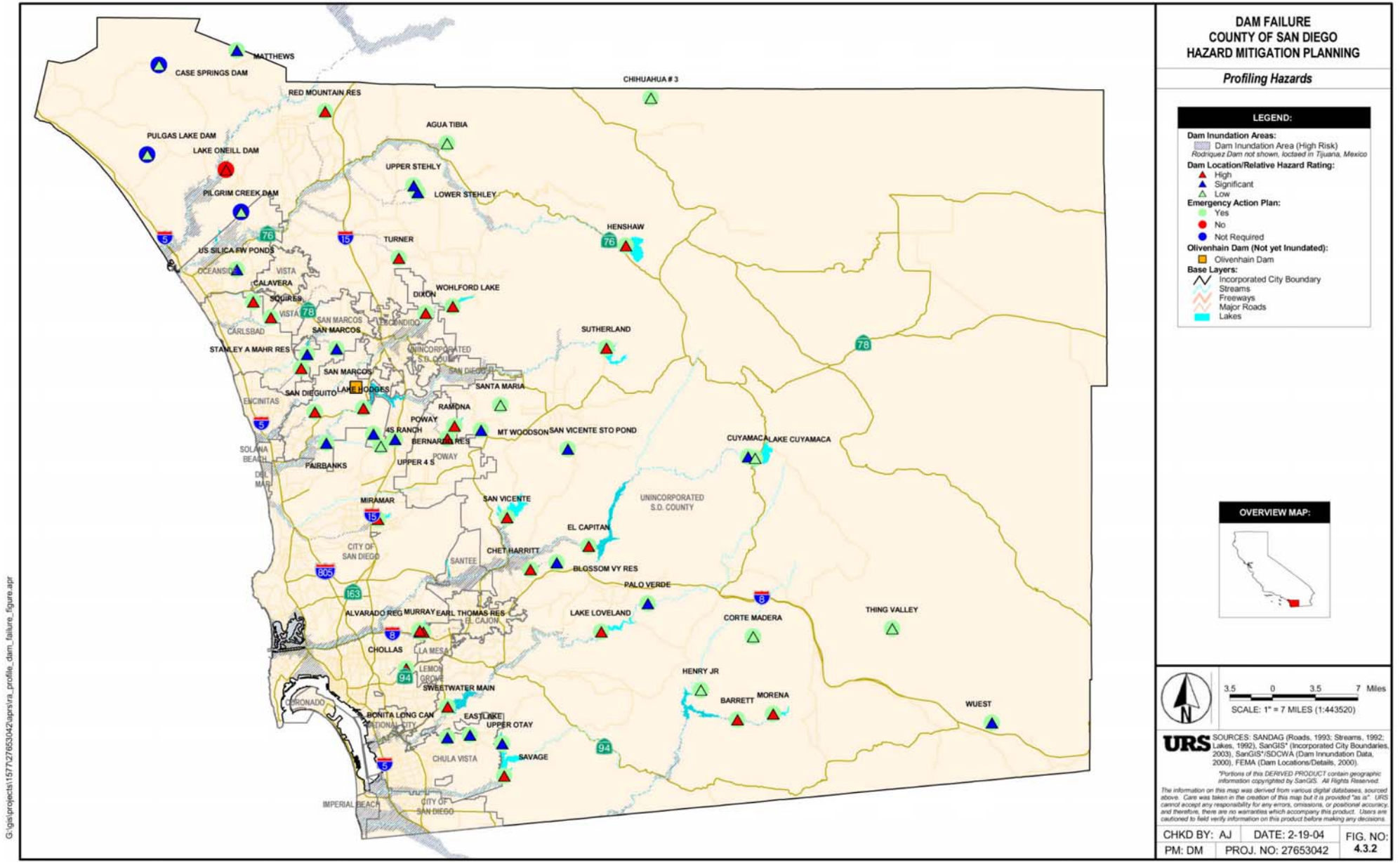


Figure 3.4 – Dam Location, Hazard Rating & Inundation Area

Earthquake

Description

California has always been seismically active because it sits on the boundary between two of the earth's tectonic plates. Most of the state - everything east of the San Andreas Fault - is on the North American Plate. Monterey, Santa Barbara, Los Angeles, and San Diego are on the Pacific Plate, which is constantly moving northwest past the North American Plate. The relative rate of movement is about two inches (50 millimeters) per year. Although the San Andreas Fault is considered the boundary between the two plates, some of the motion (also known as slip) is taken up on faults as far away as central Utah. An earthquake is caused by a release of strain within or along the edge of the plates. This release produces ground motion and shaking, ground failure, and surface ruptures. The severity of the motion increases with the amount of energy released and decreases with the distance from the epicenter or causative fault. The severity of motion is also amplified by soft or non-compacted soils.

In addition to the damage caused by ground motion and surface ruptures, there is the phenomenon of **liquefaction**. Liquefaction occurs when shaking causes loose soils to act like a viscous liquid and lose strength. It can cause two types of ground failure: loss of bearing strength and lateral spread. Loss of bearing strength occurs when the soil that supports a structure liquefies and causes the structure to collapse. Lateral spread occurs on certain slopes where an underlying layer liquefies and causes the sideways movement of huge amounts of soil.

Previous Occurrences

San Diego County has several active fault zones. Some NCTD facilities and rights-of-way are within proximity to some of these zones and/or may be affected by activity within them. This includes named and unnamed faults within the Rose Canyon and Elsinore Fault Zones and can include the Coronado Bank Zone. The Rose Canyon Fault Zone may pose the greatest potential threat because it is near and travels through several areas that are densely populated. There are a series of small unnamed faults within the Elsinore Zone, which is a branch of the San Andreas Fault System. Geologists conjecture that there has been movement along these small faults within the last 1million years, but apparently not within the last several thousand. The Coronado Bank Zone is located offshore, about 10 miles out. In the 200 year history of seismic monitoring, only two moderate magnitude quakes have been attributed to the Elsinore Zone, both in May of 1910.

The following list summarizes major historical and contemporary earthquake activity within the NCTD service area and the City of San Diego. The earthquake's magnitude is indicated, using the Richter Scale.

- May 27, 1862 – City of San Diego; very strong earthquake; damage to buildings; opened up large cracks in the earth, especially near the mouth of the San Diego River; centered in either the Rose Canyon or Coronado Bank faults; not measured; probably about 6.0;
- 1892 Laguna Salada Fault (extension of the Elsinore); > 7.0 magnitude;
- 1933 – Rose Canyon Fault extension; worst damage occurred in Long Beach;
- June 17, 1985 – Rose Canyon Fault; Three temblors (3.9, 4.0, 3.9, respectively) shook the City of San Diego and were felt northwest of the City;

- July 13, 1986 – Coronado Bank Fault, 26 miles west of Solana Beach; magnitude 5.3;
- October 28, 1986 – Rose Canyon Fault; City of San Diego; felt in Del Mar; magnitude 4.7.

Although some minor shaking has been felt on limited occasions at NCTD facilities and along rights-of-way and bus routes, there has been no damage.

All current NCTD construction meets or exceeds the seismic requirements of the California Uniform Building Code, which mitigates against some of the impacts of earthquakes. However, all of the older bridges/trestles were built prior to the existence of current codes.

Location of Hazard and Probability of Future Occurrences

Figure 3.5 on the following page shows the earthquake shaking potential for all of San Diego County. NCTD facilities along the coast are in the most hazardous areas, but all facilities are located in areas that have shaking potential.

The probability of a future event is high. Based on the earthquake history of the area, statistical models that predict probability, and the geology of the region, there is no doubt that several NCTD critical facilities and assets are at risk of experiencing an earthquake event in the future. Questions such as when, how intense, and to what extent are the questions that cannot be answered currently. However, mitigation actions can help prevent losses and protect life and property.

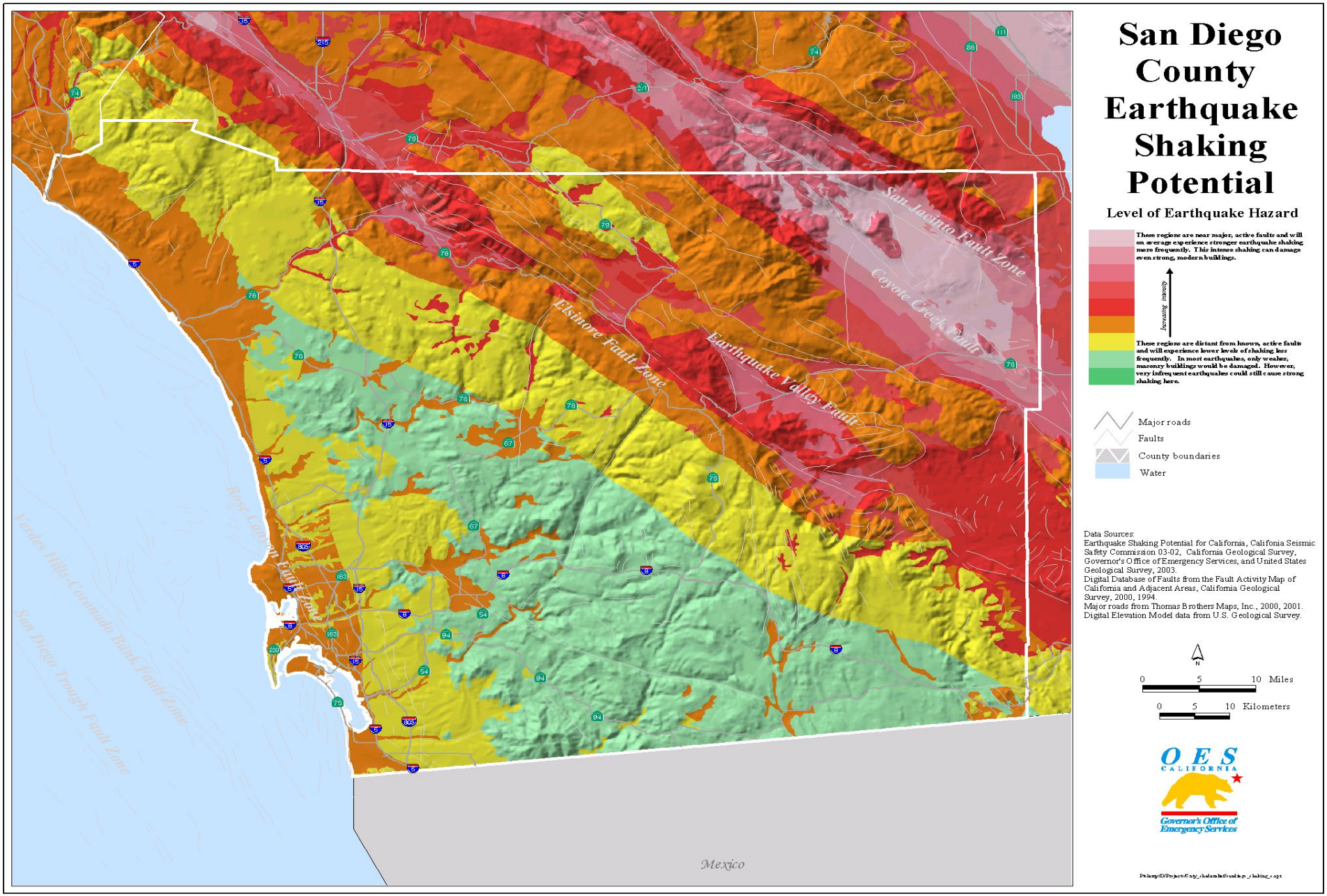


Figure 3.5 – Earthquake Shaking Potential

Floods

Description

Riverine flooding, the most common type of flooding in California, occurs when excess water from snowmelt, rainfall, or storm surge accumulates and overflows onto a river, stream, or creek bank, and/or onto the floodplains. Floodplains are lowlands next to rivers, lakes, oceans, and similar watercourses that are subject to recurring floods. In addition to the permanent watercourses within the NCTD services area, there are several ephemeral water courses and drainages that traverse the service area, which puts NCTD facilities at risk of riverine flooding.

Flash floods, unlike riverine floods, are quick events, particularly where the topography enhances rainfall from Pacific storms and thunderstorms. The National Weather Service's definition of a flash flood is a flood occurring in a watershed where the time of travel of the peak of flow from one end of the watershed to the other is less than six hours. All of the watersheds in the NCTD service area have a response time that is less than six hours.

Flash floods are caused by the rapid build-up of runoff after high-intensity rainfall. In a flash flood, perennial streams and dry watercourses can become raging torrents in a very short period of time. Loss of life in such a flooding is common because of the suddenness of high flows. Flash flooding can occur in any terrain, including urban areas. It is particularly aggravated where natural cover has been removed to construct buildings, roads, and parking lots. There is an increased risk of flash flooding in the NCTD service area during the rainy periods of late winter and early spring.

Previous Occurrences

Between 1770 and 1952, there were 29 floods recorded in San Diego County; between 1950 and 2000, there were 11 States of Emergency declared because of floods within the County. In 1916 a major flood called the Hatfield Flood was responsible for the failure of the Sweetwater and Lower Otay Dams (discussed earlier); the dam failures resulted in 22 deaths. Several other floods since then have caused millions of dollars of damage. A large flood in 1980, where the San Diego River at Mission Valley peaked at 27,000cfs (cubic feet per second), caused an estimated $120 million in damages. The following list is a summary of other major flood events in San Diego County that have affected the NCTD service area. It is not a complete list of the major floods in the County itself or of all the floods affecting NCTD.

- 1862 – 42 days of rain
- 1891 – 33 inches of rain in 62 hours; riverine flooding and flash floods
- 1916 – Hatfield Flood; 22 deaths and two dam failures
- 1927 – Del Mar and City of San Diego
- 1937 & 1938 – Major and minor flooding along rivers and creeks
- 1965 – Six deaths
- 1969 – State of California declared a disaster area
- 1979 – Within the NCTD service area, San Marcos and the unincorporated areas were the hardest hit
- 1983 – San Diego County declared a disaster area
- 1988 – San Diego County declared a disaster area

- 1993 – San Diego County declared a disaster area
- 1995 – San Diego County declared a disaster area
- 1998 – San Diego County declared a disaster area
- 2004-2005 – San Diego County declared a disaster area

The floods of 1998 included a "1000 year" storm that caused damage to the railroad bridge across San Mateo Creek; 100 feet of upstream banks were affected, eight foot high escarpments were formed and the lagoon that handles outflows increased to three times its normal size. In the flood damage that occurred in the winter of 2004/2005, a bridge over San Onofre Creek was also damaged and required repair and mitigation activities.

Location of Hazard and Probability of Future Occurrences

All of the areas surrounding river valleys in San Diego County are at risk of flooding. There are over 3,600 miles of rivers and streams and more than 200,000 acres of land that is flood prone. North County Transit District facilities and/or rights-of-way are located next to or cross over rivers and creeks and are located alongside of or in proximity to several lagoons and bays. A listing of the major NCTD service area watercourses includes:

- Santa Margarita, San Luis Rey, San Dieguito, and San Diego Rivers;
- Buena Vista, Agua Hedionda, San Marcos, Escondido, San Mateo, San Onofre, and Los Penasquitos Creeks;
- Los Penasquitos, San Dieguito, San Elijo, Batiquitos, Agua Hedionda, and Buena Vista Lagoons; and
- Mission and San Diego Bays

NCTD facilities and rights-of-way also fall within several watersheds; reference **Figure 1.10** on Page 20 for the watershed locations of facilities and the major watercourses within the area. The eight main watersheds within the NCTD service area include: Pueblo San Diego, San Diego, Penasquitos, Santa Margarita, San Luis Rey, San Dieguito, San Juan, and Carlsbad.

FEMA defines flood risk using a 100 year flood zone (floodway, floodplain) as the standard. Any area that lies within the FEMA designated 100 year floodplain is characterized as high risk; areas within the 500 year flood plain are low risk. A flood so large and unusual that it only occurs on the average of once every hundred years would have a one percent chance of occurring in any particular year and be called the 100-year flood or 1 percent chance flood. It is important to realize that two or more large floods, like the 100 year flood or even the 500-year flood could occur back to back. The percentage chance of a flood occurring is based on the average of what is expected over a long period of time. The chance of a flood of a certain size occurring and then the same or bigger flood happening right away is like flipping a coin. Just because heads comes up doesn't mean that the next try has to be tails. Each time the coin is flipped there is a 50-50 chance for either heads or tails. In the same way, when one flood has passed, the chances are re-set. A 1 percent flood has a 1 percent chance of occurring in any one year. And, as soon as it does happen, the chances are still 1 percent that it will occur again sometime during the following 365 days. **Figure 3.6** displays the locations of 100 year and 500 year flood plain within the NCTD area and indicates high hazard areas. The probability of a flood event affecting NCTD'S facilities in the future is high to moderately high.

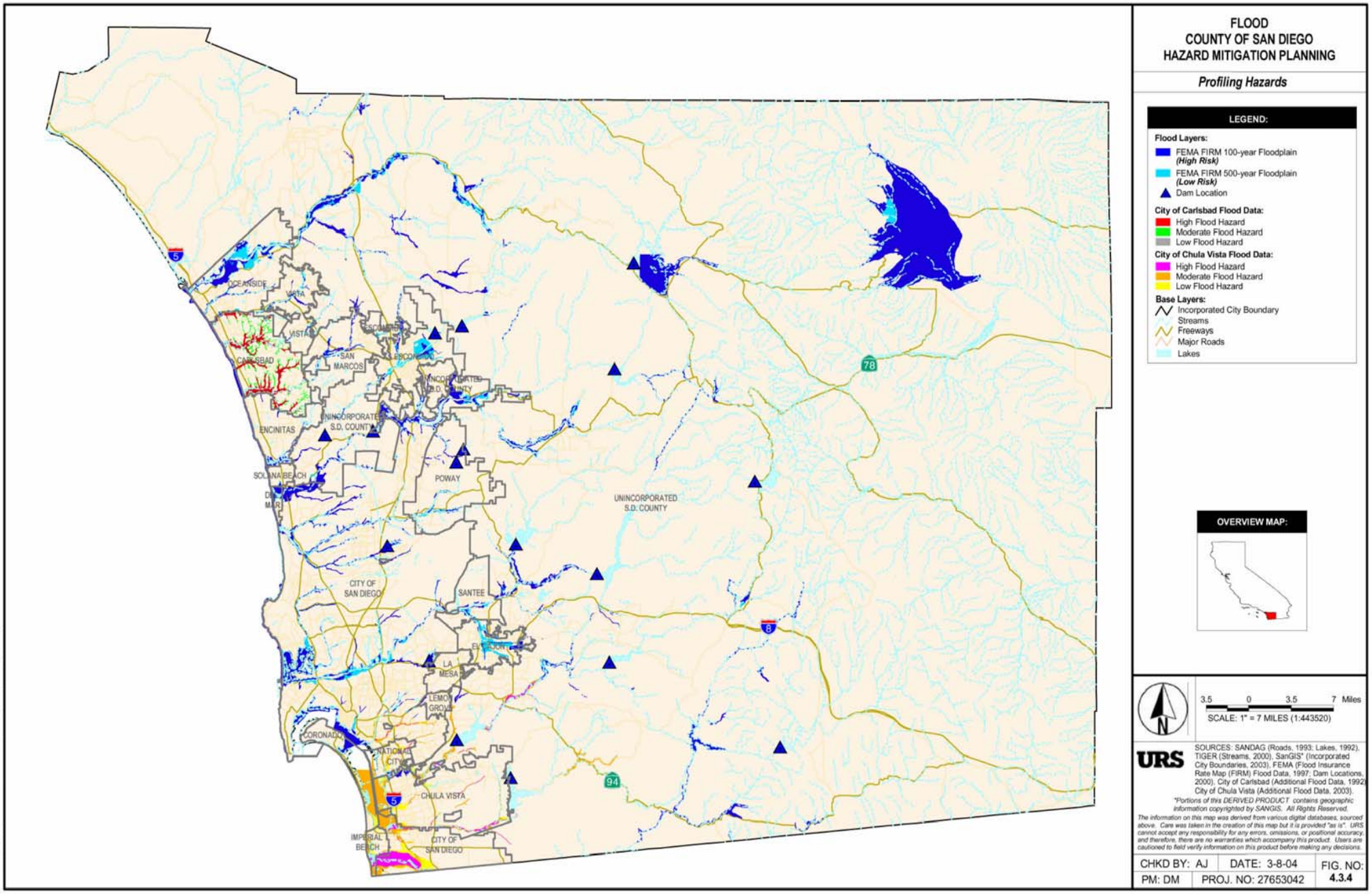


Figure 3.6 – Flood Hazard Map

Landslide

Description

The heavy rains of winter and early spring often cause landslides, which are defined as rock, earth, or debris displacing down an incline. Landslides are influenced by human activity, such as mining and the construction of buildings, railroads, and highways. They are also influenced by natural factors, such as sub-surface geology, rainfall, and topography. In order for a landslide to occur, there must be unstable or weak soil or rocks and steep slopes.

Often, landslides accompany other natural hazards such as floods. While landslides sometimes occur during earthquake activity, earthquakes are usually not their primary cause. The most common cause of a landslide is an increase in the down slope gravitational stress applied to slope materials, a process called oversteeping. The undercutting of a valley wall by stream erosion or of a sea cliff by wave erosion are ways in which slopes may be naturally oversteeped. Other ways include excessive rainfall or irrigation on a cliff or slope.

Another type of soil failure is slope wash, the erosion of slopes by surface-water runoff. The intensity of slope wash is dependent on the discharge and velocity of surface runoff and on the resistance of surface materials to erosion. Surface runoff and velocity are greatly increased in urban and suburban areas due to the presence of roads, parking lots, and buildings, which create a hardscape with zero filtration capacities and smooth surfaces that do not slow down runoff.

Mudflows are another type of soil failure that can occur when water accumulates under the ground, especially after prolonged or heavy rain fall. Mudflows may be characterized as torrents or rivers of liquid mud moving down a hillside. They are more prevalent where there is no vegetation to hold the soil. Various locations throughout San Diego County are subject to these events.

Since the mid-90s, all new construction by NCTD has been designed to prevent oversteeping and NCTD has used construction and landscaping practices aimed at mitigating against the hazards posed by super-saturation of soils and/or soil instability.

Previous Occurrences

Landslides and landslide prone sedimentary formations are present throughout the coastal plain of western San Diego County. There are several ancient landslides in the County with topographic features that suggest they occurred at least several hundred and possibly several thousands of years before the present day.

