# Public Safety Element
# Noise Element
# Scenic Highway Element

# CITY OF TRINIDAD
# GENERAL PLAN

July, 1975

OSCAR LARSON AND ASSOCIATES
and ENVIRONMENTAL RESEARCH CONSULTANTS

Oscar G. Larson, R. E.
Kenneth G. Davlin, R. E.
John C. Olson, L. S.

OSCAR
LARSON
& ASSOCIATES
CONSULTING ENGINEERS AND LAND SURVEYORS

1809 Albee Street, P.O. Box 3806, Eureka, California 95501, Phone (707) 443-8381

July 17, 1975

City Council
City of Trinidad
P. O. Drawer N
Trinidad, California 95570

Gentlemen:

The following report is the Public Safety, Noise and Scenic Highway Elements of the Trinidad General Plan. It incorporates the changes requested when the Council adopted the elements on July 1, 1975. Other changes include rewording to satisfy the comments submitted by the Humboldt County Planning Department, the insertion of a section on implementation at the end of the Public Safety Element, inclusion of a discussion in the Noise Element of Community Noise Equivalent Levels (CNEL) and recently adopted State noise insulation standards and addition of Scenic Highway standards and criteria. The wording of the recommendations is unchanged except in a few cases where new information required a change.

We are confident that the implementation of the recommendations on the Public Safety Element will reduce hazards. The Noise Element alerts the community to the potential for increased noise levels and indicates what can be done if noise becomes a problem. The Scenic Highway Element considers the options open to the community for protecting and enhancing the many scenic attractions in the Trinidad area.

Oscar Larson and Associates, Environmental Research Consultants and Resource Planning Associates wish to thank you for the opportunity to assist the City of Trinidad in the preparation of these General Plan Elements. We very much appreciate the assistance given by the City Clerk and the input provided by all of the citizens who took an interest in this planning project.

Very truly yours,

OSCAR LARSON & ASSOCIATES

Russell Nebon

Russell Nebon
Planning Consultant

Kenneth G. Davlin

Kenneth G. Davlin

RN/meb

TABLE OF CONTENTS

## LIST OF PLATES



## ENVIRONMENTAL ASSESSMENT INDEX

## PUBLIC SAFETY, NOISE AND SCENIC HIGHWAY ELEMENTS INTRODUCTION

Planning Requirement and Guidelines. State Law (Section 65302.2) provides that every city and county in the state prepare and adopt a seismic safety element, a noise element, a safety element and a scenic highway element as part of the General Plan for the jurisdiction. The state law also provides that the Council on Intergovernmental Relations develop guidelines for each of these elements. These guidelines are advisory in nature and are intended to be flexible to meet the varying needs and characteristics of the different cities and counties in the state. This report is intended to satisfy the requirements of the state law and the intent of the CIR guidelines.

Combined Elements. The CIR guidelines suggest that if the subject matter of general plan elements are similar or closely related, combining them may be appropriate. Because of the interrelationship between the Seismic Safety Element and the Safety Element they are combined under the heading of the Public Safety Element. While this expands the subject range somewhat, it ties together most of the factors that cause or are related to major emergencies or risks to public safety. The subjects considered are the common concern of public safety agencies such as the police department, fire district, and public works department.

The Planning Area. The Mid-Humboldt County General Plan[1] includes the 1985 Land Use and Circulation Plan for the Trinidad Area. The boundary of the Trinidad planning area is about one mile north of the city limits, the steep slope areas to the east and about two-thirds of a mile south of the city limits beyond the Trinidad Indian Reservation. Subsequent General Plan Elements have generally used this same planning boundary.

For the purposes of the Public Safety, Noise and Scenic Highway Elements, the boundary has been revised to extend another half mile to the north and been pulled back a half mile on the south. Plate 2 shows the area covered. The reason for adjusting the boundary is to conform with the potential service area of a Trinidad sewer system as identified in the adopted sewage plan[2]. Areas that can be served by anticipated city services can be considered for development consistent with city planning objectives. Areas that cannot be served are usually subject to development limitations. Without city services there is little reason to annex to the city, and therefore these areas usually remain unincorporated and continue to be a county planning responsibility.

Adequate planning data and analysis in the area which will ultimately be served by the city should assist the city in evaluating the opportunities and problems posed by annexation proposals, and better enable the city to review and comment on development proposals being considered for approval by the County within the city's sphere of influence.

---

[1] Mid-Humboldt County Land Use Guide, Baruth and Yoder, April 1971.

[2] Wastewater Collection, Treatment and Disposal, For Mid-Humboldt County, Baruth and Yoder, July, 1971.

Affected Agencies. As the primary unit of general local government serving the largest portion of the population in the planning area and the most intensely developed area, the City of Trinidad is responsible for adopting and implementing these General Plan elements. The County of Humboldt is the responsible unit of general government providing police protection, building construction regulation, road improvements and other governmental services in the unincorporated areas. It is anticipated that the county will carefully consider the criteria and standards contained in these elements and cooperate with the city of Trinidad in their application to the County's portion of the Trinidad planning area.

The Trinidad Fire Protection District and the Trinidad Elementary School District are special districts serving the planning area. They will be involved in implementation of some of the recommendations contained in the Public Safety and Noise Elements. A few agencies at the state, federal, and local level are affected indirectly or play a secondary role in implementing the recommendations. These agencies are noted where they are affected.

Relation to Existing General Plan Elements. The recommendations in a Public Safety, Noise or Scenic Highway study should, under ideal circumstances be part of the basic information used to develop the Land Use, Circulation and other consolidating elements of a General Plan. However, the consolidating elements were prepared several years ago. Preparation of the Public Safety, Noise, and Scenic Highway Elements at a later date raises the possibility that the data and proposals could uncover problems in the existing plans or conflict with existing policies. Where conclusions in the Public Safety, Noise or Scenic Highway Elements raise questions about land use designations or other aspects of existing general plan elements, these questions are noted and the Planning Commission is asked to consider resolving the issue either as part of a general updating of the existing elements or as specific amendments. In most cases the elements herein amplify and support the existing elements and should be helpful to the Planning Commission and the building inspectors in their permit issuing functions. Important considerations in public improvement and maintenance programs are also noted.

Citizen Input. Citizen input has played an important part in the assessment of problems and development of mitigating measures. Interviews with a select group of local residents and a meeting to discuss the preliminary findings with them have provided valuable background information. Their assessment of the important problems in the community, and their reactions to the issues covered in the three elements provided the perspective needed to determine which problems should be given emphasis and which solutions were most likely to be effective under local conditions.

Where there was general consensus among the citizens' committee members their preference has been given considerable weight. Many of the choices were between continuing with the "no action" policy or recommending a specific "action" policy. There were few instances where multiple action proposals were considered feasible. The citizens tended to refrain from recommending action policies which involved expanding governmental bureaucracy, property tax increases, or placing responsibilities, which

could be considered onerous, on private parties. This generally conservative approach often contrasted with the consultant's efforts to uncover every possible problem and identify an acceptable solution. The outcome is an attempt at a balanced outlook, not so conservative that legitimate public concerns go unsatisfied, and not so optimistic as to presume that every possibility, however minor, should be considered and resolved.

Report Format. Rather than follow a formal outline that covers each item mentioned in the CIR guidelines, the focus has been shifted to problem identification and the development of feasible solutions. The text of each element is confined to brief elaboration of problems that have been identified and a series of recommendations aimed at correcting significant problems. Most of the relevant technical information is located in the appendices at the end of the element.

Environmental Impacts. The Guidelines for Implementation of the California Environmental Quality Act of 1970, as amended through February 18, 1975, include the adoption of elements of a General Plan as projects subject to the Act and thus to the Guidelines (Section 15037 a 1, Section 15060). Beyond this, the Guidelines are open to interpretation as to whether individual elements of the General Plan must have an Environmental Impact Report or whether a Negative Declaration can be used, especially in this instance, when the elements consist of environmental information and adjustments in administrative policy which taken as a whole will have very little, if any, significant impact on the environment.

The general plan guidelines adopted by the Council on Intergovernmental Relations seem to suggest that an Environmental Impact Report is required, but go on to qualify the application of the CEQA guidelines with the statement, "Given the nature of the document as a long range set of policies and principles, it is not always practical to apply each of the seven points noted in the CEQA with the same degree of specificity that is applied to a specific project. The general plan environmental analysis should take a broader scope than the analysis which is done on a specific project which has specific, well defined limits."

The environmental review procedures adopted by the City of Trinidad under CEQA require an "initial study" to assist the City in determining whether or not the project "may involve significant environmental impacts". To provide the City with the necessary data for its initial study, an environmental assessment has been incorporated into the text of the elements. Important environmental information provided in Appendix A and D regards geologic and noise considerations respectively. Further, the impacts associated with the recommendations are also addressed (please refer to the italicized text). When the assessment covers general impacts relating to more than one recommendation the discussion is located in the introductory section. Specific impact assessments are provided following those recommendations which interject unique considerations not covered by the general introductory assessment, or the appendices.

# PUBLIC SAFETY ELEMENT

Content. The Public Safety Element is a composite of the Seismic Safety Element and the Safety Element. According to the state guidelines the Seismic Element should consist of "an identification and appraisal of seismic hazards such as susceptibility to surface ruptures from faulting, to ground shaking, to ground failures, or to the effects of seismically induced waves such as tsunamis and seiches." The seismic safety element includes "an appraisal of mudslides, landslides, and slope stability as necessary geologic hazards that must be considered simultaneously with other hazards...".

Purpose. The Government Code identifies the purpose of the Safety Elements as "the protection of the community from fires and geologic hazards including features necessary for such protection as evacuation routes, peak load water supply requirements, minimum road width, clearances around structures, and geologic hazards mapping in areas of known geologic hazard." The intent of both of these elements is to reduce loss of life, injuries, damage to property and economic and social dislocation.

Hazards. When structures and land uses are situated close together and are utilized and occupied for a variety of purposes the number of possible hazards that could result in damage or destruction of property or injury to the occupants increases dramatically. Both the individual property owner and local government have become involved in various attempts at hazard reduction or the provision of emergency services. Public agencies have assumed responsibility for protection of private property in extreme hazards or where hazards affect many properties or citizens. At the same time the city is responsible for the use and maintenance of publicly owned property, such as streets, public buildings, and parks. Since it is difficult to totally remove all risks from the environment, property owners and the city protect themselves from economic loss by purchasing insurance policies. The greater the risk that is covered the higher the insurance premium. So it behooves both property owners and the city to reduce the risks whenever possible for both humanitarian and economic reasons.

The following series of goals characterizes the general intent of the city and the fire district:

1. To assist private property owners in maintaining safe living, working, and playing conditions by requiring inclusion of safety factors in new structures and land uses, by encouraging reduction of hazards on existing properties through proper maintenance, by maintaining adequate law enforcement and fire supression capability, and by participating with property owners in various types of public works projects aimed at reducing hazards when general public benefit will result.

2. To make public facilities as safe as possible.

3. To achieve the lowest possible fire rating for the city.

4. To cooperate with other agencies to maximize emergency response capability.

5. To minimize the loss of life and property damage in the event of disaster by providing essential services and organizing efficient community response.

Giving substance to these goals requires more precise definition of how far the city should go to achieve these goals. Legal obligations, liability, available resources, and general community attitudes must all be considered. Lack of resources is almost always a critical factor. When the decision hinges on community interests the type of risk involved should be carefully identified.

Risk Assessment. Risks can be classified as avoidable, acceptable and unacceptable. Avoidable risks are those that can be corrected without increased expense, or are risks that people voluntarily assume as part of their work or recreation for its intrinsic stimulation. An acceptable risk is not taken out of choice, but the level of risk is judged minor and not worthy of the extra effort and expense needed to eliminate it. Unacceptable risks are those where the threat to property or persons is judged worthy of action on the part of the property owner or the appropriate public agency.

The intent of the Public Safety Element is to identify any instances where avoidable risks can be reduced by public agencies at little expense and to identify courses of action to reduce unacceptable risks. The recommendations presented herein address the avoidable risks that were uncovered and the unacceptable risks that the City Council feels can be reduced by the suggested actions. Those risks that are not addressed are either considered acceptable or it was determined that the existing response to the risk is all that can be justified of a public agency under the circumstances.

Format. The various aspects of public safety are considered under the following headings: Seismic Hazards, Flooding Hazards and Drainage Problems, Fire Hazards, Traffic and Pedestrian Hazards, and a section on Storage Hazards, Attractive Nuisances and Other Hazards. The last section contains the contingency planning considerations related to disaster preparedness. The italicized paragraphs together with the information provided in the appendix represents the environmental assessment required by the California Environmental Quality Act. Plate 3 shows the location of many of the safety hazards identified in the planning area.

*Environmental Assessment. The recommendations of this element are mainly directed at the establishment of policies that will mitigate the impacts of natural hazards on existing structures or that will regulate future construction and installations to reduce the likelihood of adverse impacts due to natural or man-made disasters. Many of the specific actions, or*

*projects that are suggested include permit procedures, structural repair work or field studies which as individual projects would be exempt as ministerial projects from the EIR requirements of CEQA 70 (Sections 15073a). However, as a routine planning policy, each recommendation was considered for its direct and indirect impacts upon the air, water, earth, the plants and wildlife as well as upon the economic and social well-being of the community and its residents. Each recommendation was considered in terms of unavoidable impacts, possible mitigation measures, short term uses, long term productivity and its resource and energy requirements. Alternatives are discussed if pertinent. The few remaining projects, though calling for a commitment of resources, are also safety maintenance measures akin to the emergency actions exemplified by Section 15017c of the CEQA guidelines as amended to 18 February, 1975.*

## SEISMIC HAZARDS

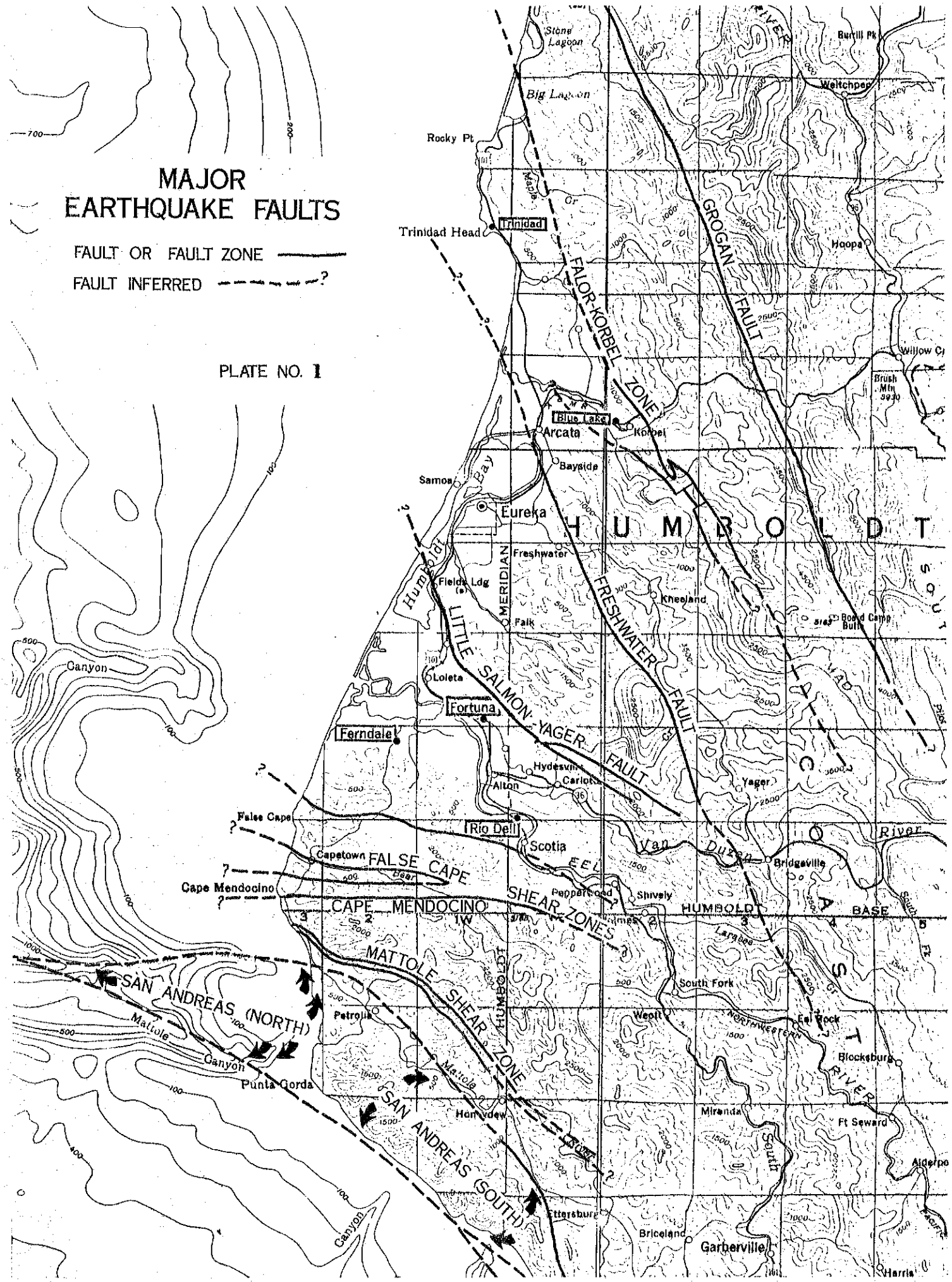
Earthquakes. The western portions of Humboldt County, and adjoining offshore areas, are regions of moderate to high seismicity. Plate 1 shows the location of major faults. Except for the Cape Mendocino area, no obvious patterns emerge tying earthquakes to particular faults or shear zones. The only known historical surface rupture associated with a fault in the area was in 1906 along the San Andreas Fault in southern Humboldt County, at Shelter Cove and Upper Mattole. The frequent earthquakes south and southwest of Ferndale are taken to indicate modern activity along the Cape Mendocino-False Cape shear zone.

Elsewhere in the area no faults can be demonstrated to be unequivocally active, but several should be viewed with considerable suspicion. Recognizing that the data is sparse, the approach identified in the appendix has been used to estimate the maximum probable earthquake (the strongest earthquake likely to occur on a given major fault during any 100 year period). The magnitude of such an event is estimated at 8.0 (Richter scale) on the southern segment of the San Andreas fault and 7.3 on the other three fault zones in the southern Humboldt County seismic area. The four faults in the northern Humboldt County seismic area are estimated at 6.4 for the maximum probable event.

From the estimates of magnitude it is possible to predict the maximum and repeatable strong bedrock acceleration that would be felt in the Trinidad planning area from any of the faults (See Table 1 in Appendix A). The maximum bedrock acceleration estimates range from .05 g to .48 g and the repeatable strong bedrock acceleration estimates range from .03 to .31 g.[1] Higher intensities would be expected in areas underlain by river alluvium, unstable landslide terrain or fill. The higher figures are due to the proximity of the Freshwater Fault zone, four miles southwest of the planning area and the Falor-Korbel Fault zone, four miles to the east.

---

[1] %g is the instantaneous acceleration in any direction imparted to bedrock by the seismic shock wave. It is related numerically to the acceleration imparted to a freely falling object by the pull of gravity.


MAJOR
EARTHQUAKE FAULTS
FAULT OR FAULT ZONE
FAULT INFERRED
PLATE NO. 1
Stone Lagoon
Big Lagoon
Rocky Pt
Trinidad Head
Trinidad
Maple Cr
Burnt Pk
Weitchpec
Hoopa
GROGAN FAULT
FALOR-KORBEL ZONE
Willow Cr
Brush Mtn 3930
Blue Lake
Arcata
Korbel
Bayside
Samoa
Humboldt Bay
Eureka
HUMBOLDT
Freshwater
Fields Ldg
Falk
Kneeland
Bond Camp Butte
HUMBOLDT MERIDIAN
LITTLE SALMON-YAGER FAULT
FRESHWATER FAULT
Loleta
Fortuna
Ferndale
Hydesville
Carlotta
Alton
Yager
Canyon
False Cape
Rio Dell
Scotia
Capetown
FALSE CAPE
Eel River
Van Duzen River
Bridgeville
Cape Mendocino
Pepperwood
Shively
CAPE MENDOCINO
SHEAR ZONES
HUMBOLDT BASE
Larabee
MATTOLE SHEAR ZONE
SAN ANDREAS (NORTH)
Mattole Canyon
Petrolia
South Fork
Weott
Eel Rock
Blocksburg
Punta Gorda
Mattole
Honeydew
HUMBOLDT
SAN ANDREAS (SOUTH)
Miranda
Ft Seward
South Fork Eel River
Alderpo
Ettersburg
Briceland
Garberville
Harris

The repeatable ground acceleration estimate is the factor engineers include in their structural design considerations. A formula in the Building Code determines how much building weight should be considered in the foundation design, anchoring, and wall reinforcement. The minimum acceleration factor in the Building Code is .1. For a masonry building this means that the design must account for 1.13 times the building weight. If a .2 acceleration factor is substituted, the formula produces a design load of 1.26 times the weight of the building, and a .3 factor equals 1.4 times the weight of the building.

An increase in the design load requires more reinforcement, more foundation tie-downs and other additives that increase the cost of the structure. Although the degree of cost increase varies according to the shape of the structure, the number of stories, etc., it is estimated that the construction cost for a one story concrete block building would increase approximately 5% if the acceleration factor was increased from .1 to .2. Above .2 the cost increases more than 5% for each increment because of higher design cost and more materials required.

To account for the 100-year earthquake event the acceleration figure would have to be increased to .3 or .4 which would make the cost of typical construction prohibitive. A .2 factor will reduce personal injury but will not necessarily prevent property damage. The present .1 figure increases the chances of personal injury or structural damage which would require extensive reconstruction.

During the 1954 quake which registered 6.5 on the Richter scale (near Arcata) the damage to buildings in the planning area was minor. There were few masonry buildings in 1954 and there are few today. If frame structures built since 1954 are equal in resiliency to those built before, and experience indicates they are, the risk of injury and serious damage seems remote to local citizens. It has been found, however, that large and even moderate earthquakes loosen buildings and their capacity to withstand the next earthquake diminishes even though there is little external evidence of the damage. This is true of both frame and masonry structures.

Recommendation #1. The acceleration factor in the local Building Code should be increased from .1 to .15 for masonry buildings with the requirements for frame structures unchanged

*Environmental Assessment. This alternative of a stronger policy upgrading building standards for masonry structures would cause a minor commitment of resources, and an economic stress on affected owners. These impacts would be short range but largely subject to mitigation through an effective public relations effort. An increase in personal safety is a beneficial impact.*

Recommendation #2. The Fire District staff or building inspector should warn property owners to inspect flues and chimneys for damage after moderate and large earthquakes. Also, occupied structures which appear to have been seriously damaged by an earthquake should be inspected and evacuation required if they are found unsafe.

*Environmental Assessment. This policy is entirely aimed at mitigating the adverse impacts of natural disasters.*

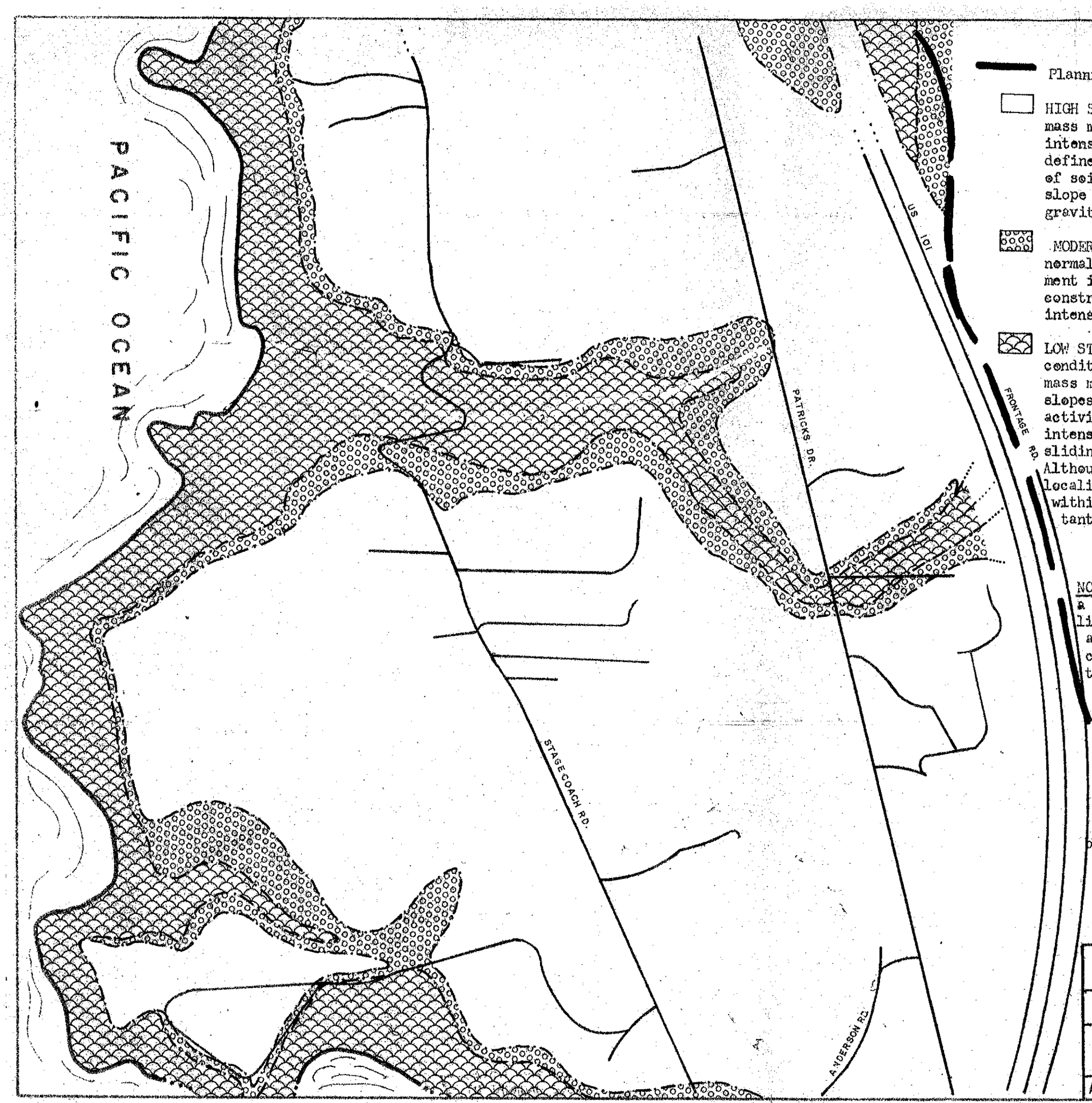
Slope Instability. Mass movement of material on hillsides is a major accompaniment of moderate and strong earthquakes. This may be in the form of landslides, rock avalanches, mud and debris flows, or other types of slope failure. Steep natural or artificial slopes and high water content favor such failure.