Recent landslides are those with fresh or sharp geomorphic features that suggest active (ongoing) movement or movement within the past several decades. Reactivations of existing landslides can be triggered by disturbances such as heavy rainfall, earthquake and/or construction activities, such as grading and road repair. Some recent landslides are most likely reactivations of ancient landslides.

Areas where significant landslides have occurred are: the Otay Mesa area, Oceanside, Mt. Soledad in La Jolla, Sorrento Valley, in the vicinity of Rancho Bernardo, Rancho Penasquitos, along the sides of Mission Gorge (San Carlos and Tierrasanta), western Santee, the Fletcher Hills area of western El Cajon, western Camp Pendleton, and the east side of Point Loma. Some of the more significant historical coastal bluff landslides have occurred along north La Jolla (Black's Beach), Torrey Pines, Del Mar, and Encinitas. Landslides tend to be more widespread in these areas where the underlying sedimentary formations contain weak geologic features that are prone to sliding.

In 2000, unstable cliffs at Beacon's Beach in Encinitas caused a landslide that killed a woman sitting on the beach. The Del Mar Bluffs, in the City of Del Mar, have a history of landslides and are subject to constant erosion and surface failures. NCTD rail alignment runs on top of the bluffs for some distance. Consequently, NCTD has engaged in several activities to maintain the viability of rail service and to mitigate against the consequences of past and future soil destabilization. NCTD has also implemented slope stabilization activities in Rancho del Oro.

Location of Hazard and Probability of Future Occurrences

As shown in **Figure 3.7,** from the San Diego County Plan, landslide hazard areas exist throughout the NCTD service area; the majority of those locations are concentrated near the coastal areas with steep slopes and within the canyons that are near those areas. Within the NCTD service area there are several existing landslides, recent and ancient; there are slide prone formations, steep slopes, and slope instability. Soil slip susceptibility and landslide susceptibility exist throughout the jurisdictions served by the BREEZE bus service and the COASTER commuter rail service. Most of the development in San Diego County has occurred over the past 60 years; within the NCTD service area, there has been extensive commercial and residential development. Unfortunately, too much of that development has occurred on marginal lands and much of the development has been in beautiful, but unstable coastal areas. This situation only increases the threat of landslides throughout the NCTD service area and throughout San Diego County.

The probability of future events affecting NCTD is very high. In anticipation of future events, NCTD has already initiated projects in high risk areas that are aimed at mitigating against future soil slip and landslides events.

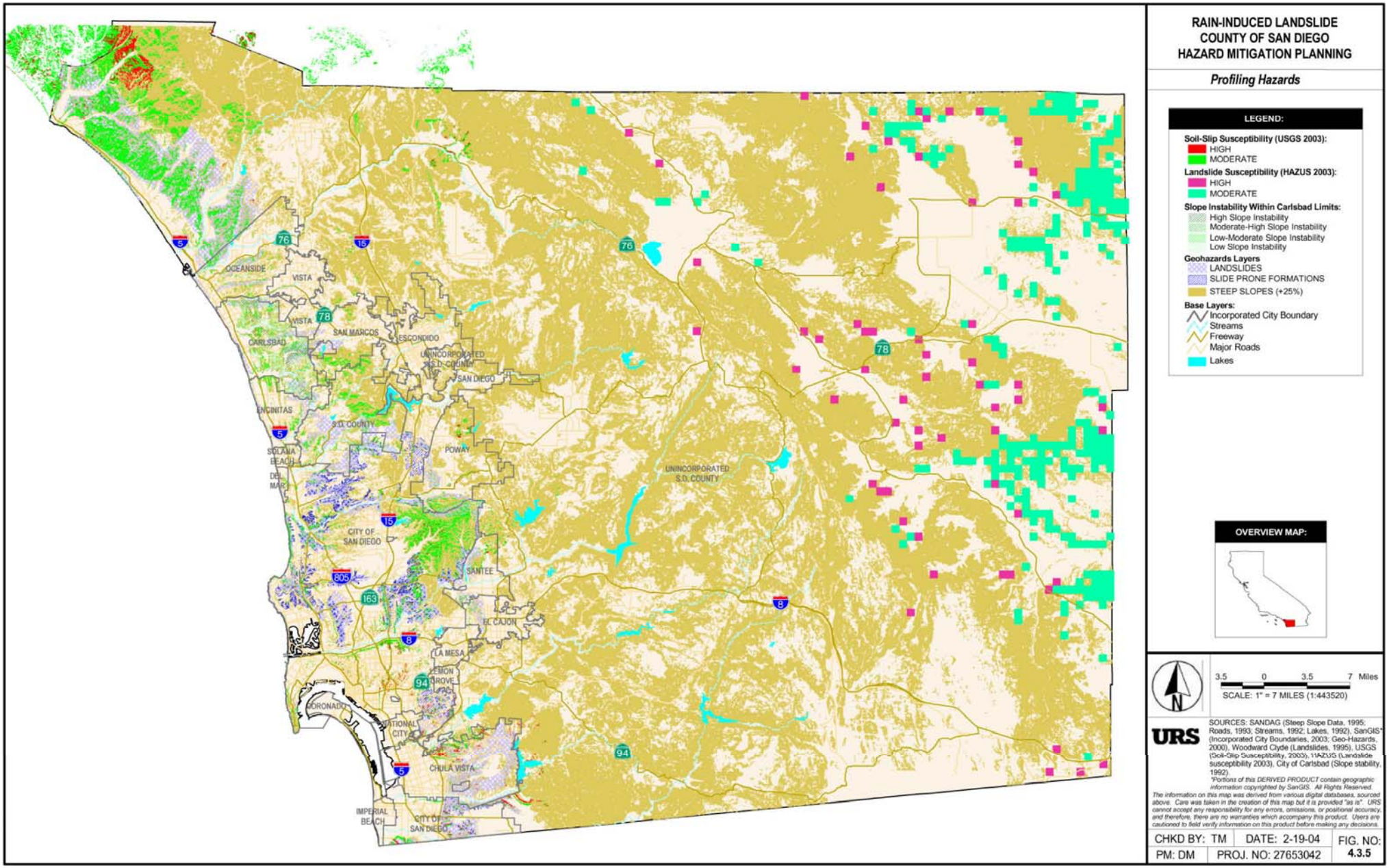


Figure 3.7 – Landslide Hazards

Wildfire/Structural Fire

Description

"A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures." (FEMA) A wildfire can occur in grasslands, brush or woodlands. Wildfires can be classified as either wildland fires or wildland/urban interface fires (WUI). A wildland fire involves a situation where the fire occurs in an area that is relatively undeveloped and/or includes only a basic infrastructure, such as roads or power lines. A WUI includes a situation in which a wildfire enters an area that is developed with structures and other man-made developments. According to the U.S. Department of Interior, the wildland/urban interface is defined as "…the line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels." Frequently, development within the NCTD service area is located at the wildland/urban interface.

A structural fire hazard is one where there is a risk of a fire starting in an urban setting and spreading uncontrollably from one building to another across several city blocks, or within hi-rise buildings.

Previous Occurrences

Fire has been a recurring feature of the California ecosystem. Wildfires now constitute one of the most dangerous threats to life and property in the state. Between 1950 and 2003, San Diego County saw five Proclaimed States of Emergency because of wildland fires and two because of Wildland/Urban interface fires. San Diego County's worst wildfires occurred in October 2003; other counties affected by the same wildfires were Los Angeles, Riverside, San Bernardino, and Ventura. In San Diego County more than one fire burned at the same time, scorching over 392,000 acres in developed areas and the backcountry and destroying or damaging residential and commercial structures, bridges, roads, trees, watersheds, and more. The dollar cost exceeds $460 million. The fire dramatically increased the risk of erosion during the winter rains due to the loss of vegetative cover on slopes throughout the county.

In September of 1970, the Laguna Fire, the second worst wildfire in the County's history, destroyed thousands of acres. The fire resulted in the loss or destruction of 383 homes and 1,200 other structures; 225,000 acres of trees and watersheds; small dams, bridges and roads were also destroyed or damaged. The total cost is estimated at about $40 million.

Although NCTD facilities have not suffered significant damage in the past, events such as the wildfires of October 2003 produce disruptions in the mass transit system it operates. This disruption is of one of the hazards that NCTD users are concerned about, as indicated in the results of the Community Planning Survey, discussed later in this section.

The most significant damage sustained by NCTD has been from human-caused fires; this type of fire remains a threat. In the recent past, a wooden railroad bridge that spanned Rose Creek was destroyed by fire; in a separate incident, the San Diego River Bridge was damaged. In both instances, the fires were caused accidentally by homeless persons camping underneath the structures.

Location of Hazard and Probability of Future Occurrences

Figure 3.8 is a fire hazard map prepared by California Department of Forestry. As depicted, the most significant portion of NCTD facilities are located within or traverse through locations that are within 2400 m of extreme, very high, or high risk fire areas. As stated previously, it is highly unlikely that a fire at an NCTD office building, station, or transit center would escalate into an urban fire. However, facilities (including rights-of-way) that are located within jurisdictions where there is a threat of wildland/urban interface structures are at risk; reference **Figure 1.4** on Page 19 for the location of NCTD's major facilities.

The probability of future structural fire events that may affect NCTD facilities is moderate to low. However, examining the fire history of the County and several models developed by California state agencies, it is more likely that there will be both large and small wildfires and wildland-urban interface fires within proximity to NCTD facilities over the next two decades.

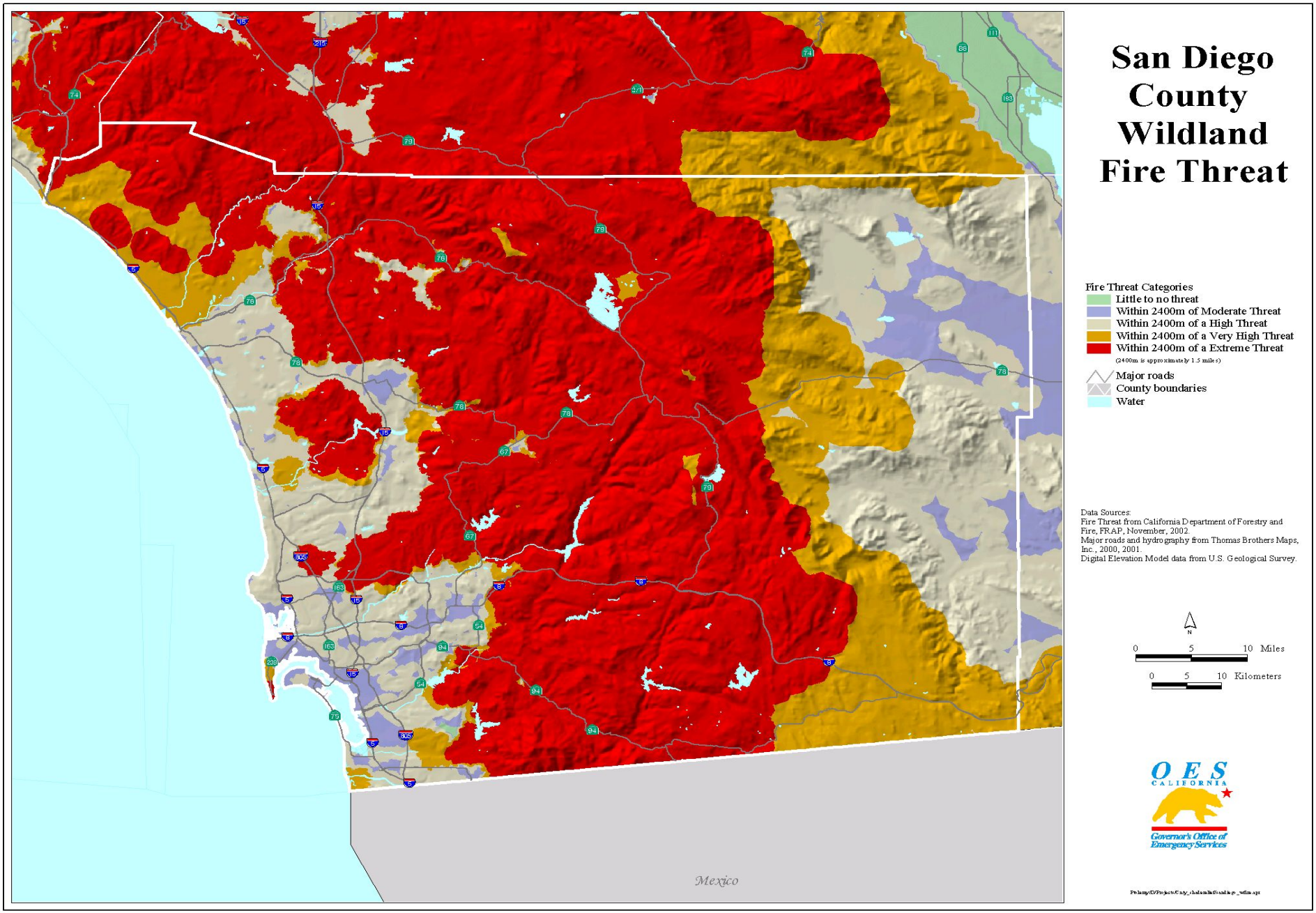


Figure 3.8 – Fire Threat

Man-Made Hazards

Introduction

There are two broad categories of man-made hazards – technological and terrorism. Technological hazards are caused by human activity in areas such as the storage and transportation of toxic substances, the manufacture of hazardous materials, and similar activities. The majority of technological hazard events appear to be accidental, along with their results.

Acts of terror, in contrast, are deliberate; they are intended to cause damage and death. Such acts can involve all manner of biological, chemical, nuclear, and similar type weapons, as well as conventional weapons. With the use of computers world-wide, there now exists the possibility of terrorist attacks via cyberspace.

Rather than repeat readily available material, **Part 4.3.8 – Manmade Hazards** of the County of San Diego Multi-Jurisdictional Hazard Mitigation Plan is included herein by inference. It contains general information on the presence of hazardous material within the County, hazardous material releases, acts of terrorism, previous occurrences, and locations.

The man-made hazards that are of greatest concerns to NCTD are the release of hazardous materials from one of their facilities, a rail accident that might release hazardous materials, and an act of terror that would cause casualties aboard a train and/or disrupt the ability for NCTD's various mass transit systems to operate.

Hazardous Materials

According to information provided by the Federal Railroad Administration, Office of Safety Analysis (http://safetydata.fra.dot.gov/OfficeofSafety), the rights-of-way maintained by NCTD have an excellent safety record regarding incidents involving hazardous materials. There have been no significant human or environmentally threatening incidents since NCTD began operations.

NCTD maintenance facilities which have hazardous materials present (fuels, engine oils, etc.) have taken specific measures to mitigate against leaks or spills and the possible contamination of the surrounding soils/areas. There are primary and secondary containment systems, special piping, and a methane detection system.

More importantly, the entire fleet of buses will eventually operate on CNG (compressed natural gas), which will reduce or eliminate the environmental hazards associated with fossil fuels.

Acts of Terrorism Aimed at Mass Transit

Until recently, events that disrupted mass transit were typically accidents cause by human error and equipment failure, with track defects and/or track obstructions as added causes to commuter and light rail systems. Terrorism has now been added to the list; terrorists have been targeting public transportation systems for several years. In 2004, in a speech supporting funding for increasing mass transit security, U.S. Congressional Representative Carolyn McCarthy (NY)

stated "…worldwide, 1 out of every 3 terrorist attacks is aimed at public transportation….". Within the last few years there have been several major attacks on commuter trains that have resulted in death and/or serious injury, including:

- February 2004 – Moscow
- March 2004 – Madrid
- July 2005 – London
- July 2006 – Mumbai (Bombay)

Probability of Future Events

The probability of a future major hazardous materials release associated with NCTD or its operations is negligible. This does not mean, of course, that an incident within or near NCTD's jurisdictional boundaries would not have an impact on the NCTD system. However, aside from having protocols in place to deal with a HAZ MAT incident, it is unlikely the District could engage in other activities aimed at preventing such an incident from occurring, since they have no control over the sources or causes.

NCTD would be glad to discuss with FEMA, upon the advice of counsel, information regarding security and protection from future acts of terrorism. We feel that this information is proprietary and exempt from public disclosure or distribution, since disclosure places our system at risk.

3.5 Vulnerability Assessment

Requirement §201.6(c)(2)(ii): *[The risk assessment **shall** include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description **shall** include an overall summary of each hazard and its impact on the community.*

Requirement §201.6(c)(2)(ii)(A): *The plan **should** describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area … .*

Requirement §201.6(c)(2)(ii)(B): *[The plan **should** describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate … .*

Requirement §201.6(c)(2)(ii)(C): *[The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.*

Introduction

At the same time NCTD was identifying those hazards that posed the greatest threat to their systems and operations, they began the process of inventorying their assets. Once that was complete, vulnerability could be assessed and potential losses (from identified hazards) could be estimated.

Assessing vulnerability in the broad scope involves predicting how much injury and/or damage would result from a hazard event, both now and in the foreseeable future. Vulnerability analysis also involves examining NCTD critical facilities/assets in terms of the vulnerability of the jurisdictions where it provides services.

Vulnerability to and Impact of Hazards Profiled

The discussion on the following pages indicates both the vulnerability of NCTD facilities and the impact each hazard might have on on NCTD and its users. As can be seen in **Figure 3.9**, NCTD has dozens of assets, including structures, rail stations, buses and maintenance vehicles, rights-of-way, bus stations, transit center, office equipment, and similar materials.

Please Reference Figure 1.4, Page 19, for map indicating location of major NCTD facilities. NCTD did not have the resources or staff required to develop a complete assessment for each individual asset/critical facility. Instead, similar assets/facilities, with similar vulnerabilities were evaluated in groups, such as bridges, overpasses, and trestles.

It should be noted that all NCTD facilities/assets are vulnerable to the occurrence of an event that is of great magnitude, extreme intensity, or is catastrophic. This type of event might result in the death or injury of commuters, the total loss of many facilities and equipment, and it would result in long-term disruption of NCTD services. Such an event would cause a significant loss of revenue and could potentially add thousands of vehicles to surface roadways, since many NCTD users would have to rely on their private vehicles.

For the purposes of the LMHMP, vulnerability was assessed based on past occurrences, past and current experiences of NCTD, and the probability of future events. In determining vulnerability and impact, the occurrence of a medium intensity event was used as the standard.

It should be noted that one of the major concerns of NCTD service users and other interested parties is the disruption of mass transit.

Hazard: **Coastal Storms, Tsunami, and Erosion**

Type of Facility/Asset: Administrative Offices, Maintenance Facilities, Rail Stations, and Transit Centers

Vulnerability: Low to moderate, depending on intensity; maintenance facilities, transit centers, and rail stations located closest to the coast or coastal areas are the most at risk (e.g. Stuart Mesa Maintenance Facility, Oceanside Transit Center, Solana Beach Station, etc.).

Impact: The surface elevation of transit centers, administrative offices, maintenance facilities, and stations, coupled with recently implemented drainage improvements and erosion control measures should mitigate against the impact of all but the most catastrophic event.

Depending on the severity of the impact on an individual rail station, that station might be closed for several days, which would require commuters to board at other stations or use other methods of transportation. If the event was serious enough to affect the station, it would probably also

affect the right-of-way/track bed.

Type of Facility: Rights-of-Way (RoW)/Track Beds

Vulnerability: High to moderate, depending on location and intensity; all **Coaster** RoW/track beds and most similar **Sprinter** facilities are at the highest risk. NCTD has engaged in ongoing erosion control and soils/slope stabilization measures to decrease vulnerability in highest risk areas.

Impact: If small portions of RoW/track beds are seriously eroded or washed out, it may take several days before they are usuable again. This will disrupt NCTD services, which in turn will cause commuters to seek alternate transportation, which will reduce revenues. In addition, it will add to the traffic burden of surface roads, since many NCTD users will have to rely on their private vehicles; environmental impact of thousands more vehicles could be significant.

Type of Facility: Bridges, Overpasses, Trestles

Vulnerability: Low to Moderate, depending on location; reference **Figure 1.5**, page 20, for the watershed locations of NCTD facilities. NCTD has implemented a long-term construction program for these types of facilities that is aimed at retrofitting and/or replacing the most vulnerable.

Impact: If a bridge, overpass, or trestle is damaged by a coastal storm, tsunami, and/or the accompanying erosion, NCTD services will be disrupted. Because the repair and/or replacement of such facilities is more complex than the repair of a portion of track bed, the disruption would typically last more than a few days. Commuters would be forced to use private vehicles or other alternate forms of mass transit, revenues will be lost, and the traffic burden of surface roads will be increased; environmental impact of thousands more vehicles could be significant.

Note: Equipment, such as buses, maintenance vehicles, and commuter rail cars may be vulnerable if they are operating in the area when a severe coastal storm or tsunami occurs.

Hazard: **Dam Failure**

Type of Facility/Asset: All facilities/assets located in dam inundation areas; reference **Figure 3.4,** page 38 for the location of dams and inundation areas within NCTD service boundaries.

Administrative offices and **Coaster** stations, although vulnerable to other hazards, are not located in inundation areas. Some portions of the **Sprinter** line are located in inundation areas, as are most bus stops and the eastern-most transit center.

Vulnerability: Dam failure is a low probability, high risk event because of the potential for loss of life or injury. Most frequently, it is a catastrophic event that involves the release of large amounts of water in a short time. Facilities such as transit centers, taller bridges, and trestles would be less vulnerable, while RoW, track beds, buses, maintenance vehicles, surface crossings,

and culverts would be at greatest risk.

Impact: Because the event is by nature catastrophic, even if the effect is localized, the impact could be devastating to NCTD and its users. At the minimum, the impact would include long-term disruptions to mass transit; for commuters in many areas there will be no options except private vehicles. As previously noted, this will further congest available surface roads (which might also be damaged); environmental impact of thousands more vehicles could be significant.

***Hazard:* Earthquake**

Type of Facility/Asset: All NCTD facilities, excluding vehicles, heavy equipment, and office equipment.

Vulnerability: Low to moderate; NCTD facilities along the coast are in the most hazardous areas, but all facilities are located in areas that have shaking potential; reference **Figure 3.5**, page 41 for shaking potential within NCTD service area. All current NCTD construction meets or exceeds the seismic requirements of the California Uniform Building Code, which mitigates against some of the impacts of earthquakes. However, all of the older bridges/trestles were built prior to the existence of current codes; in a moderate event, many will sustain some damage.