Plate 2 delineates the slope areas in the Trinidad planning area which appear to have stability problems. The delineations are generalized and serve as a caution to those designing roadways, subdivisions or structures that further slope stability investigation is warranted.

The cliffs along the ocean front and the steep ravines adjacent to local creeks are characterized as areas of low or moderate stability depending on the steepness of the topography and the soil characteristics. Except for areas near the edge of cliffs most of the developed area of Trinidad is characterized as stable. While liquefaction is not considered a problem, lurching, cracking, and fissuring may occur along the margins of streams and sea cliffs especially where unconsolidated materials are present. These earthquake related problems are discussed in greater detail in Appendix A. Most of the major roadways leading from the planning area pass through areas of slope instability. Slides could block these routes and cut off evacuation routes in a major emergency.

Recommendation #3. Before any major excavation, or the construction of dwellings, public facilities, or large commercial or industrial buildings is permitted by the city within low or moderate stability areas special studies by a registered soil engineer or licensed geologist should be undertaken by the developer and necessary provision made for reducing landslide risk.

Note: The County's forthcoming consolidated General Plan will address the Problems of slope instability from a Countywide perspective, and cite the need for more specific data in this area. The County is presently utilizing Chapter 70 of the Uniform Building Code dealing with grading, and enforcement of County Ordinance #596 (which requires developers to provide appropriate soil studies for slopes in excess of 15%) to reduce the potential for landslides in the County's portion of the Trinidad planning area.




Planning Area Boundary

HIGH STABILITY: No rapid or destructive mass movement is anticipated even under intense shaking. (Mass movement is defined as the bulk transfer of masses of soil, rock debris, or rock, down slope under the direct influence of gravity.)

MODERATE STABILITY: Stable under normal conditions, but rapid mass movement is possible if stability upset by construction, timber removal, or intense shaking.

LOW STABILITY: Unstable under normal conditions; continued and intensified mass movement expected if existing slopes are subjected to construction activity, timber removal, or moderate to intense shaking; rapid creep or active sliding already present in many places. Although generally unstable, there are localized areas of greater stability within this zone associated with resistant bedrock masses.

NOTE: This map is intended to present a generalized picture of slope stability conditions within the planning area. The map is considered tentative and relies heavily on subjective evaluation of geologic and geomorphic data, including analysis of aerial photographs. It should be updated as better data become available.

# TRINIDAD NORTH GENERAL PLAN

## SLOPE STABILITY

OSCAR LARSON & ASSOC.
1809 ALBEE ST. EUREKA
443-8381

APPROX. SCALE 1"=500' | PLATE NO. 2A

... MATCH THIS LINE TO TRINIDAD NORTH

HIGH STABILITY: No rapid or destructive mass movement is anticipated even under intense shaking. (Mass movement is defined as the bulk transfer of masses of soil, rock debris, or rock, down slope under the direct influence of gravity.)

MODERATE STABILITY: Stable under normal conditions, but rapid mass movement is possible if stability upset by construction, timber removal, or intense shaking.

LOW STABILITY: Unstable under normal conditions; continued and intensified mass movement expected if exsiting slopes are subjected to construction activity, timber removal, or moderate to intense shaking; rapid creep or active sliding already present in many places. Although generally unstable, there are localized areas of greater stability within this zone associated with resistant bedrock masses.

NOTE: This map is intended to present a generalized picture of slope stability conditions within the planning area. The map is considered tentative and relies heavily on subjective evaluation of geologic and geomorphic data, including analysis of aerial photographs. It should be updated as better data become available.

ANDERSON RD.
MILL ST.
WATER TANK
PATRICKS DR.
STAGECOACH RD.
MAIN ST.
PARK DR.
TRINITY ST.
OCEAN AVE.
VIEW AVE.
UNDERWOOD DR.
PARKER ST.
WEST ST.
EAST ST.
HECTOR ST.
ENWIS ST.
ALMA WAY
PACIFIC ST.
EDWARDS ST.
WAGNER ST.
WHITING ST.
ST.
MAN WICKE ST.
US 101
WEST HAVEN DR.
MCCONNAHA RD.
FISHING DOCK
PACIFIC OCEAN

Planning Area Boundary

TRINIDAD SOUTH
GENERAL PLAN
SLOPE STABILITY

OSCAR LARSON & ASSOC.
1809 ALBEE ST. EUREKA
443-8381

APPROX. SCALE 1"= 500' | PLATE NO 2B

*Environmental Assessment. This recommendation is the first step in the mitigation of a natural hazard. Adoption of this recommendation will result in an expenditure by affected property owners. Impacts may arise from the actions that flow from the study. These impacts may be in the form of restrictions on buildings or added construction requirements which will be unpopular with those affected. Long range saving may result in connection with the avoidance of damage to structures and of soil loss through erosion of cut banks.*

Tsunamis. Earthquake induced seawaves can inflict serious damage to unprotected areas along the coastline. Underwater topography, the angle of approach of the sea wave and the configuration of upland shoreline areas will affect the degree of impact that a seawave would have. The seawave that did much damage to Crescent City was hardly noticeable in Trinidad. The height of the sea cliffs, the protective location of Trinidad Head and the general lack of development in the lower, more exposed areas suggest that Tsunamis do not pose a major threat to the planning area. The areas that might be inundated by a large tsunamis are identified in the Humboldt County Seismic Seawave Plan. The plan indicates that the areas below the 20 foot contour line are the potential impact area.

*Environmental Assessment. The damage to manmade structures by seismic waves is generally severe and not subject to mitigation measures. On the other hand the chances that a damaging tsunami will occur in the Trinidad area are not great. Individuals planning to build in the tsunami hazard area should be informed of the risks involved.*

Recommendation #4. Applicants for permits to build or establish new land uses below the 20 foot elevation contour should be advised of the hazard and be given the opportunity to read the County Seismic Seawave Plan and assess the risk for themselves.

## FLOODING HAZARDS AND DRAINAGE PROBLEMS

The flooding hazard in the Trinidad area is very slight but flooding to the north and south of the planning area has isolated the community for short periods. The only waterways in the area are small streams flowing into the ocean and they are contained within steep banks. Flooding on Luffenholtz Creek has affected the city water pumps. Flat areas near the center of the town suffer from local ponding due to poor surface drainage. Areas where ponding is common are shown on Plate 3.

Recommendation #5. The city should study the drainage needs in areas of localized flooding and develop cost estimates and a priority list. A staged program to install the needed drainage facilities should be instituted.

*Environmental Assessment. Completion of the recommended study will involve a commitment of staff time and resources. A long range program of drainage facility construction would require a separate environmental assessment. Both the source and destination of drainage waters must be considered. The improved drainage facilities can constitute a beneficial impact on erosion and standing water problems. On the other hand drainage from streets and parking lots contains heavy metals and petroleum by-products that can produce a shock load on natural bodies of water if they are carried off directly without benefit of treatment.*

Recommendation #6. Where steep slopes are the only feasible location for access roads into hillside areas subject to residential development such roads should include drainage facilities adequate to handle potential runoff.

*Environmental Assessment. Poorly constructed and inadequately maintained roads are a major factor in hillside slippage, erosion, and surface water degradation. Grade, crown, drainage, and surface type all effect the drainage patterns. Inadequate roads are a major flaw in many subdivisions. County or municipal governments often find that they are saddled with an inordinate maintenance expense after accepting substandard roads in subdivision projects. Establishing high standards and enforcing them constitute the best mitigation against these hazards. An alternative is zoning against construction on steep slopes or in locations where access roads must be built on steep slopes. This alternative will meet resistance from the owners of steep land who plan to sell or subdivide. Land owners tend to be an important power element in a small community. As a group they are likely to be more amenable to strict standards than to total restrictions on construction.*

## FIRE HAZARDS

The Trinidad Fire Protection District serves the city and outlying areas. It is staffed by volunteers and has a single fire truck. Nearby fire districts and the California Division of Forestry are available for backup during fire emergencies.

Fires are uncommon events and have no common causes. A survey of the area did uncover improper venting of furnaces, and substandard electrical wiring in houses built before code requirements were established. Traffic and parking on several streets could pose a problem for emergency vehicles. And, there are no fire hydrants north of the city limits making fire protection in this area difficult. The district is currently working to obtain additional equipment and to make necessary repairs to the fire truck.

*Environmental Assessment. Fire hazards are frequently man-made in origin, though natural fires do occur. Fire has tremendous social and economic impacts which are more obvious than the impacts upon the natural environment. Habitat loss and the loss of individual organisms is a natural phenomenon which nature promptly restores. Like flooding, the frequency and intensity of fires in the natural environment is increased by human activity and can thus threaten already restricted population of animals or plants.*

*Losses to man from fire include the direct losses of property and life and the indirect losses to income through the destruction of income producing resources as well as the increased tax burden of fire fighting and restoration. Many of the recommendations of the public safety elements that deal with fire are policy and inspection measures designed to minimize the fire hazard and would have impact only in the sense of the negative effect of their absence. Other recommendations which have greater impacts such as improved water system supply will have to be judged against the extreme severity of the fire hazard upon the human population.*

Recommendation #7. The Fire District should conduct an annual inspection of commercial buildings and tourist accomodations to identify risks that can be eliminated by the property owners.

Recommendation #8. The city should ensure good fire protection by encouraging improvement of the water and hydrant system wherever necessary to eliminate dead end mains, provide a minimum of 1,500 gallons per minute from any single hydrant at the maximum daily residential consumption rate, provide hydrants within 300 feet of any point, and provide adequate storage for the types of fires encountered. Efforts should be made to create a water district in the area north of the city, or to annex it to the city so that fire hydrants can be installed.

*Environmental Assessment. Adoption of this policy will involve a minor commitment of staff time to determine if any of the needs outlined are not presently satisfied. If only minor improvements are required the impact will consist mostly of a commitment of energy and resources. If the project requires working on buried pipe line, additional impacts will be equipment noise, and dust which are temporary and can be minimized by careful construction practices. If a major revision of the water system is required to satisfy the policy, a separate study including an environmental assesement will be required.*

*The installation of pipelines and hydrants will have a short-term, direct impact upon the soil being trenched, upon the air being contaminated by equipment exhaust and by construction noise. These impacts are common, familiar and generally considered acceptable as a necessary minor evil attendant upon the larger benefit.*

Recommendation #9. Enforcement of the Building Code, the Housing Code and Title 19 of the California Administrative Code and the City Weed Abatement Ordinance should be given high priority to ensure adequate new construction and the correction of unsafe fire conditions.

Recommendation #10. In order to achieve the lowest possible fire rating the city should support the fire district in its efforts to maintain the highest possible levels of fire protection, including man-power recruitment and training, purchase and maintenance of fire fighting equipment, mutual aid agreements, adequate alarm systems and disaster communication equipment, and implementing the recommendations contained in the Public Safety Element.

## TRAFFIC AND PEDESTRIAN HAZARDS

Traffic hazards are generally minor in nature but become intensified in the summer when the city is host to large numbers of tourists who are not always familiar with local traffic conditions. Street signs and pavement markings s are minimal. For example, center line and edge striping is generally lacking within the city and along Scenic Drive, Stagecoach Road and Westhaven Drive. There are hazardous intersections where visibility is is blocked by protruding buildings or vegetation. On-street parking often occupies the pedestrian walkway and pedestrians must walk in the street. Parking and traffic circulation problems are pronounced in the marina area during the fishing and tourist season. The intersection of Main Street and Trinity is hazardous. Parking near fire hydrants is not adequately controlled, and open ditches alongside of streets poses a hazard to pedestrians and drivers

*Environmental Assessment. Traffic hazards like fire hazards are often man-made and a by-product of the modern mode of life. While there are impacts associated with construction and maintenance of roads, the prime concern with traffic and roadway problems might well be a concern with the patterns of energy use. The rapid increase in cost of energy supplies and the postulated shortage of petroleum and other fossil fuel sources of energy make it pertinent to examine traffic problems from the use end rather than supply end. Traffic should be studied to determine the need for improvement in flow rather than assuming a need. Restrictions in flow may be regarded as a planning tool for restricting energy expenditure through discouraging use. Where transportation needs are found, consideration should be given to solutions other than the increase in flow. Alternatives such as diversification and dispersion of goods outlets (shopping centers), public transportation, etc., may now be more attractive than increasing the traditional methods of individual personal transportation.*

*Recommendations which improve the level of safety of the existing traffic should be considered as direct beneficial social impacts.*

Recommendation #11. Where existing streets are narrow (i.e. Stagecoach Road, Van Wyke, Bay Street, etc.), on-street parking should be controlled so that emergency vehicles will be able to pass at all times.

*Environmental Assessment. The initial impacts will be commitment of the resources necessary to study and propose solutions to the problems cited. Until the specific nature of the solutions are known it is not possible to assess environmental impacts.*

Recommendation #12. Where existing dead end streets are more than 300 feet in length and lack adequate turn around area, means of providing such an area should be explored by the city and Fire District.

Recommendation #13. Where streets parallel drainage ditches, steep topography (i.e. Edwards Street), or where street curves are difficult to see, reflective markers should be provided along the edge of the road. The intersection of Trinity Street, Stagecoach Road and Main Street should be redesigned to eliminate the steep grade transition.