Impact: Administrative and maintenance facilities, rail stations, and transit centers may sustain minor damage, but it is not anticipated that this will cause a major disruption in services. However, in some instances, if an overpass, bridge, trestle, or similar facility sustains even minor damage, there can be a disruption of services. This will have all of the negative impacts previously cited – social, economic, and environmental. The length of disruption and the intensity of the negative impacts would be determined by the magnitude of the repairs required.

Note: Equipment, such as buses, maintenance vehicles, and commuter rail cars may be vulnerable if they are operating in the area when an earthquake occurs. Loss of vehicles or rail cars would be limited and is not likely to cause any major disruption to mass transit.

***Hazard:* Floods**

Type of Facility/Asset: All NCTD facilities/assets, including vehicles, heavy equipment, and office equipment.

Vulnerability: Moderate – A significant portion of the NCTD service area lies within the 100 year flood plain; reference **Figure 3.6**, page 44, for flood hazard areas within NCTD service boundaries.

In the past, bridges and track beds/RoW have been the most vulnerable. The floods of 1998 included a "1000 year" storm that caused damage to the railroad bridge across San Mateo Creek; 100 feet of upstream banks were affected, eight foot high escarpments were formed, and the lagoon that handles outflows increased to three times its normal size. In the flood damage that occurred in the winter of 2004/2005, a bridge over San Onofre Creek was also damaged and required repair and mitigation activities.

The track beds for the new **Sprinter** line have been deliberately engineered to elevations above the 100 year flood plain.

Impact: Administrative and maintenance facilities, rail stations, and transit centers may sustain some damage, but it is not anticipated that this will cause a major disruption in services. However, in some instances, if an overpass, bridge, trestle, or similar facility sustains even minor damage, there can be a disruption of services. This will have all of the negative impacts previously cited – social, economic, and environmental. The length of disruption and the intensity of the negative impacts would be determined by the magnitude of the repairs required.

Note: Equipment, such as buses, maintenance vehicles, and commuter rail cars may be vulnerable if they are stored or operating in an area that is experiencing flooding. However, the loss would be temporary and is not likely to cause any major disruption to mass transit.

Hazard: **Landslide**

Type of Facility/Asset: Track beds/RoW, Bridges, Trestles, Overpasses

Vulnerability: Moderate to High; – The NCTD service area includes some steep coastal slopes and bluffs, as well as slopes within or near fault zones. Track beds/RoW, bridges, trestles, and overpasses are frequently located in high or moderately high risk landslide areas. NCTD administrative offices, transit centers, and maintenance facilities, with one exception, are not located in high risk areas; reference **Figure 3.7**, page 47, for landslide hazard areas within NCTD service boundaries.

The Del Mar Bluffs, in the City of Del Mar, have a history of landslides and are subject to constant erosion and surface failures. NCTD rail alignment runs on top of the bluffs for some distance. Consequently, NCTD has engaged in several activities to maintain the viability of rail service and to mitigate against the consequences of past and future soil destabilization. NCTD has also implemented slope stabilization activities in Rancho del Oro.

Since the mid-90s, all new construction by NCTD has been designed to prevent oversteeping, a primary cause of landslides. NCTD also uses construction and landscaping practices aimed at mitigating against the hazards posed by super-saturation of soils and/or soil instability.

Impact: Landslides can impact the surface roads used by the **Breeze** bus service, which would cause temporary interruptions of service and loss of revenue. If a track bed, overpass, bridge, etc. is affected by a landslide, the disruption of services would be longer lasting, and the negative impacts mentioned previously (social, economic, and environmental), would be intensified.

Note: Equipment, such as buses, maintenance vehicles, and commuter rail cars may be vulnerable if they are on a track bed or roadway affected by a landslide. However, the loss would be temporary and is not likely to cause any major disruption to mass transit.

Hazard: **Wildfire/Structural Fire**

Type of Facility/Asset: Track beds/RoW, Bridges, Trestles, Overpasses

Vulnerability: Moderate to High – In the past, the danger to NCTD structures has been the danger posed by human beings who accidentally set fires. A wooden railroad bridge that spanned Rose Creek was destroyed by fire, and in a separate incident, the San Diego River Bridge was damaged.

Administrative offices, maintenance facilities, transit centers, and rail stations are surrounded by hardscape which helps prevent the encroachment of fire in a wildland/urban interface fire event. The likelihood of a building-type structural fire is small. However, grass fires and/or wildfires along rights-of-way pose a risk to facilities (track beds, bridges, etc.), services and equipment, as well as commuters. Consequently, NCTD is proactive in reducing the availability of low lying fuels and routinely clears vegetation from rights-of-way.

Impact: Impact: A fire that affects a track bed or bridge, trestle, etc. can cause a serious disruption of service and have the long lasting, negative impacts (social, economic, and environmental) that have been cited previously.

End Note: As will become apparent in the discussion of community concerns that follows this section, mitigation against a disruption of mass transit is of primary concern to NCTD users, employees, and members of the general community.

Hazard: **Hazardous Materials Release**

Type of Facility/Asset: Track beds/RoW, Maintenance Facilities

Vulnerability: Low – The rights-of-way maintained by NCTD have an excellent safety record regarding incidents involving hazardous materials. There have been no significant human or environmentally threatening incidents since NCTD began operations.

NCTD maintenance facilities which have hazardous materials present (fuels, engine oils, etc.) have taken specific measures to mitigate against leaks or spills and the possible contamination of the surrounding soils/areas. There are primary and secondary containment systems, special piping, and a methane detection system. More importantly, the entire fleet of buses will eventually operate on CNG (compressed natural gas), which will reduce or eliminate the environmental hazards associated with fossil fuels.

Impact: A release of hazardous materials by NCTD would cause a short-term, moderate disruption in service, but would not prevent rail or bus services from being delivered. There may be a localized environmental impact that would have to be mitigated.

NCTD cannot predict the impact on its facilities and users if there is a release by others (such as the San Onofre nuclear plant).

Note: **Acts of Terrorism** will not be discussed in this document for reasons previously cited.

Asset Inventory

Figure 3.9, which begins on page 59 and continues through page 64, is an inventory of NCTD's major assets. Estimated replacement values are based on appraisals, historic and current construction costs, current and estimated costs of new facilities, and insured values.

Critical Facilities

A transportation district is composed of interdependent parts that are affected by one another and have an effect on one another. All of NCTD major facilities, indicated in **Figure 1.4** on page 19 are critical to the complete and smooth operation of NCTD managed mass transit. Events that affect portions of the system have an impact on the remainder. The type of event and the severity of the event determine the extent of the impact.

Figure 3.9 – Asset Inventory

NORTH COUNTY TRANSIT DISTRICT
Asset Values

Location	City	Construction Type	Yr Built	Stories	Sq Ft	Sprinklers	Occupancy	Facility Replacement Value	Facility Contents Value	Relocation Office Space Monthly Rent	Relocation Office Equip Monthly Rent	Relocation Cost Purchase Computers, Phones & Equip.	Total
STRUCTURES INCL SERVICE SYSTEMS													
810 Mission Ave.	**Oceanside**	Concrete and glass/metal curtain wall with flat built-up roof	1968	3 + Basement	**37, 640 (incl 9,216 basemnt)**	YES	Admin.	**$ 12,177,104**	**$ 1,043,649**	**$ 65,870**	**$ 31,882**	**$ 783,413**	**$ 14,101,917**
													$ -
311 Tremont Ave.	**Oceanside**	glass/metal curtain wall - on studs -= stucco	1986	1 - 12'	**7,384**	NO	Admin.	**$ 1,835,952**	**$ 215,649**	**$ 12,922**	**$ 4,029**	**$ 40,247**	**$ 2,108,799**
													$ -
303-305 Via Del Norte	**Oceanside**												$ -
Maintenance		Concrete Block with flat built-up roof	1989	1 - 27'	40,617	NO	Maintenance	$ 9,716,358	**$ 1,129,018**	**$ 50,771**	**$ 2,544**	**$ 1,031,237**	**$ 11,929,928**
Tire & Brake Shop		Concrete Block - Flat built-up roof	1982	1 - 22'	1,968	NO	Brake & Tire Shop	$ 555,286	**$ 50,000**	**$ 2,460**			**$ 607,746**
Transportation Bldg		Concrete Block and glass/metal curtain wall with flat built-up roof	1989	2 - 12'	11,141	NO	Transport & Dispatch	$ 2,939,074	**$ 666,968**	**$ 13,926**	**$ 3,244**	**$ 583,019**	**$ 4,206,231**
Service Island		Concrete Block with flat steel roof	1989	1 - 20'	7,728	NO	Service Island	$ 1,957,350	**$ 20,000**	**$ 9,660**		**$ 20,000**	**$ 2,007,010**
Portable Office Trailer		Wood Siding	1984	1 - 10'	1,040	NO	Admin.	$ 156,000	**$ 23,413**	**$ 1,300**	**$ 707**	**$ 11,337**	**$ 192,756**
Portable Office Trailer		wood Siding	1982	1 - 10'	400	NO	Admin.	$ 60,000	**$ 10,000**	**$ 500**			**$ 70,500**
Bus Wash		Steel Frame Canopy	1996			NO	Bus Wash	$ 600,000	**$ 5,000**			**$ 10,000**	**$ 615,000**
Subtotal 303-305 Via Del Norte					**62,894**			**$ 15,984,068**	**$ 1,904,398**	**$ 78,618**	**$ 6,495**	**$ 1,655,593**	**$ 19,629,171**
													$ -
755 Norlak	**Escondido**												$ -
Admin		Concrete Block & stucco on studs with flat built-up roof	2003	1 - 12'	2,340	NO	Admin.	$ 687,284	**$ 23,413**	**$ 4,095**	**$ 435**	**$ 51,337**	**$ 766,563**
Body Shop/Warehouse		Metal/other on studs - Metal roof	2003	1 - 24'	4,920	NO	Body Shop & Warehouse	$ 1,247,210	**$ 50,000**	**$ 6,150**		**$ 50,000**	**$ 1,353,360**

NORTH COUNTY TRANSIT DISTRICT
Asset Values

Location	City	Construction Type	Yr Built	Stories	Sq Ft	Sprinklers	Occupancy	Facility Replacement Value	Facility Contents Value	Relocation Office Space Monthly Rent	Relocation Office Equip Monthly Rent	Relocation Cost Purchase Computers, Phones & Equip.	Total
Maintenance Bldg		Concrete Block & glass/metal curtain wall	1984	2 - 22'	11,625	NO	Maintenance	$ 2,654,502	$ 29,707	$ 14,531	$ 707	$ 11,337	$ 2,710,784
Service Island		Concrete Block	2003	1 - 20'	5,000	NO	Service Island	$ 1,225,826	$ 20,000	$ 6,250		$ 20,000	$ 1,272,076
Pit Inspection Bldg		Concrete Block	1980	1 - 22'	3,216	NO	Pit Inspection	$ 832,624	$ 20,000	$ 4,020		$ 20,000	$ 876,644
Bus Wash			1996			NO	Bus Wash	$ 300,000				$ 150,000	$ 450,000
Subtotal 755 Norlak					**27,101**			$ 6,947,446	$ 143,119	$ 35,046	$ 1,142	$ 302,673	$ 7,429,427
													$ -
1 Stuart Mesa Road	**Oceanside**												$ -
Offices/Maintenance		Masonry Non-Combustible - Concrete, Tilt-up & wood on studs - Metal Flat Roof	1996	1 - 32'	43,780	YES	Offices - 10% & Train Maintenance	$ 20,456,507	$ 6,050,000	$ 54,725	$ 1,820	$ 3,020,000	$ 29,583,052
Train Wash Bldg		Joisted Masonry - Concrete Block - Flat Built-Up roof	1990	1 - 10'	440	NO	Train Wash Bldg	$ 501,186	$ 20,000	$ 550		$ 20,000	$ 541,736
Storage Shed		NonCombustible - Metal Siding & flat Metal Roof	1996	1 - 15'	300	NO	Storage Shed	$ 15,192	$ 4,000	$ 375			$ 19,567
Storage Office		NonCombustible - Metal Siding & flat Metal Roof	1996	1 - 8'	320	NO	Storage Office	$ 16,204	$ 3,000	$ 400			$ 19,604
SubTotal 1 Stuart Mesa Rd					**44,840**			$ 20,989,089	$ 6,077,000	$ 56,050	$ 1,820	$ 3,040,000	$ 30,163,959
SUBTOTAL								$ 57,933,659	$ 9,383,815	$ 248,506	$ 45,368	$ 5,821,925	$ 73,433,273
RAIL STATIONS													
195-222 South Tremont	**Oceanside**						Rail Station & Bus Transit Center	$ 6,300,000	$ 100,000			$ 80,000	$ 6,480,000
2775 S. State St. (Village)	**Carlsbad**						Rail Station	$ 3,400,000	$ 50,000			$ 45,000	$ 3,495,000

NORTH COUNTY TRANSIT DISTRICT
Asset Values

Location	City	Construction Type	Yr Built	Stories	Sq Ft	Sprinklers	Occupancy	Facility Replacement Value	Facility Contents Value	Relocation Office Space Monthly Rent	Relocation Office Equip Monthly Rent	Relocation Cost Purchase Computers, Phones & Equip.	Total
611 Avenida Encinas (Pointsettia)	Carlsbad						Rail Station	$ 4,000,000	$ 50,000			$ 45,000	$ 4,095,000
235 East "D" St.	Encinitas						Rail Station	$ 3,400,000	$ 50,000			$ 45,000	$ 3,495,000
105 Cedros Ave.	Solana Beach						Rail Station	$ 6,000,000	$ 50,000			$ 45,000	$ 6,095,000
11170 Sorrento Valley Rd	San Diego						Rail Station	$ 3,400,000	$ 50,000			$ 45,000	$ 3,495,000
405 Taylor Street (Old Town)	San Diego						Rail Station	$ 420,000	$ 50,000			$ 45,000	$ 515,000
1050 Kettner Blvd. (Santa Fe Depot)	San Diego						Rail Station	$ 420,000	$ 50,000			$ 45,000	$ 515,000
SUBTOTAL								$ 27,340,000	$ 450,000	$ -	$ -	$ 395,000	$ 28,185,000
BUS TRANSIT CENTERS													
700 E. Valley Parkway	Escondido						Bus Transit Center	$ 2,730,000	$ 25,000			$ 10,000	$ 2,765,000
Palomar College	San Marcos						Bus Transit Center	$ 630,000	$ 25,000			$ 10,000	$ 665,000
101 Olive Ave.	Vista						Bus Transit Center	$ 1,575,000	$ 25,000			$ 10,000	$ 1,610,000
2525 El Camino Real (Plaza Camino Real)	Oceanside						Bus Transit Center	$ 1,666,354	$ 25,000			$ 10,000	$ 1,701,354
SUBTOTAL								$ 6,601,354	$ 100,000	$ -	$ -	$ 40,000	$ 6,741,354
													$ -
REVENUE VEHICLES													$ -
													$ -
Revenue Vehicles - 175 Buses								$ 96,050,804					$ 96,050,804
Revenue Vehicles - Rail								$ 151,000,000				$ 10,000	$ 151,010,000
SUBTOTAL								$ 247,050,804	$ -	$ -	$ -	$ 10,000	$ 247,060,804

NORTH COUNTY TRANSIT DISTRICT
Asset Values

Location	City	Construction Type	Yr Built	Stories	Sq Ft	Sprinklers	Occupancy	Facility Replacement Value	Facility Contents Value	Relocation Office Space Monthly Rent	Relocation Office Equip Monthly Rent	Relocation Cost Purchase Computers, Phones & Equip.	Total
BUS & RAIL INVENTORY VALUES													
Rail Maintenance - Stuart Mesa	Oceanside							$ 4,400,000				$ 2,200,000	$ 6,600,000
Rail Office/Maintenance - Escondido Junction	Escondido							$ 600,000				$ 300,000	$ 900,000
Sprinter Rail - Escondido Facility								$ 2,400,000				$ 1,200,000	$ 3,600,000
Bus Maintenance / Operations - West Division	Oceanside							$ 2,610,280				$ 1,305,140	$ 3,915,420
Bus Maintenance / Operations - East Division	Escondido							$ 298,550				$ 149,275	$ 447,825
SUBTOTAL								$ 10,308,830	$ -	$ -	$ -	$ 5,154,415	$ 15,463,245
COURSE OF CONSTRUCTION													
Bus SubTotal								$ 2,460,346					$ 2,460,346
Rail Subtotal								$ 14,898,028					$ 14,898,028
SUBTOTAL								$ 17,358,374	$ -	$ -	$ -	$ -	$ 17,358,374
Transit Way Equipment - Bus								$ 900,000				$ 20,000	$ 920,000
Transit Way Equipment - Rail								$ 7,600,000				$ 250,000	$ 7,850,000
SUBTOTAL								$ 8,500,000	$ -	$ -	$ -	$ 270,000	$ 8,770,000
Operations Yard Equipment - Bus								$ 932,000					$ 932,000
Operations Yard Equipment - Rail								$ 7,600,000					$ 7,600,000
SUBTOTAL								$ 8,532,000	$ -	$ -	$ -	$ -	$ 8,532,000

NORTH COUNTY TRANSIT DISTRICT
Asset Values

Location	City	Construction Type	Yr Built	Stories	Sq Ft	Sprinklers	Occupancy	Facility Replacement Value	Facility Contents Value	Relocation Office Space Monthly Rent	Relocation Office Equip Monthly Rent	Relocation Cost Purchase Computers, Phones & Equip.	Total
Shop/Garage Equipment - Bus								$ 2,084,000					$ 2,084,000
Shop/Garage Equipment - Rail								$ 11,600,000					$ 11,600,000
SUBTOTAL								$ 13,684,000	$ -	$ -	$ -	$ -	$ 13,684,000
Radio Equipment - Bus								$ 2,076,000					$ 2,076,000
Radio Equipment - Rail								$ 320,000				$ 2,625,000	$ 2,945,000
SUBTOTAL								$ 2,396,000	$ -	$ -	$ -	$ 2,625,000	$ 5,021,000
Revenue Collection Equipment - Bus								$ 3,562,000				$ 2,625,000	$ 6,187,000
Revenue Collection Equipment - Rail								$ 3,668,000				$ 100,000	$ 3,768,000
SUBTOTAL								$ 7,230,000	$ -	$ -	$ -	$ 2,725,000	$ 9,955,000
EDP - Bus								$ 3,000,000				$ 3,000,000	$ 6,000,000
EDP - Rail								$ 3,000,000				$ 3,000,000	$ 6,000,000
SUBTOTAL								$ 6,000,000	$ -	$ -	$ -	$ 6,000,000	$ 12,000,000
Office Furniture & Fixtures - Bus								$ 1,340,500					$ 1,340,500
Office Furniture & Fixtures - Rail								$ 107,000					$ 107,000
SUBTOTAL								$ 1,447,500	$ -	$ -	$ -	$ -	$ 1,447,500
Right of Way - North/South Corridor								$ 590,000,000					$ 590,000,000
SUBTOTAL								$ 590,000,000	$ -	$ -	$ -	$ -	$ 590,000,000

NORTH COUNTY TRANSIT DISTRICT
Asset Values

Location	City	Construction Type	Yr Built	Stories	Sq Ft	Sprinklers	Occupancy	Facility Replacement Value	Facility Contents Value	Relocation Office Space Monthly Rent	Relocation Office Equip Monthly Rent	Relocation Cost Purchase Computers, Phones & Equip.	Total
REAL ESTATE ASSETS													
Misc. Land Leases & Licenses								$ 2,400,000					$ 2,400,000
Cell Towers								$ 142,000					$ 142,000
Kobey Concessions								$ 18,000					$ 18,000
Pay Phones								$ 16,000					$ 16,000
SUBTOTAL								$ 2,576,000	$ -	$ -	$ -	$ -	$ 2,576,000
SPRINTER PROJECT													
Maintenance Facility	**Escondido**	Steel Beam Construction Covered with Metel sheeting	2007	2	40,624	YES	Offices - 28% & Train Maintenance	$ 24,442,522	$ 3,000,000	$ 20,125	$ 1,300	$ 1,533,500	$ 28,997,447
Sprinter Rolling Stock								$ 52,230,718					$ 52,230,718
Transitway Lines		Rail lines from Escondido to Oceanside						$ 339,875,497					$ 339,875,497
Stations & Terminals								$ 31,180,500	$ 5,000,000			$ 1,000,000	$ 37,180,500
SUBTOTAL								$ 447,729,237	$ 8,000,000	$ 20,125	$ 1,300	$ 2,533,500	$ 458,284,162
TOTAL								$ 1,454,687,758	$ 17,933,815	$ 268,631	$ 46,668	$ 25,574,840	$ 1,498,511,712

Estimating Potential Losses

If there is a catastrophic event, losses to NCTD owned or operated buildings, infrastructure, facilities, equipment, etc. could exceed $700,000,000 based on independent appraisals, current values, and estimates of replacement costs. Construction time to repair or replace these assets, depending on the scope of the damage can range from 1 month to repair a track bed wash-out to more than two years for construction of major facilities. Losses of vehicles and heavy equipment, including special apparatus, could exceed $10,000,000. The cost of temporary operating facilities, service interruptions, and other costs could be significant. Please Reference **Figure 3.9 – Asset Values** for an estimate of replacement values and relocation/temporary operation costs of critical facilities. Even though there may be no damage to buildings, losses of passenger revenue because of disruption of service must also be considered in the Asset Inventory.

It is probable that the damage from certain hazards, such as landslide, fire, or coastal erosion would be more localized than the damage from a high-magnitude earthquake.

Future Development Trends

Appendix A contains current demographics and population projections up to the year 2030. There is no sign that development in San Diego County will slow down in overall rate for several years. Jurisdictions within the NCTD service area, including, but not limited to, the Cities of San Diego, Oceanside, Vista, San Marcos, Escondido, Carlsbad, and unincorporated areas will continue to expand in population. This in turn will increase the demand for NCTD services. The *SPRINTER* light rail system currently under construction is a response to the current and anticipated need for services in areas of North County. The District is currently working on examining mass transit needs based on projected future development. It is currently implementing the North County Transit District – Short Range Transit Plan – FY 2004 -2006, which is included in this document by inference. Other information on future development will be added to the LMHMP as it becomes available.

In 2005, NCTD prepared an assessment of their *Capital Improvement Program* needs until the year 2015. In that assessment, the need to mitigate against the consequences of coastal erosion, landslide, flooding, and environmental stressors on bridges, track beds, and rights-of-way was discussed.

3.6 Perceived Risks – Community Survey

Introduction

Four-hundred ninety-four community planning surveys were returned to NCTD. Respondents represented NCTD service users, NCTD employees, service area residents who did not use NCTD services, and public agency employees, among others; reference Appendix D for a sample of the planning survey.

In the following narratives and graphs, there are discrepancies in total numbers because several respondents returned incomplete surveys. A few respondents returned blank surveys; some did

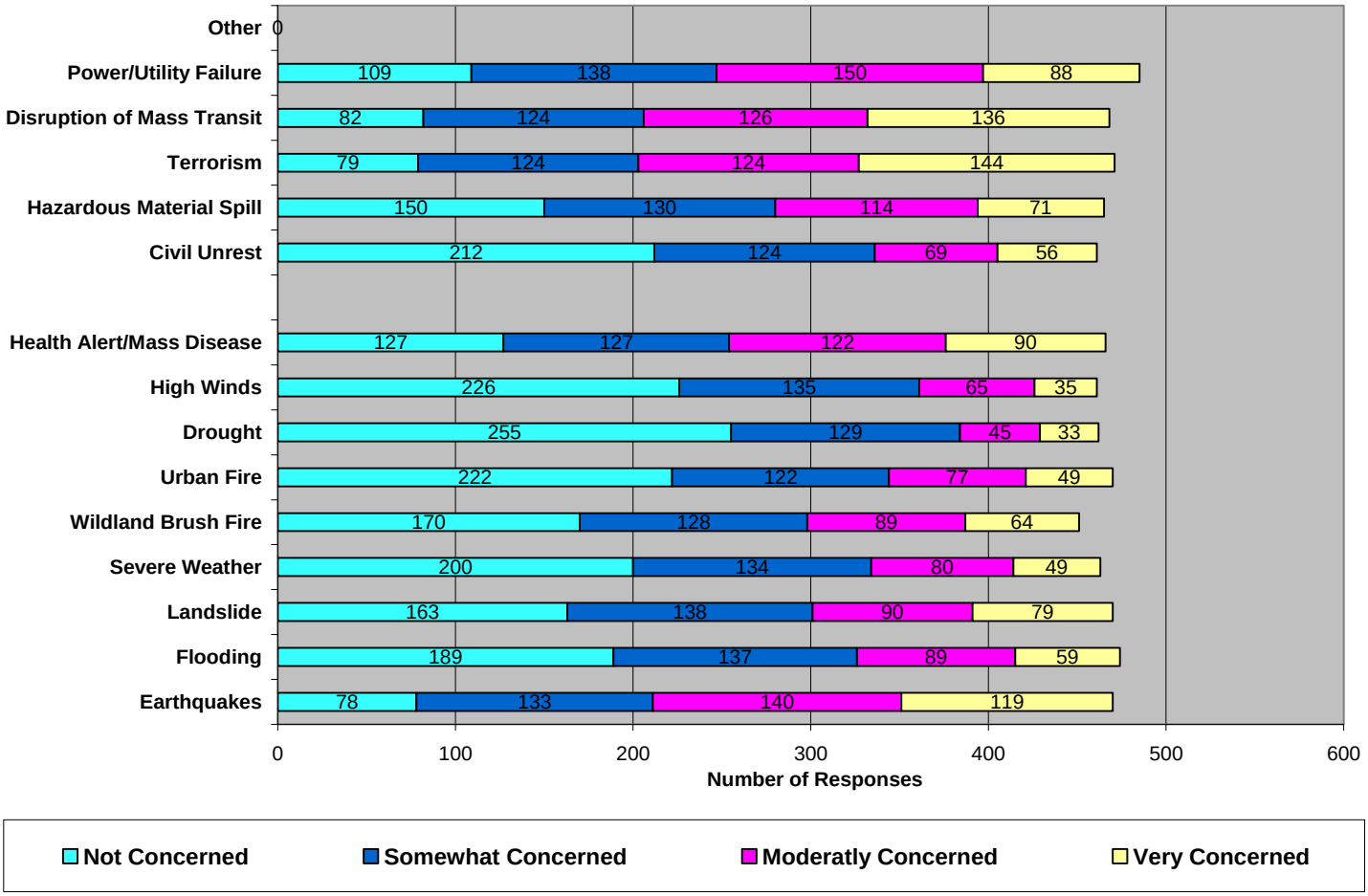
not answer all of the questions, some answered parts of a question and ignored the remainder, some left the second page of the survey partially or completely blank.

Levels of Concern

Natural and man-made or human caused disasters that had the potential to affect NCTD services and facilities were listed. Respondents were asked to indicate how concerned they were about the impact of each disaster. Their choices included: Not Concerned, Somewhat Concerned, Moderately Concerned, and Very Concerned. **Figure 3.10** illustrates the range of responses.

More than half of those responding (55+%), were either moderately concerned or very concerned about an earthquake, 57% were either moderately or very concerned about terrorism, and 56% were moderately or very concerned about the disruption of mass transit. Conversely, approximately 82% of the respondents were either not concerned or only somewhat concerned about the impact of drought on NCTD services and facilities.

Figure 3.10 – Levels of Concern

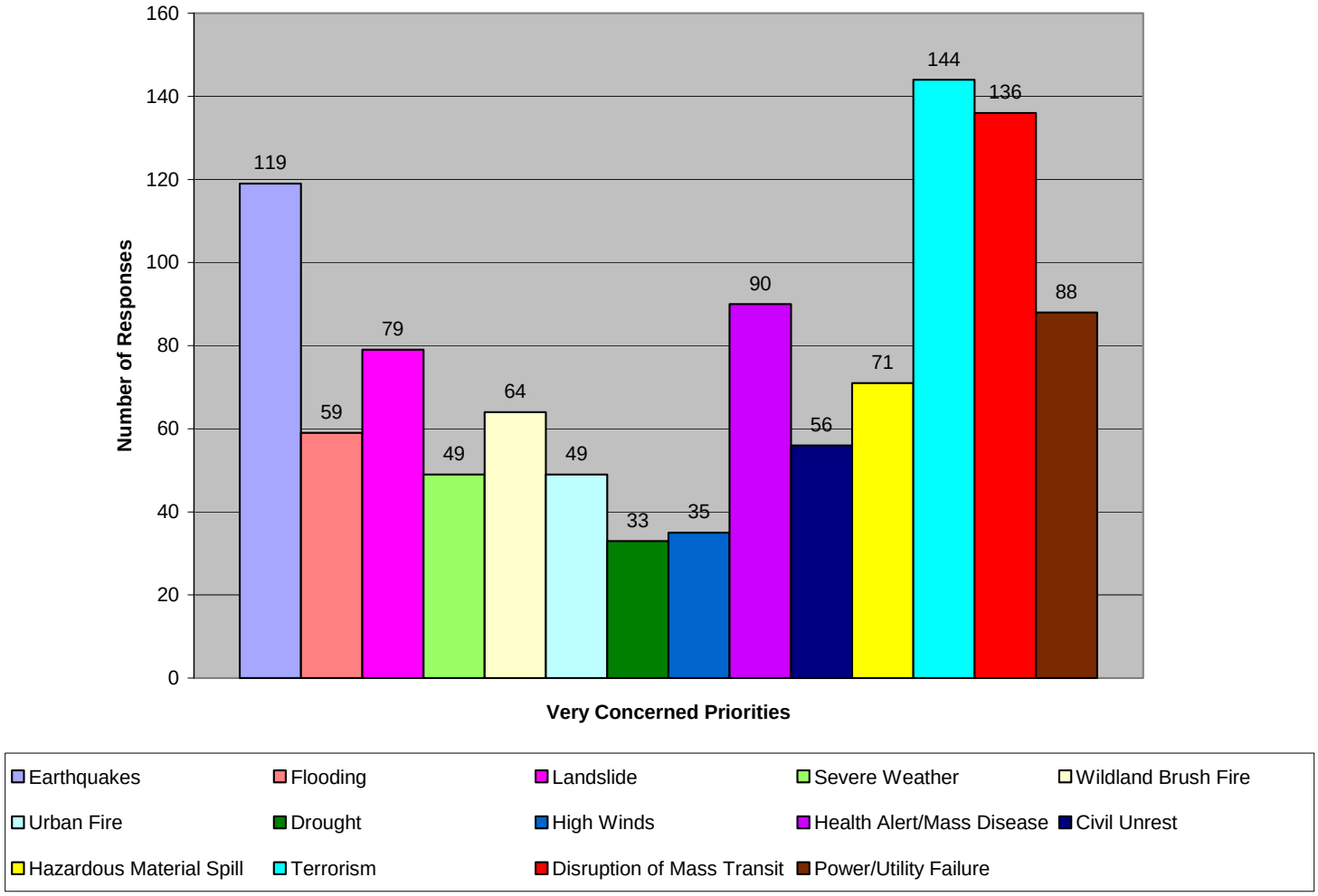


Hazard of Greatest Concern

Figure 3.11 indicates the hazards that respondents were very concerned about, which may or may not have been the hazard they chose as the greatest threat. (Greatest threat choices are detailed later in this narrative.) More respondents were very concerned about terrorism and the disruption of mass transit than any other hazards, natural or man-made. Earthquakes and a health alert or mass disease were the natural hazards that had many respondents very concerned.

It should be noted that respondents' choices of both the hazard that most concerned them and the hazard that posed the greatest threat (**see Figure 3.12**) were not necessarily based on the history of previous events or other empirical evidence. Choices appear to have been made in many instances on **perception**, which is not necessarily reality. It is particularly important when analyzing responses to keep this in mind. For example, since the tragedy of 9/11 there has been a heightened awareness and concern over acts of terrorism. Although there is probably more reason to be concerned about coastal storms and earthquakes in NCTD's future, it is acts of terrorism that are in the forefront of peoples minds, especially since world-wide evidence suggests that public transportation systems are at particular risk.

Figure 3.11 – Very Concerned Priorities



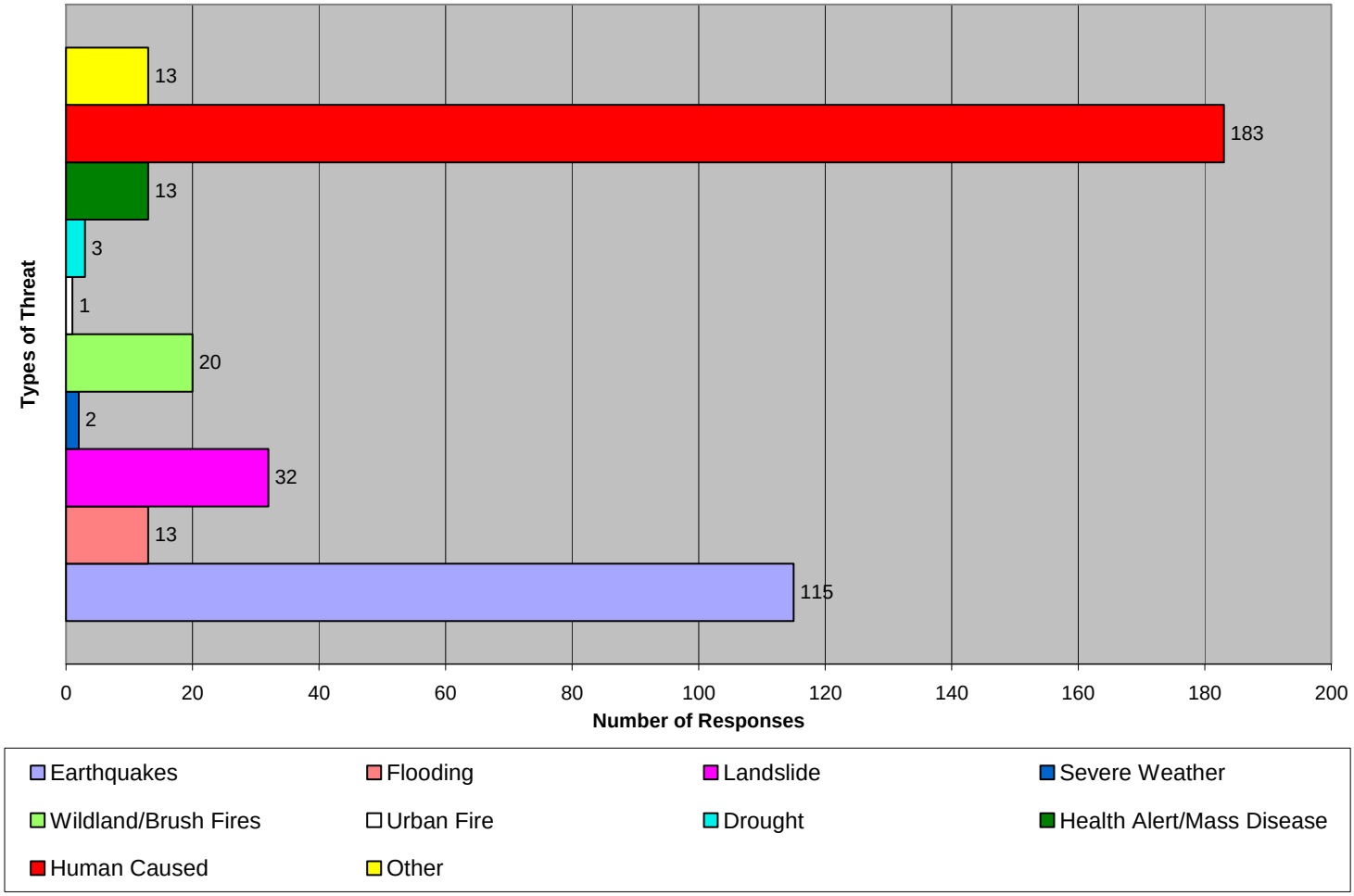
Hazards Posing the Highest Threat

Figure 3.12 illustrates which types of hazards respondents felt posed the greatest threats to NCTD services and facilities. As a category, human-caused disaster events were deemed to be the greatest threats, especially acts of terrorism. As noted previously, those hazards that people were most concerned about were not necessarily those hazards that they chose as the ones that posed the greatest threats.

There were several persons who indicated that some other hazard, besides the ones listed, posed the greatest threat. Some of the hazards mentioned were:

- An event at the San Onofre nuclear plant;
- Spraying pesticides in the fields;
- Illegal immigration;
- Wild dogs; and
- Stupid people.

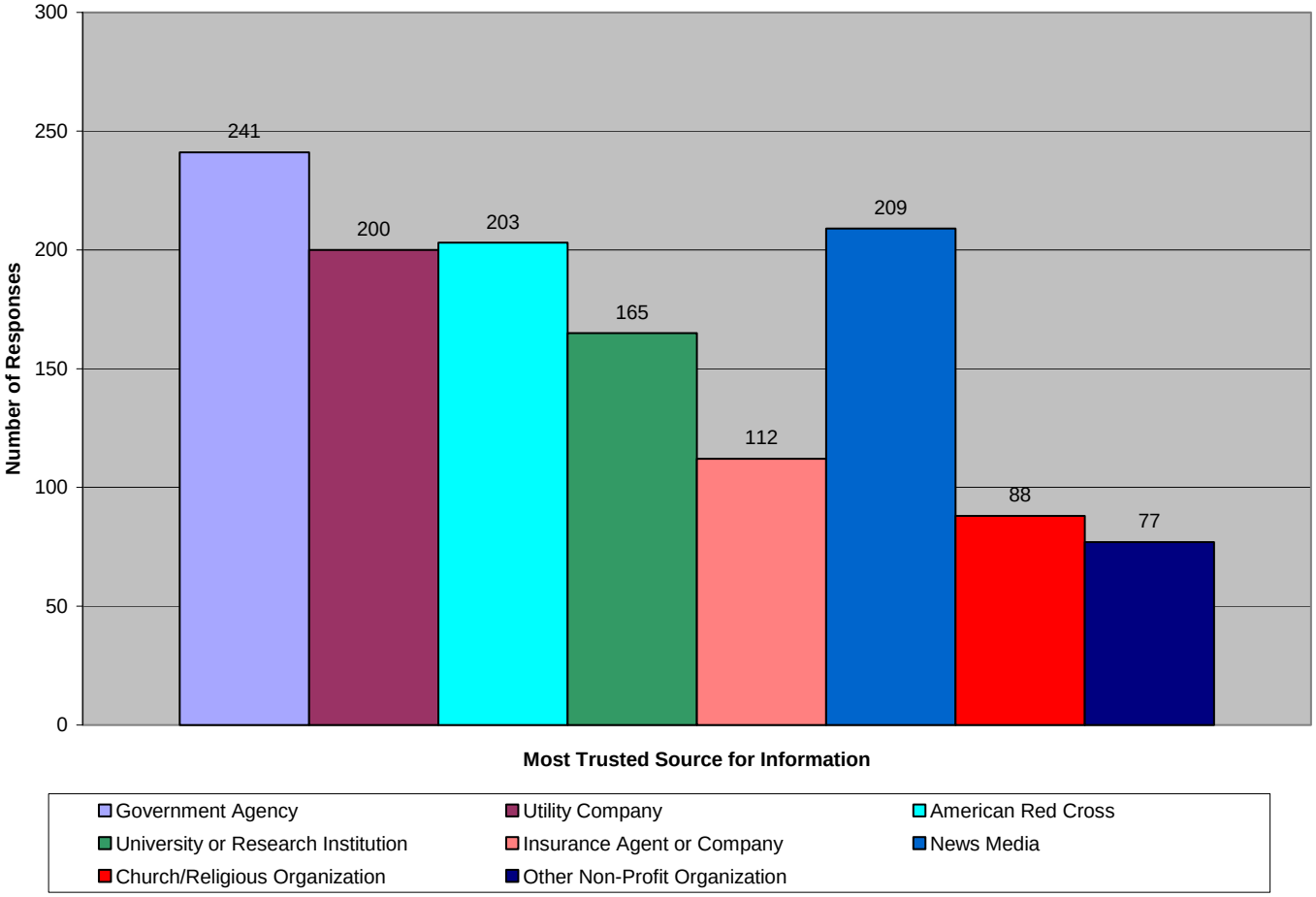
Figure 3.12 – Highest Threat



Most Trusted Sources of Information

Respondents were also asked to indicate which sources they would trust the most to provide them with information on how to make their home or place of business safer from natural or human-caused disasters. They were given several choices and could select more than one source. **Figure 3.13** is a graphic representation of those responses. The most trusted source among those responding was government agency, followed by news media, the American Red Cross, and utility company.

Figure 3.13 – Most Trusted Source



End Note: The results of the planning survey were considered by the Core Planning Team and the Mitigation Advisory Committee as goals and objectives were discussed. The mitigation goals, objectives, and actions that have been developed took into account public concerns expressed in the survey.

SECTION FOUR

MITIGATION GOALS, OBJECTIVES, & ACTIONS

MITIGATION GOALS, OBJECTIVES, & ACTIONS

***Requirement §201.6(c)(3)**: The plan **shall** include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.*

***Requirement §201.6(c)(3)(i):** The hazard mitigation strategy **shall** include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.*

***Requirement §201.6(c)(3)(ii):** The mitigation strategy **shall** include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.*

***Requirement: §201.6(c)(3)(iii):** The mitigation strategy section **shall** include an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization **shall** include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.*

4.1 Overview

As indicated previously, the mitigation plan process includes four broad tasks:

- **Organize Resources**
- **Assess Risks**
- **Develop Mitigation Plan**
- **Implement the Plan and Monitor Progress**

The LMHMP goals describe the overall direction that North County Transit District is taking to minimize the impacts of natural and human caused disasters. These goals are stepping-stones to activities that are outlined in the Mitigation Activities/Projects List. The goals represent the desires and concerns of NCTD and their users, are future oriented, are qualitative (non-specific) and are time "independent" (not scheduled events). The goals are stated without regard to implementation cost, schedule, or means.

The LMHMP objectives are the actions that must be implemented in order to attain the stated goals. They are specific, measurable, have a defined time horizon, and have specific steps or activities that must be taken in order for the objective to be met.

Selection and Prioritization Process

The goals, objectives, and action steps (projects list) were developed with input from the Core Mitigation Planning Team, Mitigation Advisory Committee, NCTD service users and employees, and other interested parties. Included in the development of goals and objectives was information gathered during the community planning survey, verbal and written input from the public, information from documents such as *the State of California Multi-Hazard Mitigation Plan*, the *Multi-Jurisdiction Hazard Mitigation Plan – San Diego County*, the FEMA planning guidelines, as well as other resources previously cited.

Once goals and objectives were defined, dozens of action steps (projects) were considered. Ultimately, it was the decision of NCTD to concentrate on those projects which included mitigation actions that dealt with multiple natural and human-caused hazards at the same time. Other criteria, such as level of effort, availability of funding, and schedule were also considered during the process of selecting and prioritizing projects. In addition, projects were examined for feasibility of completion within five years or less. Per regulations, NCTD will submit a written update to the LMHMP a minimum of every five years. At that time, if not before, a list of completed mitigation projects will be prepared, and a new prioritized project list, along with the appropriate supporting information, will be added to the LMHMP and transmitted to FEMA, once it has been approved by the Board of Directors.

Because NCTD provides multiple transportation services to a large service area, traverses multiple jurisdictions, travels multiple routes, and has facilities and assets that are vulnerable to both natural and human-caused hazards, there are few major mitigation projects that can be completed without multi-leveled financial and technical support, in addition to multi-agency cooperation. However, during the process of prioritizing actions/projects, NCTD also considered those actions that staff could accomplish without additional resources. Some of those actions are more esoteric than others, in that they require a long-term effort and philosophical commitment to mitigation; however, the specific results of those actions are measurable.

In the following narrative, goals and key objectives are described. Following these descriptions, a prioritized list of mitigation actions/projects is presented, indicating which goal and objective the proposed action is related to and which hazard(s) are being mitigated against. The projects/actions are described in greater detail after the list is presented. The details included in project descriptions are:

- Environmental Impact
- Estimated project cost and schedule
- Potential funding sources

Please reference **Appendix E** for other projects/mitigation actions that are being considered for implementation by NCTD over the next decade.

4.2 NCTD GOALS, OBJECTIVES, ACTIONS

Key Goals and Objectives

Goal 1

Protect NCTD users and existing facilities/assets with the highest relative vulnerability to the natural and human-caused hazards identified in the LMHMP.