Recommendation #14. Adequate sight distance should be provided at every intersection particularly in congested areas. Vegetation, fences, buildings, and on-street parking should not be allowed to block visibility. The exit at the cemetery is an example.

Recommendation #15. Center line striping, warning signs and speed limit signs should be provided wherever necessary especially on narrow roads and in high tourist use areas.

Recommendation #16. Adequate sidewalks, walkways, and crosswalks should be provided in congested areas and near schools. Curbs at crosswalks should be designed for use by handicapped persons and bicyclists. Broken or hazardous sidewalks should be repaired or replaced. The existing ordinance that requires installation of sidewalks as part of new developments is an important tool that should be consistently employed. Provision of sidewalks along Edwards and Trinity Streets should be given top priority.

*Environmental Assessment. Construction or repair of sidewalks would call for a minor commitment of materials and energy and involve the short term impacts typically associated with construction.*

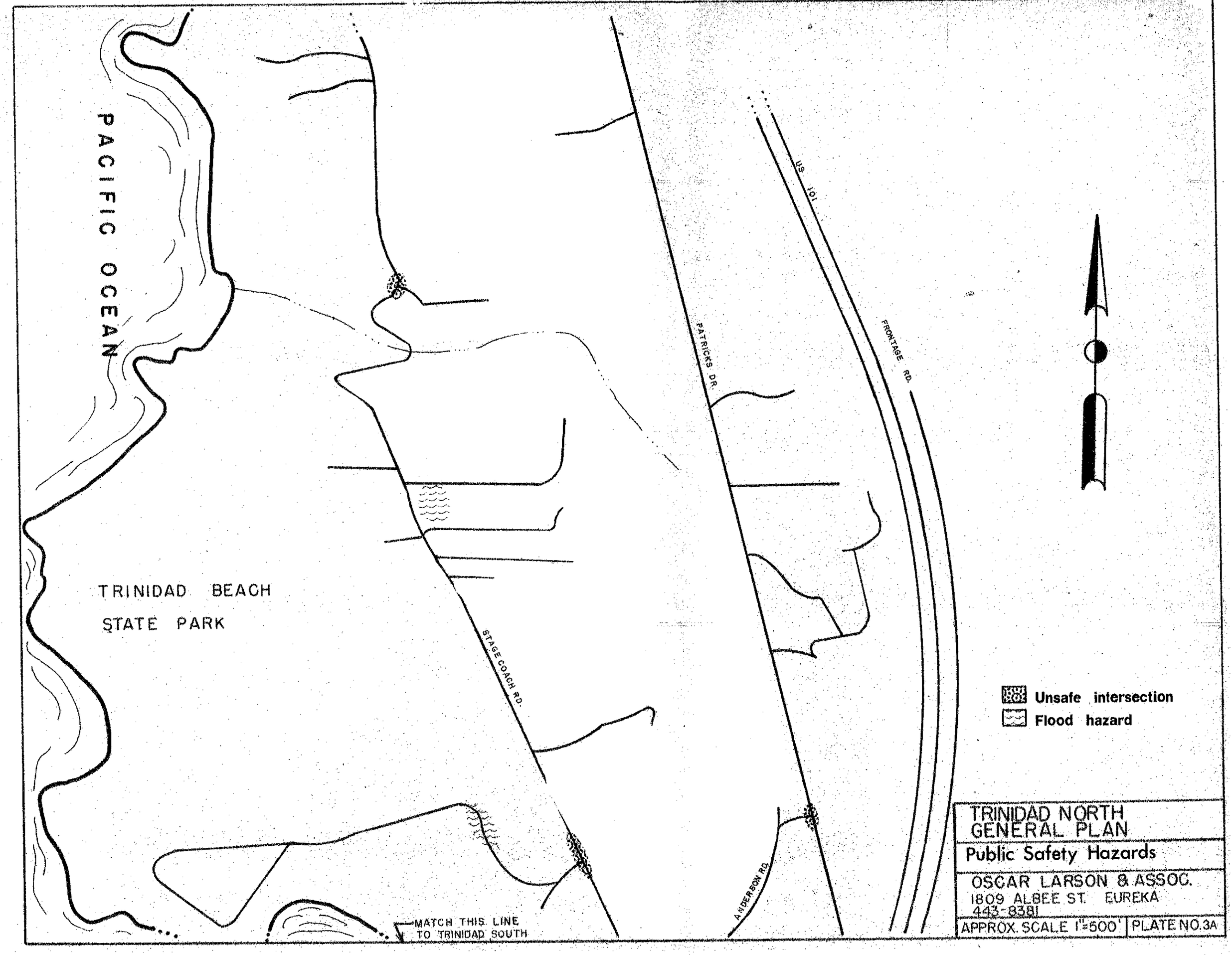
Recommendation #17. On-street parking should be controlled to allow passage of emergency vehicles, access to fire hydrants, and minimum interruption of traffic. Design of off-street parking so vehicles don't back into travel lanes, prohibition of parking within 15 feet of fire hydrants and better definition of on-street parking areas should be considered and travel lanes defined in the marina parking area. The on-street parking situation in front of the school should be clarified so it doesn't appear that people are illegally parking in a red zone.

Recommendation #18. The city should request assistance from the Pacific Gas and Electric Company in studying street lighting needs and means of financing installation. Where street lights are economically feasible they contribute to pedestrian and traffic safety and reduce vandalism.

*Environmental Assessment. Initially this recommendation will require the commitment of agency resources to undertake the study. Installation of street lights involves a commitment of materials and typical construction impacts. The consumption of electricity to energize the system is considered a worthwhile commitment of resources in return for the expected increase in public safety. Street lights are considered by many to be urban in nature and recommendations that such facilities be installed in areas of rural character might meet with opposition.*

## STORAGE HAZARDS, ATTRACTIVE NUISANCES AND OTHER HAZARDS

Hazardous land uses such as fuel depots and manufacturing of dangerous chemicals are non-existent in the Trinidad area. Most of the community is residential. Because of the scenic nature of the town site and high property values, attractive nuisances in the form of abandoned buildings or vehicles or piles of debris are very rare. If there is a hazard attributable to land use it would be the clustering of businesses, homes, city hall, the Fire Station and




# TRINIDAD NORTH GENERAL PLAN

## Public Safety Hazards

OSCAR LARSON & ASSOC.
1809 ALBEE ST. EUREKA
443-8381

APPROX. SCALE 1"=500' | PLATE NO.3A

MATCH THIS LINE TO TRINIDAD NORTH

ANDERSON RD.

MILL CR.

MILL CR.

FRONTAGE RD.

WATER TANK

ROCK QUARRY RD.

Unsafe intersection

Tree limbs over road

Flood hazard

STAGECOACH RD.

PATRICKS DR.

PARK DR.

MAIN ST.

TRINIDAD ST.

OCEAN AVE.

VIEW AVE.

SCENIC DR.

US 101

WESTHAVEN DR.

McCONNAHAS CR.

UNDERWOOD DR.

PARKER ST.

WEST ST.

EAST ST.

HECTOR ST.

AZALEA WAY

ENWIS ST.

PACIFIC ST.

EDWARDS ST.

WAGNER ST.

WHITING ST.

VAN WYCKE ST.

BAY ST.

FISHING DOCK

PACIFIC OCEAN

# TRINIDAD SOUTH GENERAL PLAN

## Public Safety Hazards

OSCAR LARSON & ASSOC.
1809 ALBEE ST. EUREKA
443-8381

APPROX. SCALE 1" = 500' | PLATE NO 3B

school near a dangerous intersection and along a street with no pedestrian walkways and poor drainage, all of which contribute to a congested mixed land use situation where everyone is inconvenienced to some degree and exposed to traffic hazards.

There are many trees within the planning area that represent a hazard due to dead or damaged branches overhanging streets or branches conflicting with overhead powerlines. Wind and water erosion of local beach trails can create dangerous conditions for people using the trails and injuries have occurred. The most significant natural hazard is the sudden storm that comes from the south. The harbor is protected from the west and north but storms from the south have caused considerable damage to vessels in the harbor.

The water reservoir is subject to vandalism and other hazards. There is no security fence around it, and access to the walkway is not limited. Nearby trees are leaning toward the reservoir and pose a potential problem. The water pumps are located in the Luffenholtz Creek flood plain and recent experience suggests that the water supply can be interrupted.

Although some of the conditions described in the following recommendations were not found in the community, policy recommendations are included to alert agencies to hazardous situations that could develop in the future.

Recommendation #19. Before issuance of permits for new commercial buildings, tourist accomodations or marina related facilities, the city should refer the application to the Fire District to ensure that all fire safety concerns are satisfied.

Recommendation #20. Land uses which include storage and transfer of hazardous materials should include special provision for accidental spills which ensure that the hazard will be contained and not be injected into the air or nearby drainage facilities or affect important traffic corridors, schools, or residental areas.

Recommendation #21. Any outdoor storage of fuels, debris, junk, equipment, appliances and wrecked vehicles should be completely fenced to prevent unwarranted access. Warning signs should be provided at outdoor fuel storage locations, and quantities of gasoline should be stored underground. Vehicles carrying hazardous materials should not be permitted to park in residential areas.

Recommendation #22. Critical public services such as the water system, fire and police protection are essential to risk reduction and adequate emergency response. They should be adequately staffed and equipped at all times. The water source and storage facility should be fenced to prohibit unwarranted access. Adequate valving in the water system should be provided to prevent drainage of storage tanks in the event a line is broken.

Recommendion #23. The City of Trinidad should work with the Corp of Engineers and other affected agencies to provide a breakwater at Trinidad Harbor as a necessary protection to boats and passengers from storms and to qualify the harbor as a port of refuge. Such a facility should be located and designed to minimize adverse environmental impacts.

*Environmental Assessment. The development of breakwater is a major project which will have significant effects on the human and natural environment. There is no question that a major Corps of Engineers involvement would be required and with it would come a major environmental assessment study. The waters off Trinidad constitute a major resource for a fishery that is centered there, for the marine studies program of Humboldt State University, and for the recreational industry of the County.*

*The development of breakwaters often affects local current patterns and the resultant sedimentation patterns. This will change the pattern of the distribution of marine life forms, from seaweed to salmon. Before such a project is initiated studies of the currents, water characteristics, water column biota, and benthic biota will be needed in order to ascertain the likely impacts of the construction and to make the final decision on the acceptability of the risks involved.*

*Attractive but experimental alternatives to the jetty type breakwater are currently being developed. A small harbor might be an excellent place to test such an alternative such as the submerged, tethered buoy breakwater system.*

*A successful breakwater system would allow for more and safer anchorages in Trinidad Bay. An enlargement of the fishing fleet would cause a parallel increase in the traffic through Trinidad and in the vehicle use of the Trinidad Head parking area which is already quite crowded. Further development of support facilities can be postulated, such as an enlarged pier and a chandlers shop. Pressure might also develop for more fish processing facilities such as cold storage, smoke houses, etc. The carrying capacity of the town should be given as much attention as the carrying capacity of the fishery.*

Recommendation #24. The city should work with local insurance agents, and fire district staff to develop a program which provides a free home safety inspection at the request of the homeowner. Such inspections could include review of wiring, emergency exits, foundation conditions, etc., and provide the homeowner with ideas on how needed changes could be made at minimum expense. Chimneys and heating vents should be carefully inspected since they are a major cause of fires.

Recommendation #25. Inspection of power poles should be included in the regular city street inspection program. The appropriate utility should be notified when hazardous conditions are found.

Recommendation #26. The city should establish a periodic program to remove tree limbs and other growth projecting over public rights-of-way that represent a hazard. When tree limbs conflict with power lines, the appropriate utility should be notified of the hazardous condition.

*Environmental Assessment. Tree pruning will involve public expense, energy utilization and disposal of the pruned material.*

Recommendation #27. Erosion caused by roadside drainage should be corrected before costly repairs to street pavement or sidewalks are necessary.

Recommendation #28. Existing school playgrounds and city parks should be inspected and safety hazards be corrected. Monkey bars and asphalt playground surfaces are notorious accident hazards.

Recommendation #29. The city should request that its public liability insurance carrier conduct an annual inspection of all public buildings and facilities to uncover ways the city can reduce its liability and improve working conditions for city employees.

Recommendation #30. Fire hydrants and power poles should be located far enough back from the curb so that they will not be damaged by, or cause damage to, vehicles.

## DISASTER PREPAREDNESS

Most of the preceeding recommendations are directed at correcting, or being prepared for small scale hazardous situations. This section presents consideration of the steps that can be taken to cope with major emergencies such as a major earthquake, extensive flooding, or large scale threats to the public health and safety.

Emergency plans are prepared in response to the requirement of the California Emergency Services Act which requires counties and cities to adopt emergency preparedness programs.

Recommendation #31. State Highway 101 to the north and south, Westhaven Drive to the east and south, and Patricks Point Drive to the north should be considered the evacuation routes from the planning area in the event of a major disaster. Due to the slippage potential on Trinidad Scenic Drive it should be considered only as a last resort. Stagecoach Road is not recommended for designation due to its narrow width. Trinity Street, Edwards Street and Main Street are essential to through-city evacuation. These routes should be kept passable in major emergencies recognizing that the type and location of the disaster will determine which routes will be most needed and available for use.

Recommendation #32. Since serious flooding to the north and south of the planning area can effectively cut off vehicular access, and use of ocean going vessels is impractical, the large, private parking lot at the southeast corner of Main Street and View Avenue should be reserved as an emergency helicopter landing area. Further, the city should coordinate its disaster preparedness planning with the local Indian Health Clinic, which has two doctors, so that medical services will be available to all persons if the planning area becomes isolated.