Objectives

A. Complete study in progress of nine bridges, constructed prior to current seismic codes, and seek funding to replace, repair, and/or upgrade.
B. Develop a comprehensive approach to reducing the possibility of damage and loss from known hazards.
C. "Harden" existing facilities/assets with the highest vulnerability to the effects of man-made or technological hazards.
D. Increase fuel-reduction & vegetation removal activities along rights-of-way.
E. Assure that protocol for responding to hazardous material incident is up-to-date.
F. Implement improvements to drainage systems in areas that receive significant amounts of water during seasonal storms.

Goal 2

Promote disaster resistant future development.

Objective

A. Limit NCTD future development in hazardous areas.

Goal 3

Build and support local capacity and commitment to become less vulnerable to hazards identified in the NCTD LMHMP.

Objective

A. Increase awareness and knowledge of hazard mitigation principles and practices among NCTD employees, Board Members, local officials and their staff.

MITIGATION ACTIVITIES/PROJECTS

The following table contains a prioritized list of several mitigation activities identified by the Core Planning Team. Each activity is related to one or more goals and objectives, which are also listed.

Figure 4.1 – Mitigation Activities List

Priority	Activity	Goal and Objective	Hazard(s)
1	Develop and implement a FEMA approved LMHMP	1B	All hazards identified in LMHMP
2	Replace, repair, and/or retrofit Bridge 207.6	1A&1C	Earthquake, Coastal Storms, Tsunami, Flooding, Fire, Erosion, Human Caused
3	Design and construct La Costa Avenue drainage improvements	1 F	Coastal Storms, Flooding, Erosion
4	Replace, repair and/or retrofit Bridge 240.4	1A&1C	Same as Bridge 207.6
5	Install system of security cameras throughout NCTD right-of-way	1C	Man-made/Acts of Terrorism
6	Design and construct expanded soil stabilization efforts along Del Mar Bluffs (Phase III)	1C	Coastal storms, Flooding, Erosion, Landslide
7	Develop/implement fuel reduction & vegetation removal activities at Sorrento Valley, Rose Creek Canyon, Camp Pendleton, and San Diego River Basin	1D	Fire, Flooding,
8	Design and construct CP Shell drainage improvements	1F	Coastal Storms, Flooding, Erosion
9	Design and construct CP Cardiff drainage improvements	1F	Coastal Storms, Flooding, Erosion
10	Replace, repair and/or retrofit Bridge 246.1	1A&1C	Same as Bridge 207.6
11	Replace, repair and/or retrofit Bridge 246.9	1A&1C	Same as Bridge 207.6
12	Replace, repair and/or retrofit Bridge 247.1 and 247.7	1A&1C	Same as Bridge 207.6
13	Review and revise, if necessary, NCTD protocols regarding hazardous materials incidents; coordinate with regulatory agencies	1E	Human Caused and/or Technological

Figure 4.1 – Mitigation Activities List (cont'd)

Priority	Activity	Goal and Objective	Hazard(s)
14	Replace, repair and/or retrofit Bridge 248.5	1A& 1C	Same as Bridge 207.6
15	Replace, repair and/or retrofit Bridge 248.7	1A& 1C	Same as Bridge 207.6
16	Work with local agencies and regulatory groups to restrict development in areas where there is a known geologic hazard	2A	Earthquake, Erosion, Landslide
17	Replace, repair and/or retrofit Bridge 249.9	1A&1C	Same as Bridge 207.6
18	Provide formal presentation on the importance of pre-disaster mitigation planning to District Board and other public officials	3A	All hazards identified in LMHMP
19	Develop and implement new signal system technology, using current system as a back-up	1B &1C	Earthquake, Fire, Man-made/Acts of Terrorism

Critical Mitigation Activities Descriptions

Priority 1 – Develop & Implement FEMA Approved LMHMP

One of the foundations of a comprehensive approach to hazard mitigation for NCTD is the development of a LMHMP.

Environmental Impact: No

Estimated Cost & Schedule: $100,000 ($75,000 FEMA/$25,000 NCTD match)
Courtesy review of LMHMP submitted to FEMA on June 8, 2007

Funding Source: FEMA Planning Grant

Responsible Dept./Person Rail Services; Kristin Thomas, Environmental Planner

Priorities 2, 4, 10, 11, 12, 14, 15 & 17 – Bridge Replacement, Repair, and/or Retrofit

NCTD is in the process of studying nine bridges built between 1911 (246.1) and 1941 (207.6). All of these bridges are of the ballasted deck, pile trestle type (BDPT). A ballasted deck typically consists of a timber deck that supports a layer of ballast upon which ties and rails are placed. A trestle is a bridge that consists of a number of short spans supported by splayed vertical elements. Until the late 20th century, timber trestles were used extensively by railroads, especially to traverse floodplains adjacent to rivers and to cross smaller bodies of water. The

peeled logs that were characteristically used during construction were soaked in creosote, which, over time, leaches into the waters where the vertical elements are standing.

With the exception of two small spans of Bridge 207.6, all of the portions of the bridges indicated are a minimum of 65 years old. They were constructed prior to seismic codes and could not withstand an earthquake of any significant magnitude. Their capacity to withstand the severe battering of a serious coastal storm or tsunami is already being investigated.

Where there is wood, there is the potential for fire. The most likely fire hazard NCTD will deal with is a human-caused incident; two recent fires were caused by persons camping under wooden bridges/trestles. The extensive loss of revenue, commercial, environmental, and social consequences of a railroad trestle fire were seen along the San Francisco - Sacramento rail corridor in March 2007. A major trestle in East Sacramento burned completely to the ground. Commuters were put onto busses, freight was re-routed, often significantly out of the way, and parked vehicles 20 miles east of the fire got covered with a fine layer of ash.

Two major concerns of the NCTD user community who responded to the planning survey were preventing disruptions in mass transit and protecting NCTD services and users. Replacing, repairing, and/or retrofitting these bridges is one way to respond to the users concerns.

Environmental Impact: Yes; each bridge project will have an impact on surrounding environment.

Estimated Cost & Schedule: For seven of the projects, the estimated cost in today's dollars is between 4.0 million and 12.0 million. Bridge 207.6 which has sections that add up to 1066 feet, which is four to five times as long as the other proposed projects, will cost about 21.0 million. Bridge 246.1, constructed in 1911 will cost an estimated 7.5 million to replace/retrofit/repair.

Preliminary design, engineering, and environmental permitting for each project will take about 18 months; final design will take an additional 6 months. Construction time will be between 6 months and 24 months, depending on the magnitude of the project and the type of bridge being retrofitted/repaired/replaced.

Potential Funding Source: Federal Transit Administration (FTA), FEMA Pre-Disaster Mitigation Project grant, State Transportation Improvement Program (STIP), and NCTD capital funds.

Responsible Dept./Person: Rail Services – Tom Lichterman, Director; Mitch Alderman, Chief Rail Engineer in cooperation with SANDAG

Priorities 3, 8, and 9 – Design and construct drainage improvements

All of NCTD's previous claims to FEMA have been directly or indirectly related to drainage and have been the results of coastal storms, floods, and/or erosion. Each of the proposed projects is located in an area which is subject to major fluctuations in annual flow as a result of variations in

annual precipitation. In addition, there are also wide fluctuations in seasonal flows. Typically, fall and winter storm events bring on high-velocity flows, which taper off during the drier times of late spring and summer. The scope of work at the identified sites, all located along the *Coaster* route, may include drainage improvements/culverts, right-of-way grading, and channel improvements. The three sites are the La Costa Avenue crossing, CP Shell, and CP Cardiff. (There are various Control Points [CP] along the *Coaster* route.)

Environmental Impact: Yes; NCTD will work with regulatory agencies to assess areas at risk and the limitations that will be placed on design and construction for each project.

Estimated Cost & Schedule: Estimated $ 500,000+ per project; La Costa project from concept design to construction completion approximately 12 months; six months for the Shell and Cardiff projects.

Potential Funding Source: NCTD Capital Funds and FEMA

Responsible Dept./Person: Rail Services – Tom Lichterman, Director; Mitch Alderman, Chief Rail Engineer

Priority 5 – Install system of security cameras throughout NCTD right-of-way

One of the primary concerns of planning survey respondents was protecting transportation facilities. Expanding and upgrading NCTD's ability to monitor rights-of-way and other facilities through a comprehensive Mesh Network is a mitigation action in response to that concern. This communication/camera system can help prevent human-caused hazards, such as acts of terrorism and vandalism, from disrupting mass transit and/or destroying NCTD assets and facilities.

Mesh networking is a way to route data (including images), voice, and instructions between nodes. It allows for continuous connections and reconfiguration around broken or blocked paths by "hopping" from node to node until the destination is reached. A mesh network whose nodes are all connected to each other is a fully connected network. Mesh networks differ from other networks in that the component parts can all connect to each other via multiple hops, and they generally are not mobile. Mesh networks are self-healing: the network can still operate even when a node breaks down or a connection goes bad. As a result, a very reliable network is formed. This concept is applicable to wireless networks, wired networks, and software interaction.

Environmental Impact: None

Estimated Cost & Schedule: Conceptual design will take between 2 and 3 months; should take between 6 to 12 months to complete the entire project.

Mesh Network for the *Coaster* will cost an estimated $2 million dollars and would include 50 cameras. Because the *Sprinter* uses

an updated technology, it will be easier and less expensive to install a Mesh Network; estimated cost is $500,000.

Potential Funding Source: Department of Homeland Security (DHS), Transportation Security Administration (TSA), Urban Planning Agreement (UPA) funds, and FTA.

Responsible Dept./Person: Rail Services – David Papworth, Chief of Transit Enforcement & Fiscal & Support Services – Information Technology Manager

Priority 6 – Design and construct expanded soil stabilization efforts along Del Mar Bluffs

The coastal railroad owned by NCTD travels through the City of Del Mar on bluffs about 50 feet above the beach. As noted previously within **Section Three – Risk Assessment**, these bluffs have a history of landslides and are subject to constant erosion and surface failures. SANDAG and NCTD have implemented two projects to mitigate hazards associated with landslides or bluff collapse in this area. These projects have resulted in helping to avoid an interruption of rail service, one of the primary concerns planning concerns of NCTD. The first project consisted of major drainage improvements at the top of the bluffs, which reduced the erosive forces of storm and irrigation water runoff. The second project, currently under construction, consists of a major stabilization effort. NCTD will install soldier piles in approximately 1,400 feet of the 2,400 feet of highest risk areas of the bluffs as a stabilization measure. Soldier piles, also know as king piles or Berlin walls, are constructed of wide flange steel H sections spaced about 6 to 12 ft apart and are driven prior to excavation. As the excavation proceeds, horizontal timber sheeting (lagging) is inserted behind the H pile flanges. The horizontal earth pressures are concentrated on the soldier piles because of their relative rigidity compared to the lagging. Soil movement and subsidence are minimized by maintaining the lagging in firm contact with the soil.

The areas at highest risk were identified based on extensive geotechnical studies of the bluffs.

The Del Mar Bluffs Stabilization Phase III would address stabilization measures in the remaining approximately 1,000 feet of at-risk bluff areas. A variety of stabilization alternatives will be considered for these Project III areas, including soldier piles and sea walls.

Environmental Impact: Yes, depending on the stabilization method(s) selected.

Estimated Cost & Schedule: Depending on the stabilization method(s) chosen, this project is anticipated to cost between $7 million to $8 million. Current schedule anticipates a 2010 deadline for construction. Design and environmental work will take approximately 12 to 18 months, given past experience on the Phases I & II. Construction will take approximately six to nine months, depending on the stabilization methods of the final design.

Potential Funding Source: State Transportation Improvement Program (STIP), State Proposition 116 funds, and FEMA Pre-Disaster Mitigation Project grant.

Responsible Dept./Person: Rail Services – Tom Lichterman, Director; Mitch Alderman, Chief Rail Engineer

Priority 7 – Develop and implement fuel reduction & vegetation removal activities at Sorrento Valley, Rose Creek Canyon, Camp Pendleton, and San Diego River Basin

We will work with regulatory agencies to assess areas at risk and the limitations that will be placed on NCTD fuel reduction and vegetation removal activities in environmentally sensitive areas. We will research the availability of Wildland/Urban Interface mitigation project funds and apply for grant funding, if available.

Environmental Impact: TBD

Estimated Cost & Schedule: $ 10,000 for simple vegetation clearance/fuel reduction activity; more complex projects can cost significantly more.

Schedule for completion can vary from 1 month to 6 months.

Potential Funding Source: NCTD funds and Department of Interior

Responsible Dept./Person: Transit America, Maintenance-of-Way Contractor under supervision of Kristin Thomas, Environmental Planner

Priority 13 – Review and revise, if necessary, NCTD protocols regarding hazardous materials incidents; coordinate with regulatory agencies.

Environmental Impact: None

Estimated Cost & Schedule: No outside cost; can be accomplished within 12 months

Potential Funding Source: Staff time

Responsible Dept./Person: Rail Services – Rail Safety & Compliance Officer; Fiscal & Support Services – Safety, Risk, and Training Manager

Priority 16 – Work with local agencies and regulatory groups to restrict development by others in areas where there is a potential hazard that could impact NCTD operations.

Environmental Impact: None

Estimated Cost & Schedule: No outside cost; an ongoing activity

Potential Funding Source: Staff time

Responsible Dept./Person: Ed Singer, Real Estate Services

Priority 18 – Provide formal presentation on the importance of pre-disaster mitigation planning to District Board and other public officials.

Environmental Impact: None

Estimated Cost & Schedule: No outside cost; should be an ongoing activity

Potential Funding Source: Staff time

Responsible Dept./Person: Kristin Thomas, Environmental Planner

Priority 19 – Develop and implement new signal system technology, using current system as back-up.

Although NCTD's field hardware typically reflects current technology, NCTD's rail traffic control system (signal system) is based on a design protocols from the 1970s. This makes the system significantly less comprehensive and flexible than those systems with current state-of-the-art design protocols. This results in vulnerabilities that would not exist if more modern rail traffic control systems were in place, such as the Electronic Train Management Systems (ETMS) and Positive Train Control (PTC) technologies.

Because the NCTD railroad signaling system uses radio transmissions as a basis for control of the signals, interference by transmissions from other sources, such as Navy ships, can disrupt the system. This causes lengthy delays in the most vital communication link with train dispatchers. NCTD will use funding support from CalTrans to begin a study examining the varying technologies that could be employed to reduce signal disruption.

Environmental Impact: None; could actually reduce environmental impact of idling trains

Estimated Cost & Schedule: Estimated cost is $20 million, over a five-year period.

Potential Funding Source: CalTrans, Division of Rail

Responsible Dept./Person: Rail Services – Tom Lichterman, Director; Mitch Alderman, Chief Rail Engineer

Cost Benefit Analysis

During the process of selecting and prioritizing projects, a qualitative assessment of the comparative benefits of each project was conducted. Several informal criteria were developed to aid in the analysis. NCTD also took into consideration the planning priorities that users, community members, and employees selected when responding to the Community Planning Survey. In particular, NCTD looked at those projects that would mitigate against disruptions in its service delivery system.

Those projects that required staff time only were placed within the top 17 choices because the return for the investment would be very high.

Because of the realities of the market economy, NCTD looked next at those projects that had partial or total funding available immediately. When looking at these projects, we also examined the worst case, i.e, what would happen if we did not implement them as soon as possible – the planning team asked questions such as "Would service be disrupted?," "Would NCTD be exposed to litigation?"

An additional consideration when looking at the cost – benefit of a project was the longevity – how long would the project/project results remain effective? It was determined that no "stop-gap" projects should be prioritized. Another qualitative consideration when prioritizing projects was multi-entity cooperation and the maximizing of available resources. For example, one of our priority projects has financial resources available from the Department of Homeland Security (DHS), Transportation Security Administration (TSA), FTA, and Urban Planning Agreement (UPA) funds.

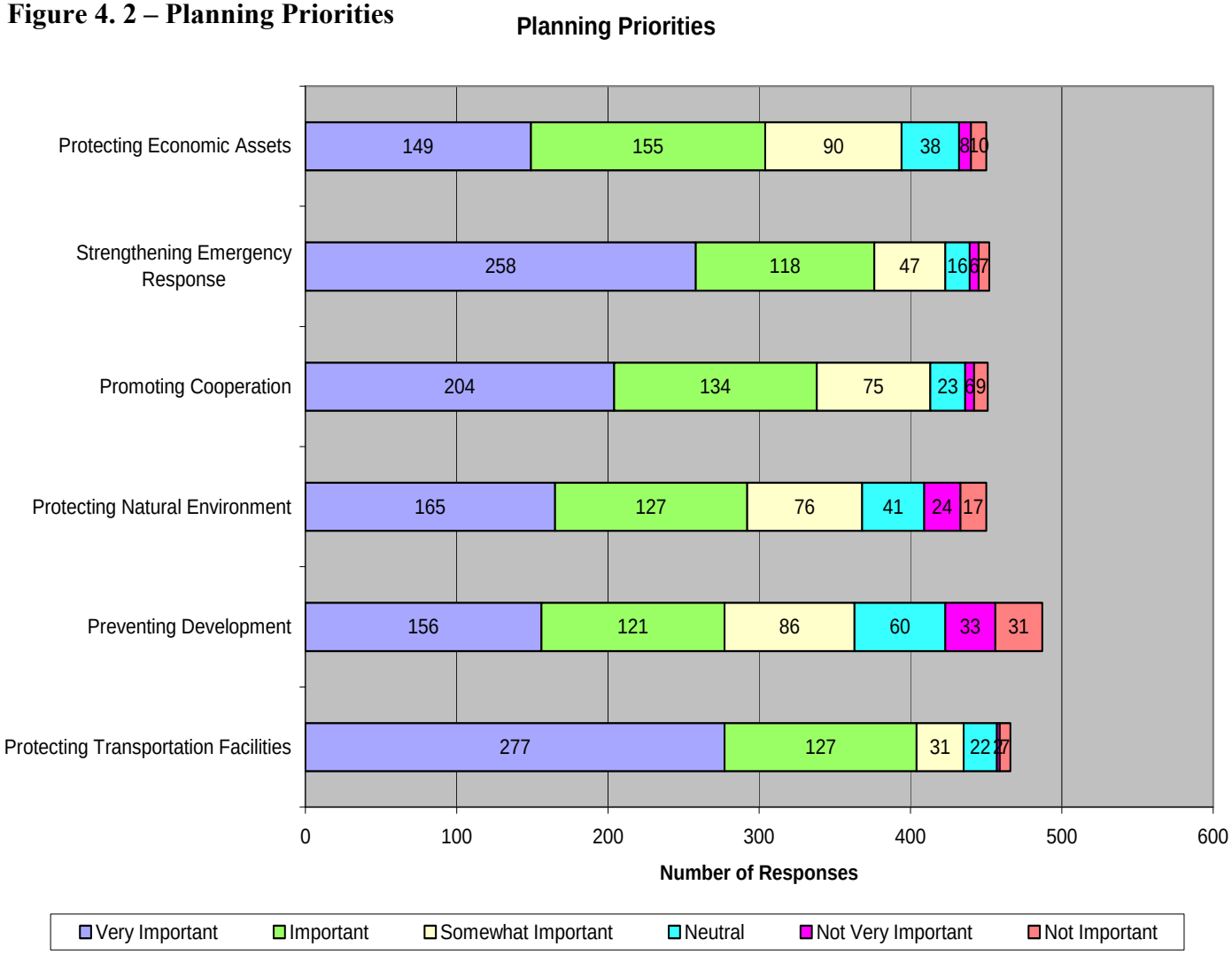
Once NCTD looked at the resources necessary and available, the longevity of the project, the multi-hazard nature of the project was examined. Only those projects that responded to more than one hazard were considered for prioritization. It was also determined that the current market is so skewed that the delays in implementing the suggested larger, more costly projects could result in geometrically escalated costs.

4.3 COMMUNITY PLANNING PRIORITIES – Survey Results

Planning Priorities

Eighty-six percent (85%) of all persons surveyed felt that protecting public transportation facilities should be a very important or important priority as NCTD develops its mitigation plan and strategy. An almost equal number (84%) felt that strengthening NCTD's emergency response capacity should be a very important or important priority. There were 5 respondents that indicated none of the priorities listed were important, but they did not list what they did think was important.

Figure 4. 2 – Planning Priorities



Protecting transportation facilities, followed by strengthening emergency response and promoting cooperation between agencies were singled out as the most important planning priorities. Protecting NCTD's economic assets was considered important, but not as critical as protecting facilities and strengthening NCTD's emergency response capacity

Figure 4.3 indicates respondents' choices regarding the most important planning priority. The impact of 9/11 can be seen in the planning priority that approximately 60% selected as very important – strengthening NCTD's emergency response capacity; this would appear to be an emergency preparedness activity, although a case can be made for it also being a mitigation activity.