Recommendation #33. The Humboldt County Coastal Storm Warning Plan and the County Seismic Seawave Plan should be familiar to city staff and should be available in the city hall for reference and communication during emergencies.

Recommendation #34. Either as part of an existing contingency plan or separately a plan for providing an alternate water source should be developed in the event the existing water supply is disrupted by a landslide or flooding.

Recommendation #35. Carelessness with electrical appliances, and safety hazards in the home, and ignorance of what should be done during an earthquake or other disasters can all be reduced by providing information to the general public. Hazard reduction information is particularly effective when presented in the schools. Public Safety officials should continue to work with school administrators to insure that this important information is reaching the students and that frequent drills are conducted to illustrate appropriate disaster response at school.

*Environmental Assessment. This policy is aimed at the mitigation of future disasters. Failure to make provisions for the safety, education and disaster preparedness of school children and the general public would be an adverse impact of a "No Policy" alternative. The risks addressed cannot be so low that contingency plans can be neglected.*

## Implementation

The Public Safety Element includes 35 recommendations which call for some type of implementary action by one or more city employees or other agencies. Each recommendation identifies the responsible person or agency whenever possible. However, time and resources are limited and it is expected that each city department will need to establish a phased implementation program with the City Council providing guidance on priorities. To assist in evaluating the implications of each recommendation a list of pertinent recommendations with some comments on implementation strategy are provided below for each affected agency.

Building Inspector. Recommendations 1, 2, 3, 4, 7, 9, 24, and 29 will be of most direct concern to the City Building Inspector. Several of these recommendations call for a cooperative implementation effort between the inspector and Fire District personnel. Most are related to the need to inspect certain hazardous situations, and may require more field work than is currently necessary. Because these activities will involve inspecting private property, the inspector will need to understand the reason for his activity so he can explain the program to concerned property owners. Support from the City Council will be important. The policies contained in these recommendations can also be incorporated in the building permit review procedure to ensure that new construction conforms to the adopted safety standards.

Public Works Department. Recommendations 3, 5, 6, 8, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 25, 26, 27, 30, 31, 32, 33, and 34 touch on some phase of

the Public Works Department's responsibilities. In several instances the staff will be assisting the Planning Commission and the City Council in eliminating hazards during the design phase of private development. Other actions, particularly in the area of street maintenance and maintenance of the water system, may already be incorporated in standard operating procedure and a periodic review of the recommendations to ensure their continued application may be all that is required. Several other recommendations will require specific study of problems by the staff, and possibly the city engineer, with specific implementation recommendations being submitted to the City Council for authorization. Some of the proposals will no doubt involve minor to major construction projects with commitments of city funds and possible financial involvement by affected property owners. These projects can only be accomplishe if the staff and the City Council carefully establish priorities and budget the necessary funds. Funding assistance from state and federal agencies may well be available and should be pursued, to supplement the city's limited financial resources.

Planning Commission. The policies expressed, or problems identified in recommendations 6, 14, 17, 20, and 21 relate to land use issues which are considered by the Planning Commission. Periodic review of these problem areas and the suggested means of correcting them should enable the Commission to detect potential hazards during the permit review process. If they can be eliminated at this point the risks incurred by the city and affected property owners in the future will be lessened.

The Public Safety Element, as a whole, is of particular interest because the Commission is responsible for the General Plan and should be prepared to review it periodically to see if it still addresses pertinent problems and serves the community's interests. In the course of its review the Commission can determine from city staff and other agencies what recommendations in this element have been implemented, and which have not and why. If new problems are uncovered they can be added, and unimplementable recommendations can be revised.

Fire District. Many of the recommendations in the Public Safety Element are of direct concern to the Fire District (see Recommendations 2, 7, 9, 10, 19, 21, 22, 24, 29, 30, 31, 33, 35). The first group of recommendations relate to hazard identification and the provision of adequate fire fighting capacity. The last few recommendations are concerned about preparedness for major emergencies. Because of their training and public safety responsibility the Fire District staff is directly involved in disaster preparedness efforts. The Fire District budget is limited and the staff is all volunteer so it is important that the District develop a phased implementation program based on a prioritization of the various recommendations. Although not as glamorous as fire fighting, fire prevention activity and disaster preparedness can reduce the frequency of major fires and make fire protection less expensive in the long run. Maintaining good community relations and dynamic volunteer interest in the district is essential to the accomplishment of these objectives.

Police Department. The traffic safety and emergency preparedness recommendations will be of direct concern to the Police Department (see Recommendations 11, 14, 15, 17, 31, 32, and 33). The Department can be of particular assistance to

the street maintenance staff by identifying locations where improvements such as centerline striping, edge markers, repair of dangerous surface conditions, etc. could reduce driving hazards. The police staff will also need to be informed about the activities of the fire district and other public safety agencies to ensure coordinated response in time of emergency.

School District. The School District will be involved in the implementation of Recommendations 28 and 35 in particular, although other recommendations in the report may be helpful to the District in suggesting ways that hazards can be reduced on the school premises. Both the Public Safety and Noise Elements place great emphasis on the role of education in the effort to reduce hazards. The school system is well suited, with the assistance of public safety personnel, to present this information in a convincing and interesting manner.

City Council. By its adoption of the Public Safety Element, the Council is indicating to its staff and affected agencies what City policy is, and what it hopes to do in the way of hazard reduction and emergency preparedness. General Plan elements are intended to provide general direction, so implementation will necessarily involve further study, consideration of staff input, decisions on priorities, implementation strategy, funding, and efforts at coordination with other involved entities. Without the continuing support and interest of the City Council, implementation efforts will lag and the full benefits to the City and the public will not be achieved. An early decision on priorities and specific instructions to affected staff will demonstrate the Council's interest in implementing the Plan. Many of the recommendations suggest incorporation of new policies and procedures into existing staff activities and should not require additional staff. A few recommendations will necessarily involve shifting staff away from less important matters for a time, and may also require diversion of some funds. The temptation to give preventive actions a lower priority and to concentrate on other more immediate problems should be resisted.

Humboldt County. As noted in the introduction, Humboldt County will consider these recommendations during the development of the County Public Safety Element. It is expected that they will cooperate with the City of Trinidad in the implementation of policies and programs in the county's portion of the planning area. Maintenance of good communication between city and county staff is essential to the implementation of a coordinated program.

Public Utilities. Recommendations 18, 22, 25, and 26 affect local public utility companies. The Pacific Telephone Company and Pacific Gas and Electric Company are most directly affected. The problems cited in these recommendations are often detected in the course of regular utility inspection programs. However, when special problems occur the City Public Works staff can assist by notifying the appropriate utility of the hazard.

APPENDIX A

# TRINIDAD AREA SEISMIC CONSIDERATIONS

## General Structural Geology and Geologic History

The Trinidad planning area is in the Northern Coast Ranges geologic province, a narrow belt of intensely disrupted late Mesozoic rocks (approximately 100-140 million years old) named the Franciscan Complex. These rocks underlie all of the planning area and consist predominantly of graywacke and shale, with subordinate greenstone, chert, conglomerate, blueschist, and intrusive igneous rocks. The rocks are in structural disarray; that is, they have been broken, twisted, and sheared to the extent that they are termed a "melange" (French: mixture) by geologists. The overriding aspect of these rocks, in terms of planning considerations, is their extremely sheared and variable nature. Zones of highly sheared material associated with extreme slope instability are interspersed with massive blocks which are often stable. The presence of this rapidly changing bedrock in the area, generally underlying a veneer of terrace sands and gravels, presents trying problems to the road builder, subdivider, or owner of "view" property along the coastal bluffs. Virtually no two sites along the sea cliff will have the same stability characteristics. This expresses itself in the jagged configuration of the coastline: bold headlands interspersed with deep indentations.

The numerous shear zones within the Franciscan rocks in the Trinidad area are not believed to be associated with modern faulting; they merely represent the cumulative effects of extensive faulting in the geological past.

The Franciscan rocks were deposited in a trough marginal to western North America. Following their disruption they were uplifted and eroded. In more recent times geologically-perhaps within the last one or two million years - the eroded rocks of the Franciscan Complex in the Trinidad area were depressed sufficiently to allow the nearshore sea to wash over them depositing sand, pebbly sand, and clayey sand that make up the Hookton Formation. These nearshore sediments, mixed here and there with some probable beach sands and stream gravels, rest on top of the eroded surface of Franciscan rock, forming a veneer of unconsolidated material up to + 100 feet thick. The thickness, however, varies rapidly owing to the irregularity of the buried erosion surface beneath. Protuberances of Franciscan bedrock project through this veneer of Hookton in many places, forming low mounds of hard rock, or even large haystack-like hills surrounded by a sea of Hookton sediments. Trinidad Head forms an especially large knob of Franciscan intrusive igneous rock (gabbro) - now nearly detached from the land by differential erosion of the softer terrace materials and sheared Franciscan rocks which must have surrounded it.

The present town of Trinidad rests on the lowest of several marine terraces that extend like an irregular series of steps inland. This suggests that the land rose in pulses with each succeeding lower terrace forming as a consequence of successive pauses in uplift accompanied by creation of a new surf-cut cliff and terrace. It is also possible that the interplay between land and sea levels was more complicated than this; perhaps sea level also fluctuated along with the land. The details have not been worked out sufficiently to see the succession of events clearly.

The modern land-sea relationship was likely brought about largely through a raising of the land perhaps within the last 100,000-200,000 years - the date is very uncertain. This may have been associated with a general upwarping of the Northern Coast Ranges, but there may have been accompanying upfaulting along a series of northwest-trending faults, with the Trinidad area belonging to one of the upfaulted blocks. (see below) Again, uncertainty prevails here.

Philosophy of the Analysis

The western portions of Humboldt County and adjoining offshore areas, are regions of moderate to high seismicity. Plate I shows the location of major known Plio-Pleistocene Faults (those with movement within the last two to three million years). Except for the Cape Mendocino area, no obvious patterns emerge tying earthquakes to particular faults or shear zones The only known historical surface rupture associated with a fault in the area was in 1906 along the San Andreas Fault in southern Humboldt County, at Shelter Cove and Upper Mattole. That fault is therefore obviously active.* The frequent earthquakes south and soutwest of Ferndale are taken to indicate modern activity along the Cape Mendocino- False Cape shear zone, and its seaward extensions.

---

* The California Council on Intergovernmental Relations in the General Plan Guidelines (Anderson, 1973) defines an active fault as: "A fault that has moved in recent geologic time and which is likely to move again in the relatively near future. For geologic purposes there are no precise limits to recency of movement or probable future movement that define an "active fault." Definitions for planning purposes extend on the order of 10,000 years or more back and 100 years or more forward. The exact time limits for planning purposes are usually defined in relation to contemplated uses and structures."

Elsewhere in the area no faults can be demonstrated to be unequivically active, but several should be viewed with considerable suspicion. Even the source fault of the strong 1954 "Humboldt Bay" earthquake (M=6.5) has not been clearly identified. Therefore it behooves us to establish a philosophy by which to deal with the inadequacy of the data. Since structural engineers require quantitative information in their design work, we have attempted to arrive at reasonable "best estimates" based on this sparse data. In order to provide figures for the maximum probable earthquake, we have used the approach described in the following section.

Maximum Probable Earthquake

Paramount to the assessment of seismic risk and development of seismic safety criteria is the determination of the Maximum Probable Earthquake (MPE): the strongest earthquake which is possible within the confines of the existing geologic setting and has a reasonable probability of occurring during an interval of time consistent with the useful life of structures and developments in the planning area. In this study the MPE has been calculated for a 100 year interval, and thus should be interpreted as the strongest earthquake likely to occur on a given major fault during any 100 year period. It does not represent the strongest earthquake possible on that fault or in the region, but earthquakes with higher magnitudes are more widely spaced in time.

Determination of the Maximum Probable Earthquakes on faults affecting the planning area is based on a statistical analysis of the seismic history of the region surrounding the planning area and an evaluation of geologic features, including faults, related to earth movements caused by earthquakes. The western portion of Humboldt County, and adjoining offshore area, have been characterized during the past 100 years by frequent small to moderate and occasional large earthquakes. Two areas of different seismic character are present. The northern seismic area, characterized by moderate seismic activity, extends northward through western Humboldt County from the lower Eel River Valley. The southern seismic area, a region of substantially higher seismic activity, includes the southwestern portion of Humboldt County south of the Eel River and the offshore areas adjacent to Cape Mendocino. (Plate I). Differences in the seismic characteristics, particularly the frequency of small to moderate earthquakes in the two areas, has resulted in separate analyses for each area. Results of these analyses are shown on figures 1 and 2.

Both the northern and southern seismic areas contain many active or potentially active* faults, although many of these are short fault segments. At least four major faults or fault zones are

* The Association of Engineering Geologists has defined a potentially active fault as "one along which, based on available data, no known historical ground surface rupture or earthquakes have occurred. These faults, however, show strong indications of geologically recent activity"

present in the northern seismic area and at least three distinct systems of large active or potentially active faults are present in the southern area. Since large magnitude earthquakes (Richter magnitude = 6.0+) involve faulting along many miles of fault length, future large magnitude earthquakes in the region surrounding the planning area can be expected to occur on these large faults or fault zones. Although geologic evidence of fault movement suggests that certain of these zones may be characterized by higher levels of activity, insufficient information is presently available to allow quantitative assessment of the level of activity of any individual fault or zone. In this analysis the MPE is therefore assumed to be a credible seismic event capable of originating on any of these active or potentially active zones. Calculations of bedrock accelerations in the planning area for Maximum Probable Earthquakes have been based on minimum surface distances to the fault zones (Table II). Surface distances are justifiably used because it is likely that MPE's will be accompanied by surface rupture along the fault trace.