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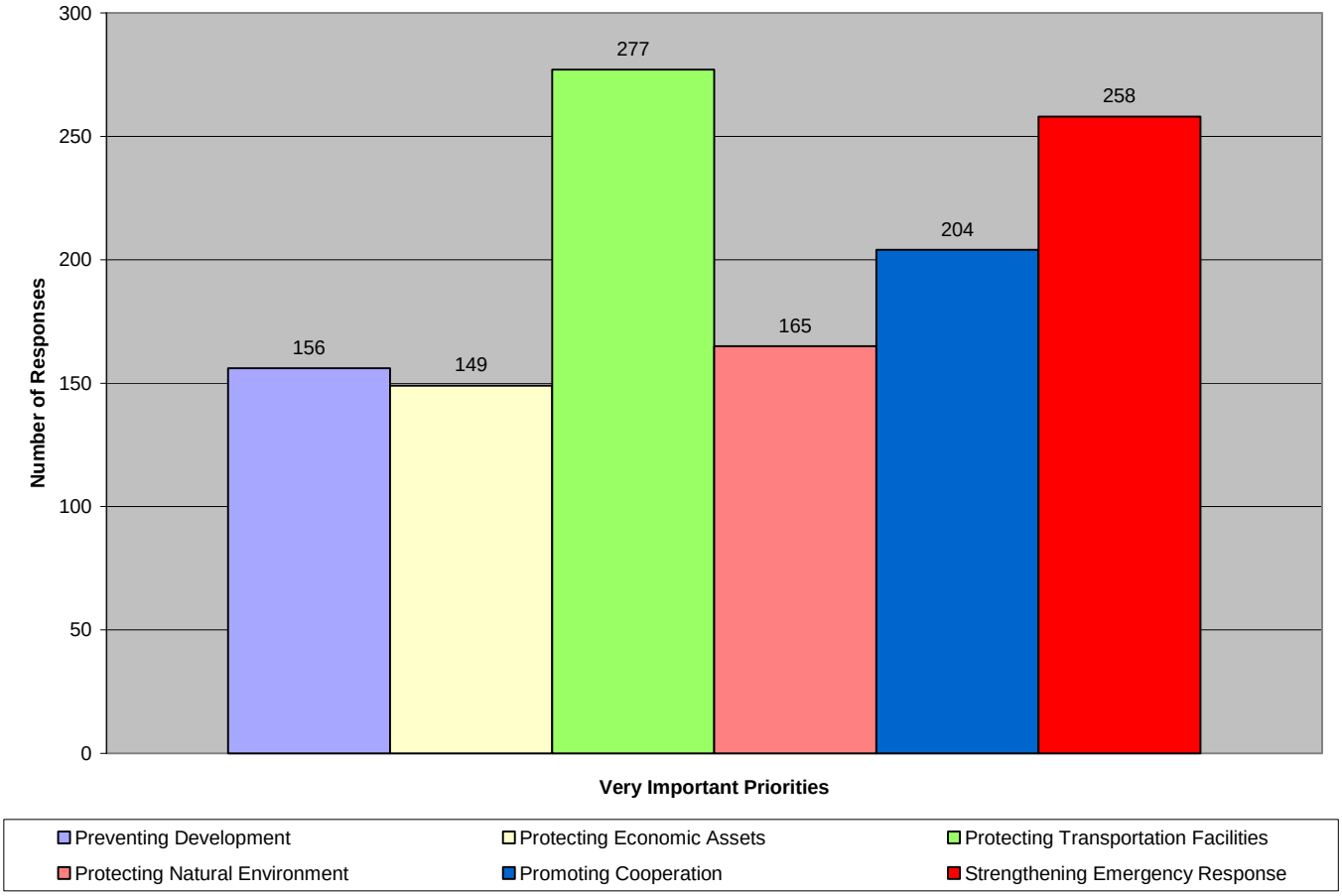
Figure 4.3 – Most Important Planning Priority



SECTION FIVE

CAPABILITIES ASSESSMENT

CAPABILITIES ASSESSMENT

***Requirement §201.4(c)(3)(ii)**: The (local jurisdiction)l mitigation strategy **shall** include a discussion of….pre and post disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including: an evaluation of laws, regulations, policies, and programs related to hazard mitigation as well as to development in hazard-prone areas…and a discussion of funding capabilities for hazard mitigation projects...*

5.1 Introduction

The reason for conducting a capability assessment is to identify NCTD's capacity to successfully implement mitigation activities. Analyzing that capacity forms the basis of implementing a successful hazard mitigation plan. Understanding strengths and weaknesses also helps ensure that goals and objectives are grounded in reality.

In carrying out the capability assessment, several areas were examined:

- Past Development Efforts
- Technical & Fiscal Resources
    - Including grants, mutual aid agreements, operating funds, access to funds.
    - Technical and staff resources to assist in implementing/overseeing mitigation activities
- Previous and On-going Mitigation Activities

5.2 Past Development Efforts

NCTD has completed several major development projects. For the sake of brevity, the following list includes summaries of activities since NCTD inception and does not include the ongoing upgrade and/or maintenance of the older infrastructure.

- **Breeze Bus Service**

  Reference pages 14 and 15 for the history of NCTD. For its first 20 years, NCTD's primary public transit service consisted of a fixed route bus service that operated in a 1,000 square mile area of the nine jurisdictions of North San Diego County. These jurisdictions are composed of eight cities plus unincorporated areas. NCTD's Breeze service has grown to have 55 bus routes serving approximately 2,000 bus stops and transit centers throughout the service area. There are approximately 10 million riders per year who use the system.

NCTD's system was founded on a network of inter-community and community routes, connected through a series of timed-transfer centers. Over the years, these transfer centers were developed into full-fledged multi-modal facilities. Some of the *Breeze* transit centers currently share facilities with other NCTD services, such as the *Coaster*, and will share facilities with the *Sprinter* in the future.
Currently, centers have been constructed at the following locations:

- Oceanside Transit Center
- Carlsbad Village Station
- Encinitas Transit Center
- Plaza Camino Real, Carlsbad
- Vista Transit Center
- Palomar College Transit Center
- Escondido Transit Center

In developing these centers, NCTD maintained a long-term vision that some of these Breeze Transit Centers would form the nodes of a future rail system. In fact, every one of these stations listed above is now served by rail, via the *Coaster* or will be served by rail in the future, through the *Sprinter*.

▪ Passage of TransNet

In 1987, the voters in San Diego County passed the original Transnet ordinance, a 20-year half-cent sales tax to fund transportation improvements throughout the County. The ordinance included a list of specified projects that would be funded if the measure passed. Two of those, an Oceanside to San Diego commuter rail system -- the *Coaster*, and an Oceanside to Escondido light rail system -- the *Sprinter*, were identified and partially funded by the measure.

▪ Coaster Commuter Rail Service

In February, 1995, NCTD inaugurated service on the *Coaster* Commuter Rail Service. The *Coaster* utilizes conventional passenger rail rolling stock to provide service to eight stations developed or expanded specifically for this new service, between Oceanside and downtown San Diego. As noted previously, several of these stations were previously *Breeze*-only stations. The *Coaster's* customer base is predominantly long-distance commuters heading to San Diego employment centers. Over 1.5 million customers ride the service annually. NCTD contracts with an experienced railroad operator for provision of the service.

▪ Railroad Ownership and Operation

The *Coaster* was made possible in part by NCTD's participation in a multi-county purchase of the coastal railroad corridor from the ATSF railroad in 1992. NCTD acquired that portion of the corridor from the San Diego/Orange County line to the southern limits of the City of Del Mar, and assumed operating and maintenance

responsibilities for the entire corridor from that same northern limit to downtown San Diego. Though capital funding is constrained, NCTD annually expends over $8 million on maintenance and capital improvement projects in the corridor to maintain safe, reliable, and efficient railroad operations for the *Coaster*, as well as Amtrak Pacific Surfliners, Metrolink Commuter Rail, and BNSF freight service. NCTD has replaced or rehabilitated bridges, replaced culverts, and regularly upgrades, replaces, and/or expands track, roadbed, and signal infrastructure.

- **Sprinter Light Rail Service**

The *Sprinter* is NCTD's newest transit development effort and is currently under construction. When NCTD acquired the coastal rail corridor in 1992, it also acquired a freight branch line known as the "Escondido subdivision" which operates rail freight service between Oceanside and Escondido, NCTD's most heavily patronized transit corridor. The *Sprinter* is converting this existing low-speed freight line into a high-speed, modern light-rail line which will offer competitive travel times. A total of 15 stations along the line are being built or expanded to accommodate the *Sprinter*. Three are at or near major colleges in North County and four serve the downtown or civic center areas of the cities along the corridor. The Cal State San Marcos Loop, a part of this project, is constructing 1.7 miles in new right-of-way specifically to serve that State University campus. The number of daily *Sprinter* users in the first year is projected to be 10,300.

- **Maintenance Facilities**

NCTD has developed four transit maintenance facilities to support its operations and is leasing a fifth facility. *Breeze* operations are supported by a West Division (Oceanside) and East Division (Escondido) operations and maintenance facility. These facilities were established in the mid-1970s and have been expanded over the years to support the growing fleet. The *Coaster's* rolling stock is maintained at the Stuart Mesa Maintenance Facility at Camp Pendleton, which was opened for operations in 1996. *Coaster* Maintenance-of-Way employees are based in a leased facility in Oceanside. NCTD's newest maintenance facility was completed in early 2007 in Escondido to support the *Sprinter's* diesel-multiple-unit fleet, operations staff, and security and facility maintenance functions.

5.3 Technical and Fiscal Resources

Technical Resources

The technical resources that can be used in NCTD's overall mitigation effort include several types of equipment, GIS and other software, and most importantly, personnel. Several NCTD staff have been trained and/or certified in mitigation concepts, firefighting, hazardous materials response and containment, first aid, CPR, and emergency management. Individual staff members have backgrounds in land development, land use planning, land management, environmental planning, risk management, security, facilities operations, and grant writing.

(Reference Organizational chart on page 15) **Figure 5.1** indicates the NCTD personnel resources that can be used to develop, manage, and complete mitigation projects.

Figure 5.1 – Technical & Administrative Capacity

Resource	Staff	Consultant/Contractor
Planner(s) or engineer(s) with knowledge of land development and land management practices	√	
Professionals trained in construction practices related to buildings and/or infrastructure	√	
Professionals trained in facilities and rail systems management and operations	√	
Planner(s) or engineer(s) with an understanding of natural and/or manmade hazards	√	√
Planner(s) or engineer(s) with experience developing and managing mitigation projects and/or recovery projects	√	√
Environmental Planner	√	
Professionals trained in assessing and/or mitigating against man-made hazards; professionals with risk assessment expertise	√	√
Construction project managers	√	
Fiscal and Budget Management	√	
Personnel with GIS expertise	√	
Grant Writer	√	
Administrative & Operational Support	√	

Memos of Agreement (MOAs) and Memos of Understanding (MOUs)

In addition to the technical expertise available through staff, contractors, and consultants, NCTD has several services and shared use agreements that expand their capacity to mitigate against natural and technological/human caused disasters. The following is a brief listing of those entities with which NCTD has MOAs, MOUs, and contracts for the operation and maintenance of rail services. The contract with Transit America includes emergency response services:

- San Diego County Sheriff
- Heritage Security
- Burlington, Northern & Santa Fe Railroad (BNSF)
- Southern California Regional Rail Authority
- San Diego Association of Governments (SANDAG)
- US Fish & Wildlife Service
- Marine Corps Base, Camp Pendleton
- Cities where there are Transit Centers/Tracks

- Verizon/AT&T
- AMTRAK
- Transit America and Veolia
- Various Engineering Consultants

Fiscal Resources

In addition to General Operating Funds and the revenue generated by service users, NCTD receives financial support from a variety of federal and state agencies. The following list reflects major sources of grant funding.

- US Department of Transportation – FTA
- FEMA/OES
- California Transportation Commission – Propositions 108 & 116
- CalTrans, Rail Division
- State Highway Administration (SHA)
- Transit Capital Improvement (TCI)
- Transit Congestion Relief Program (TCRP)
- Rural Transit System Grant Program (RTSGP)
- Transportation Development Act (TDA)
- State Transit Assistance Funds (STAF)

NCTD also participates with several organizations that are concerned with inter-agency cooperation and coordination, maximizing fiscal resources, transportation system development, passenger safety, disaster response, recovery, and mitigation, and similar issues. A listing of some of those organizations and agencies includes:

- Federal Railroad Administration (FRA)
- Transit Security Administration (TSA)
- SANDAG
- San Diego County OES
- Federal Transit Administration (FTA)
- American Public Transport Association (APTA)
- California Transit Association (CTA)

5.4 Previous and On-going Mitigation Activities

NCTD has incorporated the principles of hazard mitigation in various previous and on-going activities. The following list is a sample of the types of mitigation activities NCTD has and is implementing.

- NCTD is studying several older bridges, most with single track wood trestles; all of these bridges span environmentally sensitive areas that include lagoons, creeks, and other watershed drainage courses. This study is part of an overall **structural mitigation effort** to make the rail system more resistant several of the hazards identified in the LMHMP.

- Del Mar Bluffs Slope Stabilization – In the City of Del Mar, NCTD rail alignment runs atop the 50 to 70 feet high Del Mar Bluffs. These bluffs have history of landslides and surface failures; additionally, the bluffs are subject to ongoing erosion and soil failures that are a real threat to rail service and passenger safety. In response to a geotechnical study prepared for NCTD, several **mitigation** actions were taken. Those activities included removing groundwater to improve stability, providing lateral support and protecting existing support – both soldier piles and retaining walls were constructed as part of stabilization efforts.

- Replacement of Bridge 223.1 – Bridge is a major connector for NCTD's *Coaster* maintenance facility and the Oceanside Transit Center, which is the starting point for all *Coaster* and Metrolink (Orange County line) service. In the 1920's, the bridge suffered flood damage and washout. The current bridge is a combination steel truss and timber trestle. NCTD and SANDAG are working to finalize the design and construction of a complete replacement, which will be constructed out of concrete and steel.

- The track bed for the *Sprinter* light rail system has been engineered so that it is raised above the 100 year flood plain.

- Development and implementation of a "vernal pool restoration plan" as part of the construction and management of the Poinsettia *Coaster* station; plan is aimed at mitigating against the environmental consequences of NCTD's presence.

- Wildland/brush fire fuel reduction activities in Sorrento Valley.

- On-going soil stabilization activities in Rancho del Oro.

- Initial "hardening" of facilities and amplified security to mitigate against threat of human-caused hazards (such as acts of terrorism).

End Note: NCTD definitely has the technical, fiscal, management, and administrative capabilities required to successfully develop and implement a comprehensive multi-hazard mitigation strategy.

SECTION SIX

PLAN MAINTENANCE PROCEDURES

PLAN MAINTENANCE PROCEDURES

Requirement §201.6(c)(4)(i): *[The plan maintenance process **shall** include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.*

Requirement §201.6(c)(4)(ii): *The plan **shall** include a process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate.*

Requirement §201.6(c)(4)(iii): *[The plan maintenance process **shall** include a] discussion on how the community will continue public participation in the plan maintenance process.*

6.1 Monitoring, Evaluating, and Updating the Plan

As indicated previously, the mitigation plan process includes four broad tasks:

- **Organize Resources**
- **Assess Risks**
- **Develop Mitigation Plan**
- **Implement the Plan and Monitor Progress**

The final step in the development of a local hazard mitigation plan is to define and set forth procedures for the following:

- Monitoring, Evaluating, and Updating the Plan;
- Implementing the Plan; Potential for Incorporation into Other Agency or Jurisdictional Planning Mechanisms; and
- Continued Public Participation

It is important to remember that the hazard mitigation plan being developed is not intended to be a static, one-time document, but rather a "living" document with regularly scheduled monitoring and evaluation. Per DMA2K, a local hazard mitigation plan must be reviewed annually and updated at least every five (5) years. Kristin Thomas, NCTD Environmental Planner will be responsible for coordinating the annual LMHMP maintenance and evaluation. She can be reached at (760) -967-2817 or kthomas@nctd.org. She will work closely with the Core Mitigation Planning Team, who will review and evaluate the LMHMP.

At a minimum, the evaluation process will assess if goals and objectives still reflect current or anticipated conditions; whether the nature or magnitude of risks has changed, if current resources are sufficient to implement the LMHMP and if outcomes are as expected.

- **Schedule.** The LMHMP will be reviewed and evaluated on an annual basis, during the month of June or July; it will also be reviewed following a disaster. A brief report or memorandum documenting the review findings will be prepared and included as an Appendix to the plan. Each review shall include an evaluation of the following:
    - **Public Involvement.** Public involvement successes and challenges should be reviewed and noted, with any recommendations for changes.
    - **Risk Assessment.** The identified hazards and associated risks should be evaluated with respect to the previous year's events, and any significant differences should be noted.
    - **Mitigation Actions.** The proposed Projects should be reviewed and updated regarding status and implementation (e.g. "proposed project is now fully complete"). Any changes should be noted, along with the successes and/or challenges associated with the implementation.
    - **Responsibility.** The assignments of responsibilities to individuals and departments should be reviewed, and updated as necessary. This includes the department/person responsible for coordinating the annual plan maintenance. Information should, at a minimum, include a name, position, department or agency, address, contact phone numbers, and e-mail.

6.2 LMHMP Implementation

The first step is to officially adopt and "promulgate" the LMHMP. This official adoption demonstrates the NCTD's commitment to hazard mitigation and legitimizes the hazard mitigation planning effort. In addition, potential opportunities for incorporation of the hazard mitigation plan into other existing planning mechanisms should be investigated.

At a Project level, projects may be incorporated into capital improvement projects, annual operational budgets, and applications for Federal and state grants, as deemed appropriate.

Upon adoption, the plan faces the truest test of its worth: implementation. Implementation implies two concepts: action and priority. These are closely related.

While this LMHMP puts forth many worthwhile recommendations, the decision of which action(s) to undertake first will be the first issue that NCTD faces. There are two essential elements in that decision-making process. First, there are the priorities established in the plan, and second, the availability of funding. At face value, pursuing low or no-cost high-priority recommendations will have the greatest likelihood of success.

It will be important to monitor funding opportunities that can be leveraged to implement some of the more costly recommended actions. This can include creating and maintaining a bank of ideas on how any required local match or participation requirement can be met.

Then, when funding does become available, NCTD will be in a position to capitalize upon the opportunity. Funding opportunities that can be monitored include special pre- and post-disaster funds, special district budgeted funds, state or federal ear-marked funds, and grant programs, including those that can serve or support multi-objective applications.

With adoption of this plan, NCTD commits to:

- Pursuing the implementation of the high priority, low/no-cost Recommended Actions.
- Maintaining a vigilant monitoring of multi-objective, cost-share opportunities to assist NCTD in implementing the recommended actions of LMHMP.

It is envisioned that the Core Mitigation Planning Team will continue as an ongoing body with the responsibility for monitoring plan implementation issues. At the minimum, the Core Team will:

- Act as a forum for hazard mitigation issues;
- Monitor implementation of this Plan;
- Report on progress and recommended changes to the Executive Director and Board of Directors, as appropriate; and
- Inform and solicit input from the public.

The Core Team has the primary duty of overseeing the implementation of the LMHMP. Other responsibilities include reviewing and promoting mitigation proposals, hearing stakeholder concerns about hazard mitigation, and passing the concerns on to the appropriate entities.

6.3 Continued Public Involvement

Keeping the public informed of hazard mitigation planning is an important way to garner continued public support for the planning process. The following is a brief list of public information recommendations:

- Provide periodic summary updates of hazard mitigation measures, hazard mitigation projects under construction, and most importantly, hazard mitigation success stories following a disaster event, using local media and posted on NCTD web site.
- Hold periodic public meetings, workshops, and "open house" events to present hazard mitigation planning elements.
- Participate in annual community events.

6.4 Plan Maintenance and Incorporation into Other Planning Mechanisms

Plan maintenance is the ongoing effort to monitor and evaluate the implementation of the LMHMP and to update the LMHMP as progress, roadblocks, or changing circumstances are recognized.

This monitoring and updating will take place through an annual review by the Core Mitigation Planning Team, at the minimum and a 5 year written update to be submitted to the state and FEMA Region IX, unless a disaster or other circumstances (e.g., changing regulations) lead to a different time frame.

When the Planning Team reconvenes for the review, they will coordinate with all stakeholders that participated in the planning process – or that have joined the Team since the inception of the planning process – to update and revise the plan. Public notice will be given and public participation will be invited, at a minimum, through available web-postings and press releases to local media outlets, primarily newspapers and radio stations.

Every effort will be made to incorporate NCTD mitigation concerns into the planning documents of other jurisdictions. Cooperative efforts are much more cost effective; during regular meetings to discuss projects, NCTD will explore ways to have our mitigation concerns included in these jurisdictions mitigation plans. We already work closely with the cities of Cities of San Diego, Oceanside, Carlsbad, Encinitas, Solana Beach, Del Mar, San Marcos, Vista, and Camp Pendleton Marine Corps Base; each entity was invited to participate in NCTD mitigation planning.

In an ideal situation, NCTD would be part of the San Diego County Multi-Jurisdictional Hazard Mitigation Plan. However the "real politic" indicates that because of jurisdictional ambiguities and the regulations under which NCTD operates, NCTD may have to maintain status as a special district and continue to operate under a separate LMHMP

Relevant elements of the NCTD LMHMP will be included directly or by inference in several other NCTD planning documents over the course of the next year. Those documents include, but will not necessarily be limited to:

- System Security Plan;
- Passenger Train Emergency Response Plan;
- Future Short Range Transit Plan; and the
- Stormwater Pollution Prevention Plan.

6.4 Assurances

NCTD will comply with all applicable Federal statutes and regulations during the periods for which it receives federal grant funding.

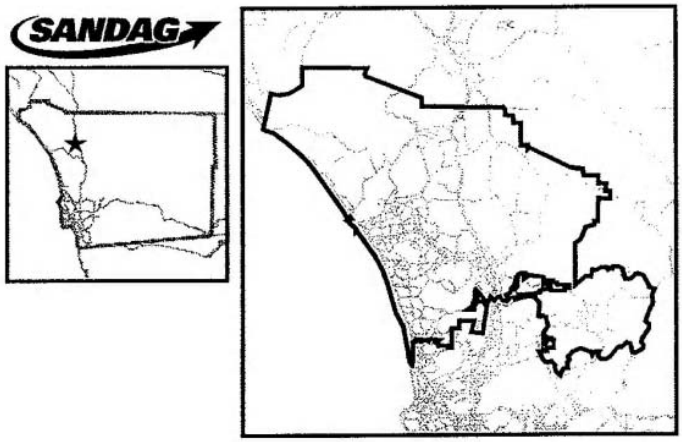
In addition, NCTD will amend this LMHMP, and/or the implementation strategies for this LMHMP, to reflect new or revised Federal (and State) regulations or statutes, policy, or government operations. Any such amendments will be added to the LMHMP as they are developed. They will be incorporated upon formal updating of the LMHMP and submitted to FEMA.

APPENDICES

APPENDIX A

DEMOGRAPHICS

2030 Cities/County Forecast – North County Transit District



POPULATION AND HOUSING (2000 to 2030)

	2000	2010	2020	2030	2000 to 2030 Change Numeric	2000 to 2030 Change Percent
Total Population	**785,244**	**921,254**	**1,020,064**	**1,119,081**	**333,837**	**43%**
Household Population	760,966	895,502	993,153	1,090,152	329,186	43%
Group Quarters Population	24,278	25,752	26,911	28,929	4,651	19%
Civilian	8,508	9,982	11,141	13,159	4,651	55%
Military	15,770	15,770	15,770	15,770	0	0%
Total Housing Units	**282,662**	**327,704**	**356,908**	**385,708**	**103,046**	**36%**
Single Family	187,215	224,367	242,971	266,495	79,280	42%
Multiple Family	75,622	82,971	93,078	97,661	22,039	29%
Mobile Homes	19,825	20,366	20,859	21,552	1,727	9%
Occupied Housing Units	**268,993**	**312,217**	**337,664**	**367,948**	**98,955**	**37%**
Single Family	179,547	215,537	231,935	256,533	76,986	43%
Multiple Family	70,904	77,734	86,427	91,342	20,438	29%
Mobile Homes	18,542	18,946	19,302	20,073	1,531	8%
Vacancy Rate	**4.8%**	**4.7%**	**5.4%**	**4.6%**	**-0.2**	**-4%**
Single Family	4.1%	3.9%	4.5%	3.7%	-0.4	-10%
Multiple Family	6.2%	6.3%	7.1%	6.5%	0.3	5%
Mobile Homes	6.5%	7.0%	7.5%	6.9%	0.4	6%
Persons per Household	**2.83**	**2.87**	**2.94**	**2.96**	**0.13**	**5%**

HOUSEHOLD INCOME (real 1999 dollars, adjusted for inflation)

	2000	2010	2020	2030	2000 to 2030 Change Numeric	2000 to 2030 Change Percent
Households by Income Category						
Less than $10,000	14,645	16,956	14,298	11,013	-3,632	-25%
$10,000-$14,999	12,150	14,033	12,439	10,307	-1,843	-15%
$15,000-$24,999	30,546	35,288	32,570	28,093	-2,453	-8%
$25,000-$34,999	32,151	37,053	35,776	32,535	384	1%
$35,000-$49,999	42,897	49,881	50,943	49,443	6,546	15%
$50,000-$74,999	54,864	63,933	69,824	74,560	19,696	36%
$75,000-$99,999	32,944	38,484	45,157	52,986	20,042	61%
$100,000 or more	48,796	56,589	76,657	109,011	60,215	123%
Total Households	268,993	312,217	337,664	367,948	98,955	37%
Median Household Income						
Adjusted for inflation ($1999)	$50,960	$51,133	$58,166	$67,631	$16,671	33%

ADVISORY:

This forecast was accepted by the SANDAG Board of Directors in Dec. 2003 for distribution and use in planning and other studies. The forecast reflects the likely distribution of growth based on the currently adopted plans and policies of the 18 cities and the most recent information from the County of San Diego's general plan update (GP 2020). The County's proposed plan is designed to accommodate a higher population in 2020 than is forecasted. The forecasted population is lower partly because not all areas that could be developed by 2020 will develop, and some areas will develop at a lower density than is shown in the plan. Future forecasts will reflect changes to city and county plans.

Some data presented here may not match 2000 Census information published by the U.S. Census Bureau for the following reasons: sample census data have been controlled to match 100 percent count (Summary File 1) data; and some minor adjustments were made (such as correcting the location of housing units that were erroneously allocated by the Census Bureau to roads and open space) to more accurately reflect the region's true population and housing distribution.

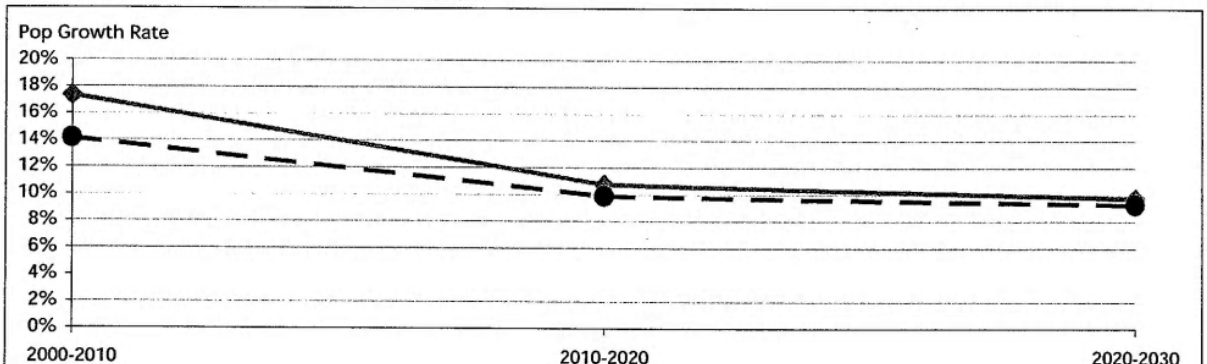
POPULATION BY AGE

	2000	2010	2020	2030	2000 to 2030 Change Numeric	Percent
Total Population	**785,244**	**921,254**	**1,020,064**	**1,119,081**	**333,837**	**43%**
Under 5	59,633	67,488	70,898	72,862	13,229	22%
5 to 9	62,284	64,649	67,950	71,119	8,835	14%
10 to 14	57,395	61,283	65,334	69,462	12,067	21%
15 to 17	31,927	39,444	39,056	41,602	9,675	30%
18 to 19	22,999	28,188	27,005	28,032	5,033	22%
20 to 24	63,485	72,858	74,218	78,968	15,483	24%
25 to 29	55,362	62,087	72,028	72,369	17,007	31%
30 to 34	57,259	63,028	68,795	72,080	14,821	26%
35 to 39	63,367	63,581	66,767	77,392	14,025	22%
40 to 44	61,290	63,018	64,739	71,364	10,074	16%
45 to 49	53,576	65,561	62,507	65,771	12,195	23%
50 to 54	44,899	60,531	60,176	61,747	16,848	38%
55 to 59	31,554	51,957	62,027	59,035	27,481	87%
60 to 61	10,436	18,769	24,133	24,309	13,873	133%
62 to 64	14,409	25,652	34,296	33,693	19,284	134%
65 to 69	23,517	31,748	51,006	60,452	36,935	157%
70 to 74	23,246	23,469	41,320	53,780	30,534	131%
75 to 79	22,011	19,909	26,846	43,421	21,410	97%
80 to 84	14,886	17,097	17,587	31,402	16,516	111%
85 and over	11,709	20,937	23,376	30,221	18,512	158%
Median age	33.5	35.1	36.9	38.4	4.9	15%

POPULATION BY RACE AND ETHNICITY

	2000	2010	2020	2030	2000 to 2030 Change Numeric	Percent
Total Population	**785,244**	**921,254**	**1,020,064**	**1,119,081**	**333,837**	**43%**
Hispanic	216,204	303,104	367,037	439,228	223,024	103%
Non-Hispanic	569,040	618,150	653,027	679,853	110,813	19%
White	486,797	504,909	516,969	519,261	32,464	7%
Black	23,582	26,966	29,952	32,659	9,077	38%
American Indian	5,580	5,059	4,765	4,640	-940	-17%
Asian	30,074	41,277	48,251	54,329	24,255	81%
Hawaiian / Pacific Islander	3,471	10,672	13,890	17,952	14,481	417%
Other	1,233	5,649	10,745	17,274	16,041	1301%
Two or More Races	18,303	23,618	28,455	33,738	15,435	84%

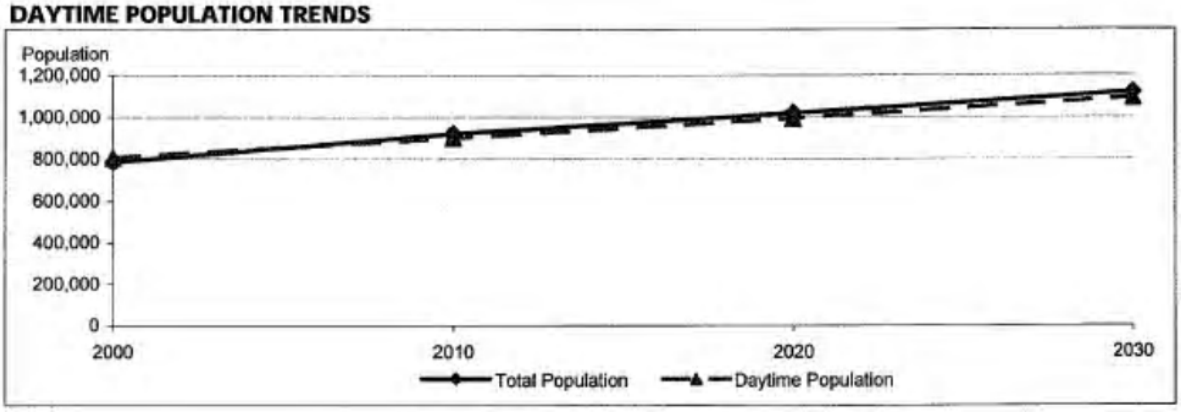
GROWTH TRENDS IN TOTAL POPULATION



DAYTIME POPULATION

	2000	2010	2020	2030	2000 to 2030 Change Numeric	2000 to 2030 Change Percent
Total Population	**785,244**	**921,254**	**1,020,064**	**1,119,081**	**333,837**	**43%**
Daytime Population	808,786	901,326	995,738	1,094,069	285,283	35%
Difference	-23,542	19,928	24,326	25,012	48,554	-206%

DAYTIME POPULATION TRENDS

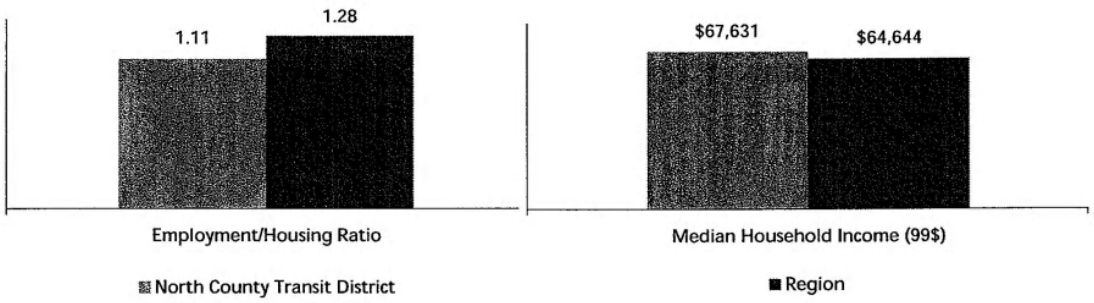


EMPLOYMENT[1]

	2000	2010	2020	2030	2000 to 2030 Change Numeric	2000 to 2030 Change Percent
Employment	**320,166**	**353,271**	**397,965**	**462,008**	**141,842**	**44%**
Civilian Employment	286,133	319,238	363,932	427,975	141,842	50%
Military Employment	34,033	34,033	34,033	34,033	0	0%
Employment/Housing Ratio[2]	**1.01**	**0.97**	**1.02**	**1.11**	**0.10**	**10%**

Notes:
1 - The number of jobs within this area.
2 - Civilian employment per housing unit.

EMPLOYMENT/HOUSING RATIO AND MEDIAN HOUSEHOLD INCOME IN 2030



LAND USE[1]

	2000	2010	2020	2030	2000 to 2030 Change Numeric	2000 to 2030 Change Percent
Total Acres	**652,521**	**652,521**	**652,521**	**652,521**	**0**	**0%**
Developed Acres	**431,743**	**455,430**	**482,975**	**571,172**	**139,428**	**32%**
Low Density Single Family	114,758	130,352	154,243	238,316	123,558	108%
Single Family	42,539	51,249	53,904	56,751	14,212	33%
Multiple Family	6,850	7,314	7,832	8,035	1,185	17%
Mobile Homes	2,703	2,697	2,686	2,678	-24	-1%
Other Residential	331	365	365	365	34	10%
Industrial	7,365	7,892	8,785	9,746	2,382	32%
Commercial/Services	11,635	12,524	13,161	13,997	2,363	20%
Office	716	781	855	1,013	297	42%
Schools	2,640	2,811	2,987	3,151	512	19%
Roads and Freeways	25,818	25,819	25,819	25,819	1	0%
Agricultural and Extractive[2]	38,045	35,370	34,083	33,038	-5,007	-13%
Parks and Military Use	178,346	178,255	178,255	178,262	-83	0%
Vacant Developable Acres	**152,331**	**128,644**	**101,099**	**12,903**	**-139,428**	**-92%**
Low Density Single Family	133,331	118,460	94,756	10,919	-122,412	-92%
Single Family	12,334	5,193	2,862	128	-12,206	-99%
Multiple Family	1,015	615	180	33	-982	-97%
Industrial	2,331	1,942	1,437	761	-1,570	-67%
Commercial/Services	2,097	1,390	975	331	-1,767	-84%
Office	194	134	94	37	-158	-81%
Schools	491	374	258	156	-335	-68%
Future Roads and Freeways	537	537	537	537	0	0%
Constrained Acres	**68,446**	**68,446**	**68,446**	**68,446**	**0**	**0%**
Employment Density[3]	**12.8**	**13.3**	**14.1**	**15.3**	**2.5**	**20%**
Residential Density[4]	**1.7**	**1.7**	**1.6**	**1.3**	**-0.4**	**-25%**

Notes:

1 - Figures may not add to total due to independent rounding.

2 - This is not a forecast of agricultural land, because the 2030 Cities/County Forecast does not account for land that may become agricultural in the future. Also, some types of development that occur on agricultural land, such as low density single family residential, may not preclude the continuation of existing agricultural use.

3 - Civilian employment per developed employment acre (industrial, retail, office, and schools).

4 - Total housing units per developed residential acre.

APPENDIX B

PLANNING MEETING AGENDAS, NOTES, AND SIGN-IN SHEETS

INITIAL LOCAL HAZARD MITIGATION PLANNING MEETING AGENDA

May 8, 2006

1. **INTRODUCTIONS** – (JT)

   A. Who is Who?

2. **WHY ARE WE HERE?** – (JT)

   A. Disaster Mitigation Act of 2000 (DMA2K)

   B. Examples of Plans

   C. FEMA Approval Criteria (Crosswalk)

2. **NCTD ORGANIZATIONAL STRUCTURE?** – (JT)

3. **STATUS OF REQUESTED DOCUMENTS AND INFORMATION?** – (See Handout) (JT)

4. **OVERVIEW OF HAZARD MITIGATION** – (CDA)

5. **OVERVIEW OF PLANNING PROCESS** – (See Handout) (AD)

6. **BUILDING A PLANNING TEAM** – (AD)

   A. Who Should Be On The Planning Team?
   - James Thernes & Associates
   - District Staff?
   - Outside Planning Members (Regulatory Agencies, Other Agencies, Organizations, Public)?

   B. Steering Committee vs. Task Force?

7. **PLANNING MEETINGS AND PUBLIC INVOLVEMENT** – (CDA)

   A. How Many Meetings?

   B. Public Involvement?

   C. Community Outreach? Mitigation Planning Survey?

8. **TIMELINE FOR COMPLETING THE PLAN** – (ALL)

A. Next Steps

9. **GENERAL ROLES & RESPONSIBILITIES** – (JT)

A. JT&A

- Coordinate with Agencies and Organizations
- Document Planning Activities
- Review Existing Documents Provided by District
- Conduct Public Meetings
- Prepare "Administrative Draft", "Preliminary Draft", and "Final Draft"

B. NCTD

- Supply names of Organizations & Contact Points
- Track All Meetings / Schedule Public Meetings
- Provide Copies of Existing Documents (See Handout)
- Provide Facility for Meetings and Work Space
- Identify Inventory Data on Critical Facilities and Infrastructure
- Estimate Potential Dollar Losses to Vulnerable Facilities
- Identify Mitigation Goals, Objectives, Policies, and Actions
- Submitting Public Notices
- Internal and External Distribution of Draft Plans and Documents

10. **GENERAL DISCUSSION** – (ALL)

A. Questions and Answers

11. **ADJOURN** – (JT)

INITIAL LOCAL HAZARD MITIGATION PLANNING MEETING NOTES

May 8, 2006

INTRODUCTIONS

Those present introduced themselves. The consultant team from James Thernes & Associates (JT&A) provided brief summaries of their background and relevant experience.

NCTD staff included representatives from all major departments:

- Rail and Bus
- Facilities Management
- Safety
- Risk Management
- Security
- Real Estate
- Fleet Management
- Marketing
- Finance
- Human Resources
- Operations & Maintenance

(Reference attached sign-in sheet)

WHY ARE WE HERE?

- Disaster Mitigation Act of 2000 (DMA2K -- There was discussion on the desire of Congress to break the repeated cycle of disaster, response and recovery. The current plan development process places emphasis on reducing the risks and effects of natural hazards through pre-event risk identification, assessment and mitigation. This process is a shift from the typical disaster preparedness, response and recovery approach. Instead, it uses a community-based development approach to address the mitigation of impacts from all types of disasters.

- Copy of the draft Local Hazard Mitigation Plan for the City of Palmdale was provided as an example of what a finished product includes and looks like.

- The FEMA review and approval criteria were discussed briefly and a sample of the "Crosswalk" used by FEMA reviewers was provided.

NCTD ORGANIZATIONAL STRUCTURE

- JT&A team requested a copy of the NCTD organizational chart, for inclusion in the Plan, as required by FEMA.

STATUS OF REQUESTED DOCUMENTS AND INFORMATION

- NCTD requested clarification on the types of documents requested by JT&A; existing NCTD documents such as the Systems Safety Program Plan and Systems Security Program Plan were mentioned as samples of the types of documents JT&A would need to review.

- Lee Kuhns (NCTD) will collect the requested information from various internal and external sources and provide it to JT&A in electronic format (whenever possible).

OVERVIEW OF HAZARD MITIGATION

- JT&A provided a PowerPoint presentation, accompanied by a handout, that summarized what hazard mitigation means; outlined the natural and technological (man-made) hazards that are included in mitigation planning; and displayed graphics demonstrating typical California hazards.

- Discussion followed on hazards that NCTD was already aware of and dealing with on a regular basis and on examining ongoing activities that can be viewed as mitigation activities in the broadest sense.

OVERVIEW OF PLANNING PROCESS

- JT&A gave a brief overview of the planning process, accompanied by a handout. The 10 steps outlined included: Getting Organized; Engaging the Public; Coordination with District Departments and Outside Agencies; Hazard Identification & Capabilities Assessment; Risk Assessment/Loss Estimate; Identifying Goals & Objectives; Identifying Possible Mitigation Measures; Developing the Mitigation Action Plan and Preparation of the Draft Plan; Adopting the Plan; and Implementing the Plan.

BUILDING A PLANNING TEAM

- Composition of the Planning Team was discussed; the core Planning Team consists of the JT&A Team (James Thernes, Chris Adams, Anita Dragan) and NCTD staff representing:
    - Rich Walker – Manager, Maintenance-of-Way
    - Lee Kuhns – Rail System Safety/Real Estate
    - Tom Gallagher
    - Tom Lichterman – Director of Transportation Services

- Other NCTD managers/staff at the meeting or their designated single point-of-contact will form a Mitigation Advisory Committee. Committee members may or may not attend each Planning Team meeting. The Advisory Committee will provide information and insight during the Plan development process and will review the draft plan document.

- NCTD should consider inviting partner agencies, such as CalTrans and Amtrak, to participate in the planning process, as part of the Mitigation Advisory Committee

PLANNING MEETINGS AND PUBLIC INVOLVEMENT

- There are no set numbers of planning or public meetings that must occur; the decision on when to meet during the planning process will be left to the Planning Team.

- At least one public meeting should be held.

- FEMA requires proof of a community-based planning process; the process must be documented in the Plan and must include a narrative detailing the activities of the Planning Team, the Advisory Committee and the community outreach process.

- Use of a planning survey to gather community input was discussed; JT&A will provide sample survey; can be distributed to bus and rail users, NCTD staff and general community.

NEXT STEPS

- Gather documents and information and review; determine when next meeting should occur.

GENERAL ROLES & RESPONSIBILITIES

- **JT&A** is responsible for coordinating with NCTD departments and outside agencies during the Plan development process; will document the planning process and review existing documents provided by the District and others; research risk assessment information as required; oversee community outreach process and conduct public meetings; prepare an administrative, preliminary and final draft of the Plan.

- **NCTD** will provide copies of requested existing documents to JT&A; supply names of organizations and points of contact; track all meetings and schedule public meetings; provide asset inventory information, particularly for critical facilities and infrastructure; estimate potential dollar losses should vulnerable assets be impacted by a natural or man-made disaster; identify mitigation goals, objectives, policies and action

plan; submit public notices and distribute draft plans and documents, internally and externally; and provide work space and meeting space, as required.

OTHER DISCUSSION ITEMS

Other matters that were discussed during the course of the meeting are listed here, not necessarily in order.

- Information deemed "sensitive" for security, operational or policy reasons does not need to be included in the Plan.
- The approved Mitigation Plan becomes the foundation and justification for future mitigation project funding requests from NCTD to FEMA and other agencies.
- FEMA, as a matter of course, does not view the replacement of equipment that has reached the end of its useful life as a "fundable" mitigation activity.
- FEMA does not expect NCTD to be able to control natural circumstances that pose hazards (such as sub-surface geology), but will expect that hazards associated with such a factors be discussed in the Mitigation Plan.
- The grant to develop the Mitigation Plan requires a 25% match from NCTD. There was a discussion on providing that match as a "soft match" which can include personnel time, materials and supplies, travel expenses, etc.
- Neither FEMA nor the consultant team can determine NCTD goals and objectives; consultants can only provide technical support and advice; the Plan is the District's and must reflect NCTD's mitigation priorities, suggested mitigation activities/measures addressing those priorities and an honest assessment of the District's capacity to implement suggested activities.
- FEMA will provide an unofficial courtesy review of the draft plan; NCTD should take advantage of that review; the Plan must be formally adopted by the NCTD governing body before it can be formally submitted to FEMA; resolution adopting the Plan must be included as part of the Plan.

District can modify Plan at its discretion if goals, objectives, activities or other critical information changes or needs to be modified or expanded.

INITIAL LOCAL HAZARD MITIGATION PLANNING MEETING

May 8, 2006
1:30 P.M.