## Limitations of this Analysis

This assessment of the seismicity and seismic characteristics of the western Humboldt County region is based on a review of published and unpublished information from a variety of sources. Although limited data are available from previous studies, much information is the result of reconnaissance investigations and is somewhat general. No attempt has been made to check or refine published information, and little new data have been generated for this study. Relatively sparse detailed information concerning seismic geology of the region is available from previous studies. Additional detailed work would allow refinement of the results presented in this report. However, such work is costly and was not possible within the financial constraints of this study. It is our belief that such efforts would not have significantly changed the results.

## Active or Potentially Active Faults and Their Potential for Damaging Earthquakes

### Regionally, but Outside of Planning Area

Table I summarizes the earthquake potential for known faults of particular significance to the Trinidad planning area. The four faults in the southern seismic area do not pose a serious threat to Trinidad, although at least two of them are believed to be active.*

---

* The California Council on Intergovernmental Relations in the General Plan Guidelines (Anderson, 1973) defines an active fault as: "A fault that has moved in recent geologic time and which is likely to move again in the relatively near future. For geologic purposes there are no precise limits to recency of movement or probable future movement that define an 'active fault'. Definitions for planning purposes extend on the order of 10,000 years or more back and 100 years or more forward. The exact time limits for planning purposes are usually defined in relation to contemplated uses and structures."

The situation is different in the northern seismic area, however, where the surface traces of two faults (Falor-Korbel zone and Freshwater fault) both pass four miles from the center of the planning area.

Falor-Korbel Fault Zone

The Falor-Korbel fault zone likely projects northwestward from the Blue Lake area through the Big Lagoon area, with its closest approach to Trinidad proper about four miles east. Though the seismicity of this fault zone is uncertain, there is good reason to believe that the 6.5 magnitude Humboldt Bay earthquake of 1954, whose epicenter has also been attributed to the Freshwater Fault south of Arcata (Byerly, 1969), was located instead along the Falor-Korbel zone southeast of Blue Lake. Three out of four published epicentral locations for the 1954 "Humboldt Bay" earthquake place it within or closely adjacent to this zone faulting (See Cameron, 1961). The seaward extension of this fault zone on the State of California Preliminary Fault and Geologic Map (Jennings, 1973) shows Quaternary movement (within last 2,000,000 years) (also see Silver, 1971). From this combined evidence it is concluded that the zone should tentatively be considered as an active one, and a quake similar in magnitude to that in 1954 could be anticipated anywhere along it, including the possibility of one four miles east of Trinidad. We have predicted the recurrency interval of a 6.4 magnitude earthquake on this zone as 100 years (See Table 1). Assuming that ground rupture could accompany this earthquake, the four mile distance would imply expected maximum (peak) bedrock accelerations in the Trinidad area of approximately +0.48g. However according to Ploessel and Slosson (1974) "maximum or peak acceleration, especially near the fault, is not necessarily a "design acceleration". Major structural damage or collapse will more likely be produced by repeated high ground acceleration...which...averages 65 percent of the maximum acceleration", but at greater distances (from the epicenter) than 20 miles approaches 100 percent of the maximum. The predicted repeatable high ground acceleration (strong bedrock acceleration of Table 1) at Trinidad would thus be about 0.31g.

Freshwater Fault

The Freshwater Fault is a major structural break in Humboldt County, traceable on land from southeast of Bridgeville northwestward to Arcata Bay, where its extension into the offshore area approximately four miles southwest of Trinidad is based upon geophysical evidence (Curtis and Hamilton, 1972, p.21).

Although Byerly (1969) and Curtis and Hamilton consider that the fault is most likely active, our investigations along the fault suggest that recent activity is open to question. Nevertheless, even

though we assign to this fault a 'potentially active'*category, whereas the Falor-Korbel zone is considered to be active (see above), our level of confidence is not high enough to say, without equivocation, that the Freshwater fault is less dangerous than the Falor-Korbel zone. This is why they are weighted equally in our analysis (table I).

Active and Potentially Active Faults

There are no known active faults within the Trinidad planning area. Therefore there is no recognized danger from ground rupture along a fault zone. None of the numerous faults and shear zones in the Franciscan rocks underlying the area are believed to be active. These zones, however, can be expected to cause localized slope stability problems during strong shocks originating outside the planning area (see below).

Evaluation of Stability Problems Within Planning Unit Associated With Nearby Earthquakes

Mass Movement on Hillslopes

Mass movement of material on hillsides is a major accompaniment of moderate and strong earthquakes. This may be in the form of landslides, rock avalanches, mud and debris flows, or other types of slope failure. Steep natural or artificial slopes and high water content favor such failure. As an example, artificial cuts subjected to a moderate or strong earthquake during the wet season often undergo failure. Continued modification of the topography by further cut and fill would increase the landslide potential in hillside areas.

A stability map (Plate 2 ) has been prepared to delineate stable areas from those with stability problems. This is generalized and meant to indicate those areas where further slope stability investigation should be made if subdivisions or "critical"**structures are proposed for those areas. Boundaries between adjacent sectors are inexact and only meant to delineate the zones in a general way.

Most of the Trinidad planning area is composed of uplifted marine terraces whose slopes range from nearly flat to $\pm$ 5° (9%). Sea cliffs and adjacent narrow strips, as well as steeper slopes along streams, are subject to a

---

* The Association of Engineering Geologists has defined a potentially active fault as "one along which, based on available data, no known historical ground surface rupture or earthquakes have occurred. These faults, however, show strong indications of geologically recent activity"

** "critical structures" would be hospitals, schools, other high occupancy structures, high cost facilities, and facilities vital in emergencies.

general, but rapidly variable, instability, related to the combination of steepness, active undercutting by water, and presence in the surface or nearsurface of the highly unstable Franciscan Complex materials. The variability is related to the rapid lateral changes in rock type and character within the Franciscan rocks, surrounding large resistant masses, for instance, with zones of intensely sheared material. Areas of obvious instability, and areas of moderate or possible instability (if disturbed) are indicated. The latter represent largely fringe areas to those that are considered to be highly unstable, and should be assessed by an engineering geologist prior to authorization of construction or other types of disturbance.

Liquefaction

Liquefaction is defined as "the sudden large decrease of shearing resistance of a cohesionless soil, caused by collapse of the soil structure by shock or strain, and associated with a sudden but temporary increase of the pore fluid pressure. It involves the temporary transformation of the material into a fluid mass" (American Geologic Institute, Glossary of Geology). Fine unconsolidated sand or silt saturated with water is particularly subject to liquefaction. Horizontal to slightly tilted layers of this material may underlie river flood plains and terraces. Earthquake shock waves may cause an overlying sloping soil mass to slide laterally along the temporarily liquefied layer at the base.

We believe that there is little likelihood of appreciable liquefaction in the Trinidad planning area stemming from strong seismic shaking.

Lurching, Cracking, Fissuring

Unconsolidated alluvium and soils may undergo various amounts of horizontal displacment toward adjacent unconfined areas (such as the bluff along a river or stream), associated in some cases, with liquefaction. Cracks and fissures generally accompany this "lurching", ranging from inches to many feet in length, and of varying widths. Intervening ground segments are often tilted. Structures located on such ground can be severely disrupted and tilted. Such ground disturbances are possible in the Trinidad planning area along the margins of incised streams and fringing the sea cliffs - especially where unconsolidated terrace materials are present. These zones would correspond in large part to those shown in pink (moderate stability) on the stability map (Plate 2).

Differential Subsidence or Settlement

Differential subsidence or settlement may occur in underconsolidated materials during shaking, associated with the induced tendency toward a more compact arrangement of the grains. As the porosity is decreased, pore water may be forced to the surface to form sand boils or mud spouts. Ground settlement often leads to tilting of buildings or differential settlement of other engineered structures. Little in the way of this kind of reaction to seismic shaking is expected in the Trinidad planning area.

TABLE I

Southern Seismic Area  Northern Seismic Area

Planning Area: TRINIDAD

| | SAN ANDREAS FAULT (SOUTH) | SAN ANDREAS FAULT (NORTH) | MATTOLE SHEAR ZONE | CAPE MENDOCINO-FALSE CAPE SHEAR ZONE | LITTLE SALMON-YAGER FAULT ZONE | FRESHWATER FAULT ZONE | FALOR-KORBEL FAULT ZONE | GROGAN FAULT ZONE |
|---|---|---|---|---|---|---|---|---|
| State of seismicity of fault: Active (A) or Potentially Active (PA) | A | A | PA | A | PA | PA | A | PA |
| Estimated maximum probable earthquake (Richter Magnitude) in 100 year interval | 8.0 | 7.3 | 7.3 | 7.3 | 6.4 | 6.4 | 6.4 | 6.4 |
| Minimum distance from center of planning area to surface trace of fault or fault zone (in miles) | 71 | 55 | 47 | 40 | 16 | 4 | 4 | 12 |
| Estimated maximum bedrock acceleration (%g)* at planning site for maximum probable earthquake in 100 years | .05 | .10 | .10 | .12 | .20 | .48 | .48 | .26 |
| Repeatable strong bedrock acceleration (%g)* in planning site for maximum probable earthquake in 100 years. | .03 | .07 | .07 | .08 | .13 | .31 | .31 | .17 |
| Duration of strong phase of shaking (in seconds) | 34 | 27 | 27 | 27 | 17 | 17 | 17 | 17 |

* %g is the instantaneous acceleration in any direction imparted to bedrock by the seismic shock wave. It is related numerically to the acceleration imparted to a freely falling object at the earth's surface by the pull of gravity (1.0 g, or 980 cm/sec$^2$).