ATTENDEES

Name	Department	Phone #	e-mail
Lee Kuhns	Rail	967-2851	LKUHNS@NCTD.ORG
Arette Dombroske	Safety	967-2889	ADombroske@NCTD.org
Susan Lockwood	Risk	967-2847	slockwood@nctd.org
David Hapworth	Security	966-6508	dhapworth@nctd.org
Ed Singer	Real Estate	966-6556	esinger@nctd.org
M. Wygant	Fleet.	967-2848	MWygant@NCTD.org.
PETE ARDLAND	Mkt	967-2827	Ahadland@nctd.org
Tom Kelleher	MKT.	967-2862	tkelleher@nctd.org
Tom Galvin	FAC	967 2897	TGalvin@NCTD.org
Jane Arnold	HR	967-2820	jarnold@NCTD.org
Lang Fernandes	Rail	967-2850	LFernandes@NCTD.org
Brian Graham	Ops & Maint	9672854	BGraham@nctd.org
Rich Walker	Rail	967-2868	rwalker@nctd.org
Bruce Foltz	Finance	967-2823	BFoltz@nctd.org
Tom Lichterman	RAIL	967-2855	tlichterman@NCTD.org
Rick Howard	G.M.	966-6597	rhoward@nctd.org
Anita Dragan	JT&A	916.988.1262	gaioh@earthlink.net
James Thernes	JT&A	818-406-4356	jthernes@earthlink.net
Chris Adams	JT&A	(916) 425-5936	chrisdadams@" "

LOCAL HAZARD MITIGATION PLANNING MEETING AGENDA

January 30, 2007

1. STATUS OF REQUESTED DOCUMENTS AND INFORMATION

A. Organization Chart

B. NCTD Asset Values
- Contents Value
- Approximate cost of relocating to temporary facility
- Approximate loss of revenue

C. Mitigation Goals, Objectives and Actions
- Identify goals and key objectives
- Provide overview of the process for determining goals and objectives
- Identify and prioritize future mitigation actions/projects
- Document rationale used to prioritize the actions/projects

D. Capability Assessment
- Breeze bus service
- Coaster commuter rail service
- Maintenance facilities
- Sprinter light rail

E. Existing MOAs/ MOUs

F. Fiscal Resources
- Major fiscal and budgetary tools available to NCTD
- NCTD participation with other organizations

G. Previous & Ongoing Mitigation Activities
- Riparian Mitigation
- Slope Stabilization
- Flood Prevention
- Fire Prevention

2. CURRENT ROLES & RESPONSIBILITIES TO COMPLETE THE PLAN

A. JT&A

- Document Planning Activities
- Assist with Public Meetings
- Prepare "Preliminary Draft" and "Final Draft"

B. NCTD

- Track All Meetings / Schedule Public Meetings (no minutes for meetings 1 & 2)
- Provide Facility for Meetings and Work Space
- Identify Mitigation Goals, Objectives, Policies, and Actions
- Public Notices
- Internal and External Distribution of Draft Plans and Documents

3. PLANNING MEETINGS AND PUBLIC INVOLVEMENT

A. How Many Meetings?

B. Public Involvement?

4. TIMELINE FOR COMPLETING THE PLAN

A. Next Steps

5. GENERAL DISCUSSION –

A. Questions and Answers

6. ADJOURN –

LOCAL HAZARD MITIGATION PLANNING MEETING NOTES

January 30, 2007

Attendance: See attached Sign-In Sheet

1. STATUS OF REQUESTED DOCUMENTS AND INFORMATION

- **Organization Chart** – Barbara Murray is responsible for the chart; should be able to provide chart with positions only, not individual names; was suggested that only the major organizational chart be used, rather than 6 that are currently in document.

- **NCTD Asset Values** – Bruce Foltz and staff will provide missing information, including estimates of contents values of listed assets (when appropriate), cost of relocating to a temporary facility should a facilities such as NCTD offices be severely damaged, and an estimate of the loss of revenue that could occur because of natural or human-caused disasters.

- **Mitigation Goals, Objectives, and Actions** – Sample goals and objectives from City of San Diego were distributed; process for deciding goals, objectives, and actions/projects was discussed; types of projects/actions were discussed, in light of past hazards – flooding and fire (brush fires and burning of wooden bridges).
    - Discussion on documenting the process of identifying and prioritizing mitigation actions/projects; discussion on criteria for prioritizing projects (level of effort, technical requirements, environmental consequences, etc.);
    - Tom Lichterman requested that Consultant – James Thernes & Associates, Inc. (JT&A) simplify the model goals and objectives provided; JT&A agreed to provide additional and/or simplified examples.

- **Capability Assessment** – Mitch Alderman and/or Tom Lichterman will provide a paragraph on the history/development of the *Breeze* bus service, *Coaster*, maintenance facilities, and the *Sprinter*. Information will be expanded on and included in the Preliminary Draft.

- **Existing MOAs/MOUs –** Meeting participants provided additional information to JT&A for inclusion in Preliminary Draft.

- **Fiscal Resources –** Bruce Foltz and staff will prepare a list of the major fiscal and budgetary resources available to NCTD.

    - Information on NCTD involvement with other organizations was provided by meeting participants; will be included in Preliminary Draft.

- **Previous & Ongoing Mitigation Activities** – Additional information was provided on current projects, past projects, and proposed projects with hazard mitigation objectives (e.g. slope stabilization or brush-fire fuel reduction); information to be included into the Preliminary Draft.

2. RESPONSIBILITIES

- **JT&A –** Will document all planning activities and the process of mitigation strategy development and include in Preliminary Draft, per FEMA requirements; will assist in public meeting(s), as required.

    - Will prepare Preliminary and Final Draft for review and comment.

- **NCTD –** Will identify mitigation goals, objectives, policies, and actions; Core Team and others will meet to discuss ideas prior to next scheduled meeting with JT&A on March 14th at 10:OO am.
    - Will track all planning meetings and schedule public meetings; will work with JT&A to finalize meeting notes for first two meetings;
    - Will provide facilities for meetings and work space;
    - Will be responsible for required public notices and the internal and external distribution of Preliminary and Final Drafts.

3. PLANNING MEETINGS AND PUBLIC INVOLVMENT

- There will be two public meetings – One in Oceanside and one in Escondido;
- Meetings will be advertised using variety of methods.

4. TIMELINE

- JT&A was asked to supply a timeline/schedule for completing the Final Draft and submitting it to FEMA; agreed to provide timeline after returning to office.

5. GENERAL DISCUSSION

- Discussion centered on specific activities that may be eligible for mitigation project funding and on the potential for combining other funds (EPA, Homeland Security, etc.) with FEMA funds.

N C T D

LOCAL HAZARD MITIGATION PLANNING MEETING

January 30, 2007
10:00 A.M.

ATTENDEES

Name	Department	Phone #	e-mail
Anita Dragan	JT&A	(916) 988-1262	gaioh@earthlink.net
JAMES THERNES	JT&A	(818) 406-4356	jthernes@earthlink.net
Krishn Thomas	NCTD	760 967 2817	Kthomas@nctd.org
Tom KELLEHER	NCTD	760.967.2862	tkelleher@nctd.org
Rich Walker	NCTD	760-967-2868	rwalker@nctd.org
DAVID PAPWORTH	NCTD	760 966 6508	dpapworth@nctd.org
Kirk Talbott	NCTD	760 966 6582	KTALBOTT@NCTD.ORG
Walt Stringer	NCTD	760-967-2818	wstringer@nctd.org
MITCH ALDERMAN	NCTD	760-967-2852	MALDERMAN@NCTD.ORG
LANE FERNANDES	NCTD	760-967-2850	LFERNANDES@NCTD.ORG
Alison Gearhart	NCTD	760-966-6678	agearhart@NCTD.ORG
Susan Lee-Snyder	NCTD	760/966-6580	slee-snyder@nctd.org
Bruce FOLTZ	NCTD	760-967-2823	BFOLTZ@NCTD.org
LANCE SCHULTE	NCTD	760-966-6683	LSCHULTE@NCTD.ORG
TOM LICHTERMAN	NCTD	760-967-2855	tlichterman@NCTD.ORG
Ed Singer	NCTD	(760) 9666556	ESINGER@NCTD.ORG
Lee Kuhns	NCTD	760/967-2851	LKUHNS@NCTD.ORG

LOCAL HAZARD MITIGATION PLANNING MEETING AGENDA

March 14, 2007

1. ACTION ITEMS

A. NCTD Asset Values – Information still needed

- Contents Value
- Approximate cost of relocating to temporary facility
- Approximate loss of revenue

B. Mitigation Goals, Objectives, and Actions – For discussion

- Identify goals and key objectives
- Identify and prioritize future mitigation actions/projects
- Document rationale used to prioritize the actions/projects

C. Fiscal Resources – Information still needed

- Major fiscal and budgetary tools available to NCTD

2. CURRENT ROLES & RESPONSIBILITIES TO COMPLETE THE PLAN

A. JT&A

- Document Planning Activities
- Assist with Public Meetings
- Prepare Final Draft

B. NCTD

- Track All Meetings / Schedule Public Meetings (minutes prepared by JT&A for meetings, but no feedback)
- Provide Facility for Meetings and Work Space
- Identify Mitigation Goals, Objectives, Policies, and Actions
- Public Notices
- Internal and External Distribution of Draft Plans and Documents

3. PLANNING MEETINGS AND PUBLIC INVOLVEMENT

A. Two meetings – Escondido and Oceanside

B. Meetings will be advertised using variety of methods

4. TIMELINE FOR COMPLETING THE PLAN

A. The following calendar is based on two primary assumptions. First, we have assumed that NCTD will have finalized the items addressed on our January 30, 2007 Planning Meeting Agenda by the March 14, 2007 meeting. Second, we have assumed that FEMA will take 60 days to complete the courtesy review and 60 days to complete the review of the final LMHMP.

- March 14, 2007 – Meeting #4; finalize all items on the 1/30 agenda
- March 31, 2007 – Preliminary Draft complete
- March 31, 2007 – Public meeting announcement published
- April 1 – April 30, 2007 – Preliminary Draft available at NCTD offices for public review; copies of Preliminary Draft transmitted to City Managers and American Red Cross for review and comment (others as determined by NCTD)
- April 1 – April 30, 2007 – Preliminary Draft to NCTD Core Planning Group & Mitigation Advisory Committee for review and comment
- May 2, 2007 – Public meeting in Oceanside
- May 3, 2007 – Public meeting in Escondido
- May 8, 2007 – Comments from public, Cities, NCTD and others, as appropriate, incorporated into Plan; FEMA Crosswalk Document completed; plan transmitted to NCTD for final review
- May 18, 2007 – Plan and Crosswalk transmitted to FEMA for courtesy review
- July 23, 2007 – FEMA courtesy review comments, with Crosswalk, returned
- July 31, 2007 – – FEMA comments included into Final Plan
- August 1 – August 21, 2007 – Final Plan transmitted to Board of Directors for review; resolution approving the Plan adopted
- August 1 – August 21, 2007 – Final Plan to Core Team for review
- September 3, 2007 – Transmit Final Plan, including resolution and amended Crosswalk to FEMA
- December 15, 2007 – Plan approved by FEMA

5. GENERAL DISCUSSION

A. Questions and Answers

6. ADJOURN

LOCAL HAZARD MITIGATION PLANNING MEETING NOTES

March 14, 2007

ATTENDANCE: See attached Sign-in-Sheet

1. ACTION ITEMS

A. NCTD Asset Values – Information still needed

Brief discussion on the compilation of data still needed, including estimates of contents value of existing buildings, train stations, and similar assets; discussion on calculating approximate cost of relocating to temporary facility and potential loss of revenue.

Bruce Foltz met briefly with JTA staff afterward to discuss information needed in more detail.

B. Mitigation Goals, Objectives, and Actions – For discussion

Lengthy discussion on identifying and prioritizing mitigation projects; list of potential projects was discussed. Primary criteria for initial prioritization were discussed by Planning Team; NCTD Planning Team members agreed to prioritize projects and transmit information to Kristin Thomas, who would then forward the information to JTA staff. In order to be selected as a "critical mitigation project," a project had to meet a minimum of 4 of the following 6 criteria:

- Would mitigate against the impact of at least two natural and/or human caused hazards identified in the LMHMP;
- Would respond to public and agency planning concerns regarding the protection of NCTD assets/facilities/equipment and the prevention of disruption to mass transit;
- Returned maximum value and benefit for dollars/effort expended;
- Could be accomplished by existing staff, with existing resources;
- Could be completed within a predictable time-frame; and
- Could leverage existing resources and combine funds from multiple sources, including NCTD, federal, state, and regional resources.

2. CURRENT ROLES & RESPONSIBILITIES TO COMPLETE THE PLAN

A. Discussion on responsibilities of individual Planning Team members, including the documentation of planning activities, convening public meetings, preparation of the Final Draft of the LMHMP, public notices, distribution of draft plans and documents, and providing feedback.

3. PLANNING MEETINGS AND PUBLIC INVOLVEMENT

A. Two public meetings will be scheduled – one in Oceanside and one in Escondido; meetings will occur after draft LMHMP has been available for public review for approximately 30 days. NCTD will use various media, including their newsletter and web page to solicit comments and announce the public meetings.

4. TIMELINE FOR COMPLETING THE PLAN

A. The proposed timeline for completing the draft LMHMP was discussed. Schedule will be modified once the draft has been completed and public commentary has been received and considered by the Planning Team.

5. ADJOURN

N C T D

LOCAL HAZARD MITIGATION PLANNING MEETING

March 14, 2007
10:00 A.M.

ATTENDEES

Name	Department	Phone #	e-mail
Anita Dragan	JT&A	916-988-1262	gaioh@earthlink.net
JAMES THERNES	JT&A	818-406-4356	jthernes@earthlink.net
Kristin Thomas	NCTD	760 967-2897	kthomase nctd.org
TOM Gallagher	NCTD	760 967-2897	TGALLAGHER.org
Ed Singer	NCTD	760-966-6556	esinger@nctd.org
TOM TRAVER	NCTD	760-967-2841	TTRAVER@NCTD.ORG
TOM LICHTERMAN	NCTD	760 967-2855	tlichterman@NCTD.ORG
Rich Walker	NCTD	760-967-2868	rwalker@nctd.org
MITCH ALDERMAN	NCTD	760-967-2852	MALDERMAN@NCTD.ORG
Bruce FOLTZ	NCTD	760-967-2823	BFOLTZ@NCTD.org
Alison Geanhart	NCTD	760-966-6678	ageanhart@NCTD.org
Kirk Talbott	NCTD	760-966-6582	KTALBOTT@NCTD.ORG
LANCE SCHULTE	NCTD	760-966-6683	LSCHULTE@NCTD.ORG
DAVID PAPWORTH	NCTD	760 966 6508	dpapworth@ncrd.org
LEE KUHNS	NCTD	760 967-2851	LKUHNS@NCTD.ORG

APPENDIX C

PUBLIC MEETING NOTES & SIGN-IN SHEET

Local Multi-Hazard Mitigation Plan

Public Meeting – May 15, 2007

AGENDA

A. POWERPOINT PRESENTATION

- Purpose of Developing Plan
- Disaster Mitigation Act of 2000
- Plan Contents

B. QUESTIONS AND ANSWERS

C. CLOSING COMMENTS

LOCAL MULTI-HAZARD MITIGATION PLAN (LMHMP)
PUBLIC MEETING
NOTES

May 15, 2007

A public meeting was scheduled to receive input and comments from the community regarding the draft NCTD's draft LHMP. A notice of the meeting appeared in the North County Times on April 29th. Readers were told where copies of the Plan could be accessed. There were no community members who came to the meeting.

Consultants discussed the community response with members of the Planning Committee, and it was decided to place another announcement in the North County Times, in addition to posting the plan on the NCTD website and making hard copies available at NCTD administrative offices and the Oceanside and Escondido Transit Centers.

Also discussed were review comments from NCTD staff, other agencies (e.g. SANDAG) and cities (e.g. Carlsbad) within the NCTD service area. Comments included suggestions for other projects, additions to the listing of on-going mitigation activities, and similar comments.

(Copies of newspaper announcements, proposed public meeting agenda, and sign-in sheet are included herein.)

Local Multi-Hazard Mitigation Plan

Public Meeting – May 15, 2007

ATTENDEES

NAME	ADDRESS
Kristin Thomas	311 Tremont Oceanside Ca 92054
JAMES THERNES	1401 N. CENTRAL AVE. GLENDALE, CA. 91202
TOM LICHTERMAN	810 MISSION AVE, O'SIDE 92054
Anita Aragan	JTA
DAVID PAPWORTH	311 TREMONT OCEANSIDE CA, 92054

NCTD
Notice of Public Meeting on May 15, 2007,
for Local Multi-Hazard Mitigation Plan

The North County Transit District (NCTD) will hold a Public Meeting at 311 South Tremont, Oceanside, CA 92054 on May 15, 2007 at 10:00 a.m to hear public comment about its Local Multi-Hazard Mitigation Plan. A copy of the Plan is available for public review at GONCTD.COM.

To comment on the plan, you may address NCTD at the public meeting or write to NCTD, ATTN: Local Multi-Hazard Mitigation Plan, 810 Mission Avenue, Oceanside, CA 92054. You may also fax to (760) 967-2001. Please add Local Multi-Hazard Mitigation Plan in the subject line of your fax or email. You may also telephone NCTD's Customer Service Department at 760/966-6500 with your comments. **Comments should be received by NCTD no later than the date and time of the Public Meeting.**

Help for People with Disabilities

For individuals with disabilities, we will provide assistive services or copies of public documents in an alternate format. Please call 760/966-6500 a minimum of 10 working days prior to the public hearing. Persons with hearing impairment please use the California Relay Service: 800-735-2929 using TTY; 800-735-2922 using voice; 800-855-3000 Spanish.

1. This Public Hearing conforms with requirements described in the Federal Transit Administration's Circular 9030. 1B, published October 10, 1996, page V-9.
2. NCTD does not discriminate on the basis of disability in the admission or access to, or in treatment or employment in, its services, programs, and activities.
3. NCTD does not discriminate on the basis of race, color, or national origin in the level and quality of transportation services and transit-related benefits, in accordance with Title VI of the Civil Rights Act of 1964.

(Appeared in North County Times, April 29, 2007)

PUBLIC NOTICE

The North County Transit District has prepared a draft Local Multi-Hazard Mitigation Plan in compliance with the Federal Disaster Mitigation Act of 2000. Once approved by the Federal Emergency Management Agency (FEMA), the Plan will give NCTD access to disaster mitigation funding that would not be available to them without an approved Plan. The Plan has already incorporated community mitigation planning concerns, based on surveys completed by NCTD users during the early months of 2007.

One of the regulatory requirements is that the Plan be available for public review and comment. In keeping with this requirement, a copy of the Plan is available for public review at gonctd.com and the main administrative office at 810 Mission Avenue, Oceanside. Copies will also be available at the Oceanside and Escondido Transit Centers at the Customer Service window.

Address all comments to: Kristin Thomas, Environmental Planner

Fax: (760) 722-0940
Phone: (760) 967-2817
Email: kthomas@nctd.org

Comments must be received by May 31, 2007.

(Appeared in North County Times, May 16, 2007)

APPENDIX D

COMMUNITY PLANNING SURVEY

NORTH COUNTY TRANSIT DISTRICT (NCTD)
Multi-Hazard Mitigation Planning Survey

The purpose of this survey is to gather user and community input in identifying the potential disasters that may threaten the facilities and services of the District. The survey also gathers other information, such as the potential disaster that might pose the highest threat and asks respondents to indicate planning priorities.

Results from this survey will be used to assist in the creation of the North County Transit District's Multi-Hazard Mitigation Plan, which is aimed at making the District's facilities and services more disaster-resistant. If you have any questions, please contact Lee Kuhns at (760) 967-2851.

1. I am a (select those that apply; you may select more than one):

   ____ NCTD Service User (bus, rail, etc.) ____Community Member (non-user)

   ____ NCTD Employee ____Local Businessperson ____Other Public Employee (State, Federal, County)

2. How concerned are you about the following disasters affecting the District's services and facilities? Circle the corresponding number for each disaster.

Potential Disasters	Not Concerned	Somewhat Concerned	Moderately Concerned	Very Concerned
Natural				
Earthquake	1	2	3	4
Flooding	1	2	3	4
Landslide	1	2	3	4
Severe Weather	1	2	3	4
Wildland Fire	1	2	3	4
Urban Fire	1	2	3	4
Drought	1	2	3	4
High Winds	1	2	3	4
Health Alert or Mass Disease	1	2	3	4
Human Caused				
Civil Unrest	1	2	3	4
Hazardous Material Spill	1	2	3	4
Terrorism	1	2	3	4
Disruption of Mass Transit	1	2	3	4
Power or Utility Failure	1	2	3	4
Other	1	2	3	4

3. Among the disasters listed above, select the disaster that you feel is the **highest threat**; please write in only one disaster.

_____

4. Who would you trust to provide you with information on how to make your home or place of business safer from natural or human-caused disasters? (Check all that apply.)

News Media	Government Agency	Insurance Agent or Company	Utility Company	University/ Research Institution	American Red Cross	Religious or Church Organization	Other Non-Profit

5. Natural and human-caused disasters can have a significant impact on NCTD's services. Planning for these events can help lessen the impact. We need your help to determine planning priorities. Please check the appropriate box to indicate how important each priority is to you.

Planning Priority	Very Important	Important	Somewhat Important	Neutral	Not Very Important	Not Important
Protecting public transportation facilities						
Preventing NCTD development in hazard areas						
Protecting natural environment in proximity to NCTD lines or right- of-ways						
Promoting cooperation among agencies, citizens, businesses						
Strengthening NCTD's emergency response capacity (police, fire, etc.)						
Protecting District's economic assets						

6. Are you interested in participating in meetings to assist in the development of the North County Transit District Multi-Hazard Mitigation Plan? If so, please contact: Lee Kuhns at (760) 967-2851.

Please return this survey by **Friday, November 17, 2006** to Lee Kuhns, North County Transit District, 810 Mission Avenue, Oceanside, CA 92054.

Thank you!

APPENDIX E

EXPANDED PROJECT LIST

PROPOSED FUTURE MITIGATION PROJECTS

STRUCTURAL REPAIR/RETROFIT REPLACEMENT

Bridge 207.8* Bridge 207.8*
Bridge 208.6*
Bridge 209.9*
Wood Box Culvert – 209.7*
Bridge 215.3*
Tank Bridge – 216.0
Bridge 217.32*
Bridge 223.1*
Bridge 225.4
Bridge 227.6
Bridge 240.4

* * Mentioned in "Programmatic Biological Opinions" by US Fish & Wildlife Service and/or other similar agencies.

DRAINAGE IMPROVEMENTS

Miramar Hill
E St. to Santa Fe Drive in Encinitas
Rose Creek Canyon
Solano Beach Station

OTHER

Remove trees - Stuart Mesa
Realign track at Miramar Hill; complete right-of-way road
Develop system support set-out spurs
Complete strategic radio communication site improvements
Upgrade vital signal equipment
Enhance security technology for at-grade road crossings
Install right-of-way fencing