FIGURE I

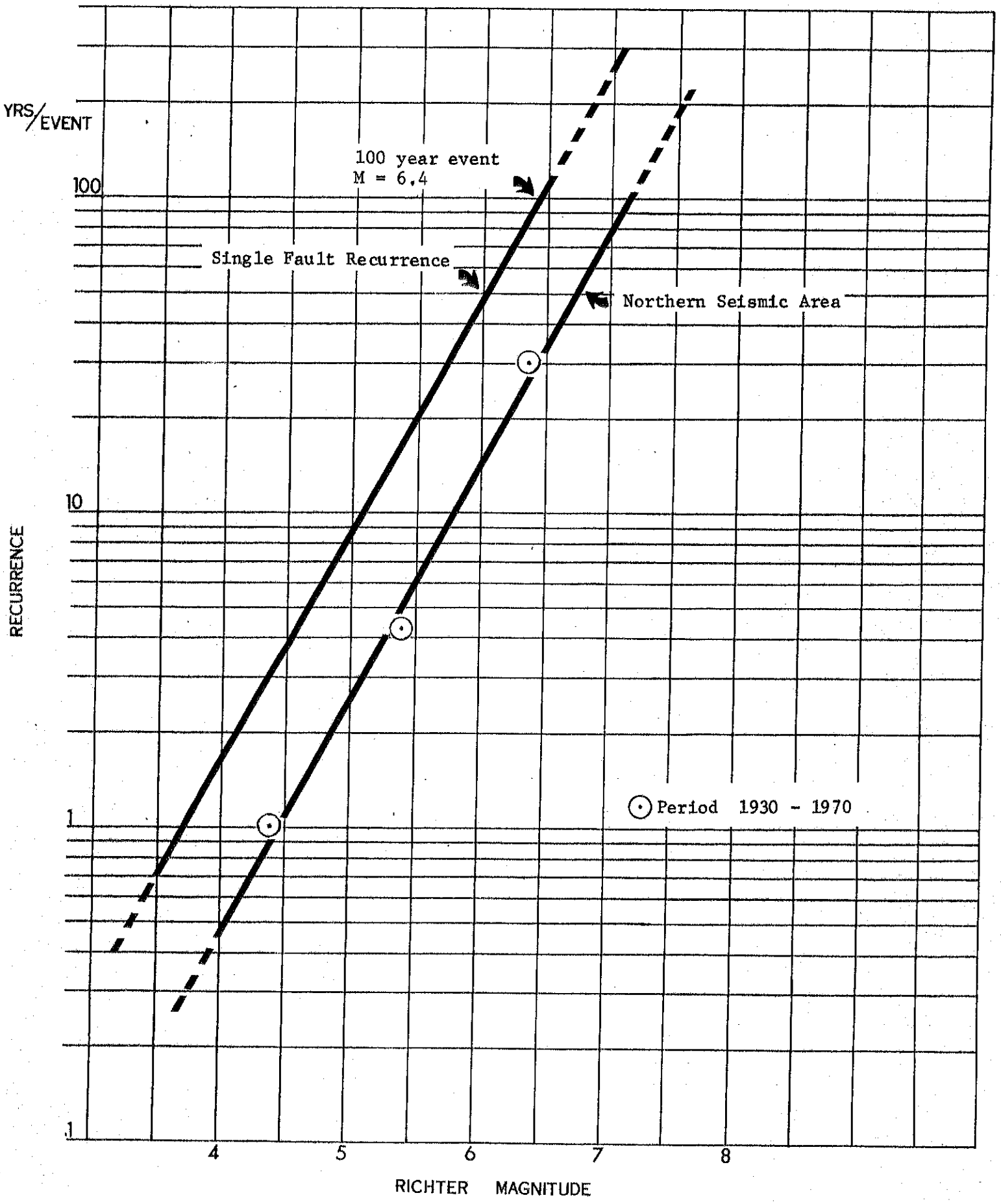
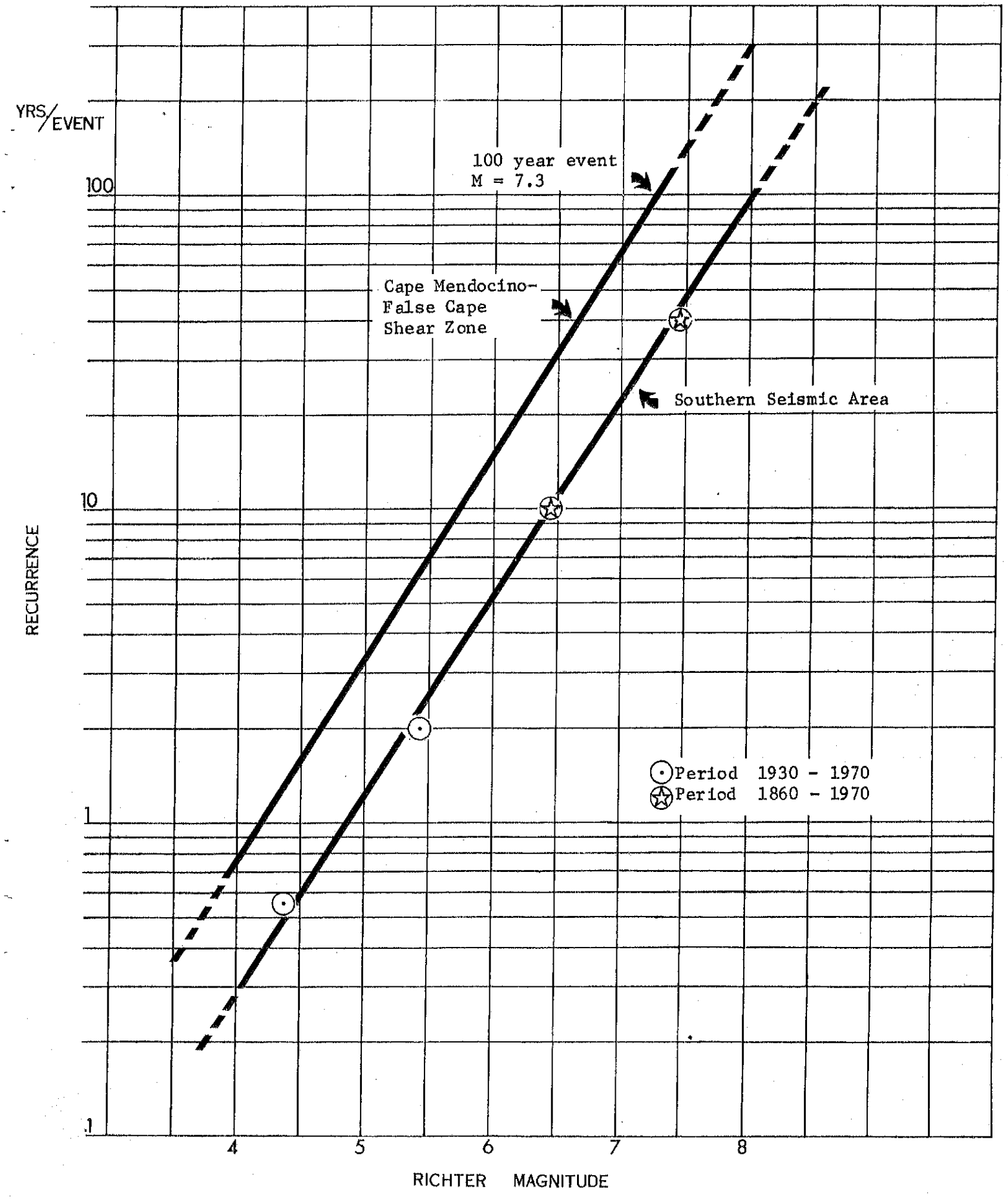

YRS/EVENT
100
10
1
RECURRENCE
100 year event
M = 6.4
Single Fault Recurrence
Northern Seismic Area
Period 1930 - 1970
4
5
6
7
8
RICHTER MAGNITUDE

FIGURE II


YRS/EVENT
100
10
1
.1
RECURRENCE
100 year event
M = 7.3
Cape Mendocino-
False Cape
Shear Zone
Southern Seismic Area
Period 1930 - 1970
Period 1860 - 1970
4
5
6
7
8
RICHTER MAGNITUDE

## BIBLIOGRAPHY


Byerly, P., 1969, Report on Earthquake Hazard at the Humboldt Bay Plant, (unpublished report to Pacific Gas and Electric Co.).

Cameron, J.B., 1961, Earthquakes in the Northern California Coastal Region (Part I). Bull. Seis. Soc. Amer., vol. 51, no. 2, pp. 203-221.

Curtis, G.H. and Hamilton, D. H., 1972, Geology of the Southern Humboldt Bay Area and the Humboldt Bay Power Plant Site, (unpublished report prepared for Pacific Gas and Electric Co.).

Evernden, J.F., Hibbard, R.R., and Schneider, J.F., 1973, Interpretation of Seismic Intensity Data: Bull. Seis. Soc. Amer., vol. 63, no. 4, pp. 399-422.

Jennings, C.W., 1973, Preliminary Fault and Geologic Map of California, North Half: Calif. Div. Mines and Geology Prelim. Report No. 13.

Lawson, A.C., 1908, The California Earthquake of April 18, 1906: vol. 1, Report of the State Earthquake Investigation Commission, published by the Carnegie Institution, Washington, D.C.

Ploessel, M.R., and Slosson, J.E., 1974, Repeatable High Ground Acceleration From Earthquakes - Important Design Criteria: California Geology, Sept., pp. 195-199.

Schnabel, P.B., and Seed, H.B., 1973, Accelerations in Rock for Earthquakes in the Western United States: Bull. Seis. Soc. Amer., v. 63, pp. 501-516.

Silver, Eli. A., 1971, Transitional Tectonics and Late Cenozoic Structure of the Continental Margin off Northern California: Bull. Geol. Soc. Amer., v. 82, no. 1, pp. 1-22.

# NOISE

# ELEMENT

# OF THE

# TRINIDAD

# GENERAL

# PLAN

# NOISE ELEMENT

As described in the Government Code the Noise Element of a General Plan should include noise contours of present and projected noise levels associated with all existing and proposed major transportation elements such as highways and freeways, ground rapid transit systems, and ground facilities associated with airports. Appendix D discusses what noise is, how it can damage the ear and cause other ailments, describes ambient noise and single event noises, discusses how noise is being controlled by various agencies and what the local government role can be, and explains why projection of noise levels for the future is impractical.

State Highway 101 and local roads are the only surface transportation facilities in the Trinidad planning area. The volume of traffic is low enough on all of the streets that passing vehicles represent single event noise sources. The one exception is the freeway during peak traffic periods when the constant vehicle noise increases the general sound level to near 75 decibels.

Single Event Noises. Logging and diesel delivery trucks generate the most common single event noises in the planning area. At 50 feet a truck generates a noise level of 88 decibels and at 100 feet the level is 82 decibels. Several residents commented on the noise of logging trucks on the freeway during the summertime, but did not find the noise disturbing. Single event sounds in the 75 to 85 decibel range are distracting to most people and sounds over 85 decibels are often disturbing and can cause hearing loss if exposure is frequent. For persons inside a building, these noise levels would be perceived at about 20 decibels less with the windows closed and 10 decibels less with them open. Single event impacts from other sources which generate noises of above 75 decibels, such as chain saws, lawn mowers and barking dogs, occur unpredictably and at random locations.

Most of the residential areas in Trinidad are far enough from the major truck routes that the noise dissipates and is not distracting. Tourist accomodations at the freeway interchange and homes along Patricks Point Drive are most affected. Unless there is a reduction in logging activity the only reduction in truck noise will be through the gradual introduction of quieter truck equipment.

Ambient Noise Levels. Using the methodology described in the appendix, and the noise contour data supplied by the State Department of Transportation for Highway 101, a daytime ambience contour map has been prepared for the planning area (See Plate 4). These contours are not entirely accurate because they do not take into account the shielding effect of road cuts which occur frequently along the freeway.

PACIFIC OCEAN

TRINIDAD BEACH
STATE PARK

50

55

60

65

70

75

PATRICKS DR.

STAGECOACH RD.

ANDERSON RD.

MATCH THIS LINE
TO TRINIDAD SOUTH

60+ dB CNEL
Impact Area

# TRINIDAD NORTH GENERAL PLAN

## Daytime Ambient Noise Level

OSCAR LARSON & ASSOC.
1809 ALBEE ST. EUREKA
443-8381

APPROX. SCALE 1"=500' | PLATE NO. 4A

MATCH THIS LINE TO TRINIDAD NORTH

⊕ - ELEMENTARY SCHOOL

60+ dB CNEL Impact Area

ANDERSON RD.

MILL CR.

ROCK QUARRY RD.

WATER TANK

STAGECOACH RD.

MAIN ST.

PARK DR.

TRINIDAD

SCENIC DR.

WESTHAVEN DR.

McCONNAHAS CR.

TRINITY ST.

OCEAN AVE.

VIEW AVE.

UNDERWOOD DR.

PARKER ST.

WEST ST.

EAST ST.

HECTOR ST.

ENWIG ST.

AZALEA WAY

PACIFIC ST.

EDWARDS ST.

WAGNER ST.

WHITING ST.

VAN WYCKE ST.

BAY ST.

FISHING DOCK

PACIFIC OCEAN

55 60 65

# TRINIDAD SOUTH GENERAL PLAN

DAYTIME AMBIENT NOISE LEVELS

OSCAR LARSON & ASSOC.
1809 ALBEE ST. EUREKA
443-8381

APPROX. SCALE 1" = 500' | PLATE NO 4B

In actuality there are several different ambience conditions in Trinidad. Plate 5 shows the maximum, which occurs during the height of the tourist season and logging activity and during peak traffic periods. The normal daytime ambience during the summer season is 5 to 10 decibels lower than shown on Plate 5. During the off-season the normal daytime ambience is 10 to 15 decibels less than shown. And at nighttime the decibel level is about 10 decibels lower than the normal daytime level. So, depending on the time of the day and season of the year the ambience levels may vary by as much as 25 decibels at the same location. A reading taken at Main Street and View Street in the off-season during the off-peak traffic period was 54 decibels, and in the residential area near the ocean readings as low as 34 dB(A) were taken. Even though the ambience varies considerably, local residents do not find the increase during the tourist and logging season objectionable. Noise problems are almost non-existent and local residents feel little need to be concerned about it.

One noise regulation that applies to future building construction in Trinidad is Title 25, Article 4 of the California Administrative Code. Essentially it provides that when hotels, motels, or multiple family residences are constructed near highways that special noise reduction methods must be employed to ensure that noise levels inside the building are appropriate (see Appendix D for details). The area affected by this provision lies within the 60 dB(A) community noise equivalent level contour. This contour line is shown on Plate 4. This regulation does not cover single family residences or recreational vehicle parks. Provision of added sound insulation is not practical for mobile homes and recreational vehicles and is costly in single family dwellings. However, noise impacts can be reduced for these types of accomodations either through careful orientation of the units, or use of fences, or other sound reduction techniques, or by requiring their location outside the 60 CNEL impact area.

*Environmental Assessment. The impacts of implementing the following recommendations are generally indirect and restricted to the social and economic categories of the environmental impact assessment process. In general, the impacts are considered long term and beneficial. There is a possibility that improving the quality of life through noise abatement and related planning effects will increase the attractiveness of the community as a residential area for commuters, for retired persons, or for some other segment of society and thus have a growth inducing aspect. Implementation of the recommendations will have no unavoidable, direct, adverse impacts nor call for any irretrievable commitment of resources or expenditure of energy. Appendix D includes a discussion of the social, economic, and environmental impacts of noise in general.*

Recommendation #1. The State Vehicle Code establishes maximum decibel levels for trucks, automobiles and motorcycles. If vehicle noise becomes a problem the city should consult with Highway Patrol staff to develop a vehicle noise monitoring program that will effectively cite violators and reduce noise from vehicles traveling within the planning area. Acquisition of a decibel meter should be considered. Enforcement of speed limits also has a beneficial noise reduction impact.

Recommendation #2. If non-vehicular noises become a problem, the city should consider adopting a noise ordinance. The model noise ordinance developed by the League of California Cities can be used as a starting point (see Appendix D for a discussion of what it covers and the advantages and disadvantages of a noise ordinance).

*Environmental Assessment. The above recommendations will not have any direct impact upon community resources but will give the authorities a mechanism to consider for quickly and effectively mitigating the impacts of an unwanted noise. If these programs are established, a commitment of man-power, energy and equipment will be necessary. Offenders will react unfavorably to a supposed infringement of their personal license to do as they please. Some social friction can be expected.*

Recommendation #3. The Trinidad Planning Commission should review the implications of the noise reduction requirements of the State Administrative Code on the existing Land Use Plan and current zoning classifications within the 60 CNEL contour line. Uses that can economically incorporate sound proofing and other noise reduction techniques should be given preference. Where single family dwellings or recreational vehicle parks are permitted within this noise impact area the Planning Commission should encourage the developer to use all practical means to ensure that the noise level in sleeping areas will be within acceptable limits.

Recommendation #4. The Trinidad School District should develop an educational unit on noise and include it in the teaching program at the appropriate age level. Educating the next generation on the hazards of excessive noise is one of the most important weapons in the fight against deafness and increased noise pollution.

## APPENDIX D

## TECHNICAL CONSIDERATIONS IN THE NOISE ELEMENT

When energy is expended it causes vibrations in the air, water, land or man-made objects. These vibrations are transmitted through the air and are perceived by the ear as sound. The frequency of the vibrations can vary considerably - short frequencies produce high pitched sounds and long frequencies generate low pitched sounds. The undamaged human ear is capable of detecting many but not all tones. Certain animals are noted for being able to hear higher pitched sounds than humans.

The human ear does not respond equally to sounds of different pitches. Moderately high sounds, such as those produced in the uppermost register of a piano are heard better than either very high or very low pitches. If the ear were as sensitive to the lower end of the register as it is at the higher end, sounds like the roaring of the wind, or the beating of the heart would be unbearably loud. High pitched sounds such as the scratching of a fingernail on a blackboard are the most disturbing.

The intensity or loudness of sound is related to the amount of energy utilized in generating the vibrations. The more energy expended the louder the sound seems, and bombarding the ear with very loud sounds for extended periods can cause physical deterioration of the delicate parts of the ear mechnaism. The combination of high pitch and extreme loudness is the most damaging.

The effects of noise are insidious because they are undetectable by the victim until after irreversible damage has occurred. It is possible to sustain noise levels sufficient to produce permanent hearing impairment without any accompanying sensation of pain. The only symptom of the damage is a need on the part of the victim for a progressively higher noise level to produce the original stimulus to the brain. Thus noise confers a "tolerance", like a narcotic, but in the form of progressive deafness.

The ear is able to adjust somewhat to loud noises, but not sufficiently to cope with the constancy and loudness experienced in industrialized societies. Two limitations of the ear are its delayed adjustment to sharp sounds and its inability to withstand continued loud noise for extended periods of time. When the ear first perceives a loud sound it takes about .2 seconds for it to adjust and turn down the volume. During this moment when the sound is not dampened serious damage can occur. Someone who had a firecracker explode 15 inches from his ear showed permanent hearing loss. During extended periods of loud noise the ear, like an automobile in an endurance race, begins to disintegrate due to the constant vibration.

The results of two studies substantiate the impact of noise in our society. Recently a study of more than 4,000 Tennessee college students showed that 33% failed the screening test on higher frequency tones. The following year the number failing rose to 61%. This loss was attributed to high-intensity recreational noise, such as live amplified music, sport shooting, motorcycling, etc. A study in 1962 of the Mabaan tribe in the Sudan showed that older

members of the tribe have hearing acuity comparable with that of young children in America.

Besides physical damage to the ear, noise produces stress on other parts of the body. To quote the Environmental Protection Agency Publication EPA-335: "Even a sound of moderate volume and short duration such as a heavy truck passing on the other side of the street (rated about 80 decibels), produces a remarkable number of physical changes. Blood vessels in the brain dilate while blood vessels in other parts of the body constrict. Blood pressure rises, and the heart rhythm changes. The pupils of the eyes dilate. The blood cholesterol level rises. Various endocrine glands pour additional hormones into the blood. Even the stomach changes its rate of acid secretion. While most of these reactions are only temporary, the modern environment presents such ever-changing noise levels that some of the 'temporary' effects become chronic".

In addition to the physiological impacts on the ear and the body there are the psychological reactions: frustration when noise interrupts conversation, or hampers concentration on work, or makes it difficult to relax and obtain needed rest. Although suffering from noise cannot be weighed only in economic terms, the cost of accidents occurring because the victim failed to hear the approaching danger, or arising from work inefficiency due to noise, or from treatment of related physical maladies must be staggering. If, as some experts claim, urban noise levels have been increasing by an average of 1 decibel per year for the past 30 years it becomes obvious that noise must be controlled and reduced wherever possible.

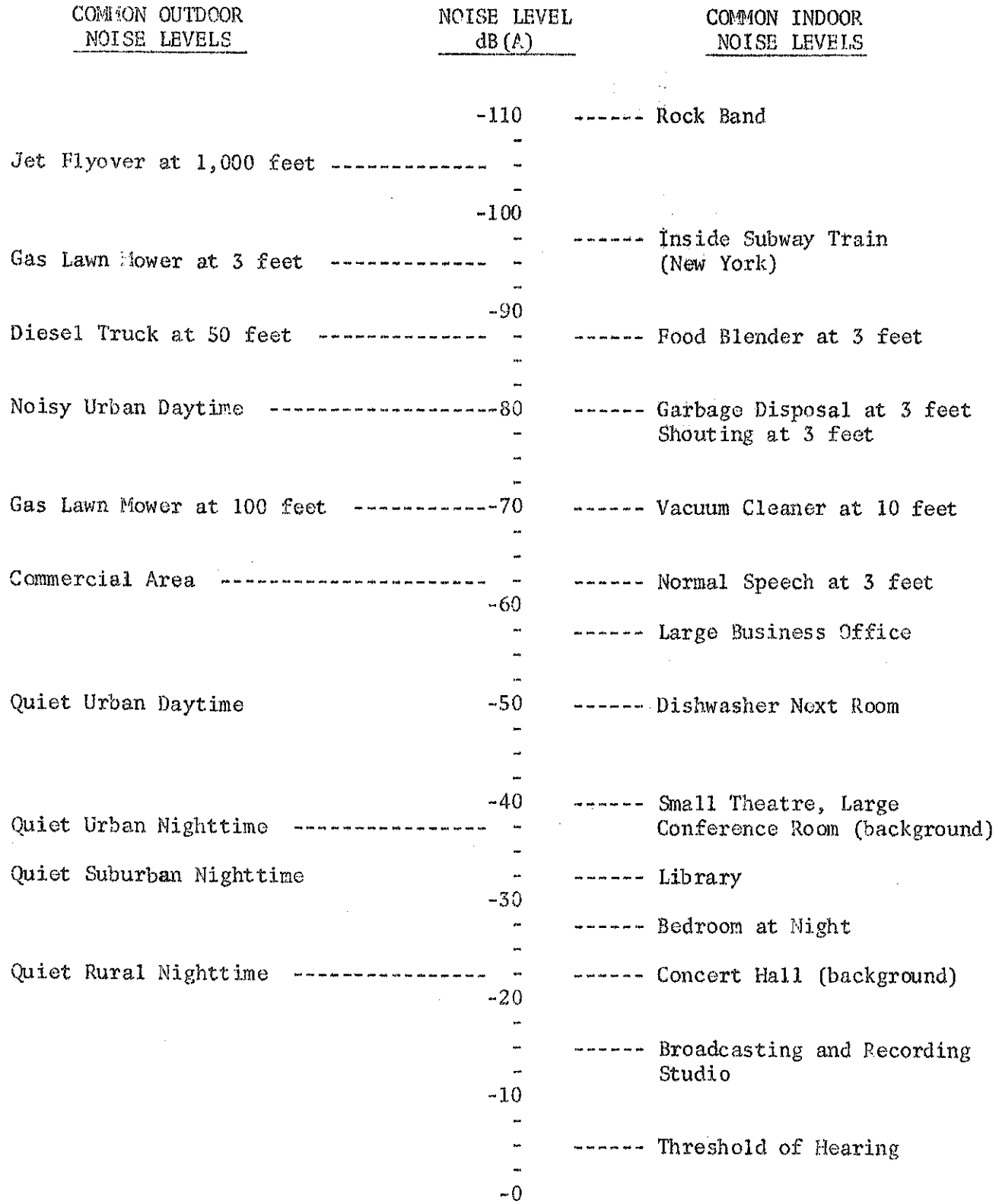
Defining Noise. Noise has been defined as unwanted sound. However, this definition does not give proper consideration to the tolerance of noise resulting from ear damage or the many imperceptible but undesirable effects of noise. Therefore it may be better to define noise as excessive sound.

In order to determine which sounds are excessive some means of measuring it are necessary. The unit of measurement most commonly used is called the decibel (dB) and is very near the "just perceptible difference" in loudness in the human ear. Since it takes a tremendous increase in energy to increase the loudness of sound the decibel scale is logarithmic - a sound measured at 40 decibels requires ten times as much energy as a sound at 30 decibels. The scale most commonly used is the A-weighted decibel scale which suppresses the bass response to better correspond to the response curve of the human ear. Figure 1 gives some typical examples of various decibel levels generated by familiar noise sources.

Ambience and Single Events. When measuring sound, it is possible to differentiate between what is termed the ambient sound level and louder peak noise levels generated by single events such as a passing truck. Essentially ambience is the undifferentiated background noise which is the resultant of thousands of events, either small or distant, which in combination constitute a steady accompaniment to the sound being measured. Ambiences of above 60 dB(A) are almost exclusively generated by heavily traveled streets and highways with an average daily traffic count of more than 2,000 vehicles.

FIGURE I

COMMON INDOOR AND OUTDOOR NOISE LEVELS




Source: "Guide on Evaluation and Attenuation of Traffic Noise", American Association of State Highway and Transportation Officials.

NOTE: A ten (10) decibel increase in sound level on dB(A) scale doubles the apparent loudness or annoyance of the sound.

An airplane landing at an airport, a truck traveling along a low traffic volume street, a motorcycle climbing a nearby hill are examples of single event noises. Such loud events stand out above the general ambience level and can be disturbing, startling, distracting, and even damaging to the ear if experienced repeatedly at close range. At 50 feet a diesel truck generates single event maximum of approximately 85 decibels, a diesel train - 88 decibels, a power lawn mower between 59 and 85 decibels depending on make, and a chain saw - 64 to 86 decibels. The operators of lawn mowers and chain saws are exposed to noise levels of 80-95 decibels and 103-115 decibels respectively ("Effects of Noise on People", Environmental Protection Agency).

Inventory Methodology. The estimates of ambience in the vicinity of major highways were developed by the California Department of Transportation utilizing a concept called L10, which can be defined as that noise level which will not be exceeded more than 10 percent of the time during the peak hour of traffic. Where traffic counts on county roads exceed 2,000 vehicles L10 data have been developed to supplement the State Highway information. The contours from 60 to 45 dB(A) were extrapolated from the highway data and checked by random field measurements.

These data do not consider variations due to buildings, barriers, or vegetation. Some adjustment has been made where major topographical features affect sound dispersion over significant stretches of highway; otherwise, terrain variations have not been considered. Contours are subject to an error range of plus or minus 3 dB(A). All field measurements were taken on a General Radio Sound Level Meter, type 1551B.

In addition to the L10 contours the 60 decibel Community Noise Equivalent Level (CNEL) contour has been supplied on the ambience map (Plate 4). This is a noise measurement which gives added weight to the noises occurring during the evening (3x) and nighttime (10x). This weighting reflects the relative increase in levels of annoyance. Although this methodology (developed by Wiley Laboratories) has been widely used near airports, it has only recently been employed to report noise levels near highways and railroads. In order to determine the 60 CNEL contours, nomographs developed only recently were used. Required data were not available in a few instances and best estimates had to be employed. When better data and more experience with this methodology has been obtained, it should be possible to develop a complete set of CNEL ambience contours for the planning area. For the purpose of implementing the State Administrative Code requirements, the CNEL 60 line shown on Plate 4 is adequate (see discussion below).

Noise Control. There are several ways in which noise can be controlled. Redesign of equipment and use of sound absorbing materials has been effective. Where dampening the sound at the source is impractical or technologically infeasible

protective devices for the ear have proven effective if the number of people exposed to the noise is limited. New techniques are being used to reduce sound transmission through the walls of residences. And, in some cases sound barriers or just increased distance between the source and observer have been used. Any of these can be encouraged or required by federal, state, or local governments through the adoption of standards, guidelines, and ordinances.

The Department of Transportation has adopted federal standards which are generally applicable to highway design in the state of California. These standards relate the L10 noise levels to four general land use categories and represent the highest desirable noise level conditions.

FEDERAL HIGHWAY DESIGN STANDARDS

| Land Use Category | Design Noise Level (L10) |
|---|---|
| A. Unique and unusual tracts of land in which serenity and quiet are of extraordinary significance and preservation of those qualities is essential if the area is to continue to serve its intended purpose. | 60 dB(A) (Exterior) |
| B. Residential areas, schools, churches, libraries, hospitals, and so forth. | 70 dB(A) (Exterior) |
| C. Other developed land not included in (A) and (B) and generally constituted by urbanized business or industrialized areas. | 75 dB(A) (Exterior) |
| D. Special condition site, areas, or activities. The design noise level should be established, based on the merit of the specific case and an analysis of the acceptable level. | (Exterior or Interior) |

These same standards also identify the impact of noise on various types of buildings and window openings. The factors indicated in the table below are used in highway design to ensure that the noise level inside adjacent buildings does not exceed 55 dB(A).

| Building Type | Window Condition | Noise Reduction Due to Exterior of the Structure |
|---|---|---|
| All | Open | 10 dB(A) |
| Light frame | Ordinary Sash | 20 dB(A) |
| | (closed with storm windows) | 25 dB(A) |
| Masonry | Single Glazed | 25 dB(A) |
| Masonry | Double Glazed | 35 dB(A) |

The Department of Housing and Urban Development has also established noise level standards which are utilized by HUD and FHA in approving financing of residential housing. They are:

General External Exposures dB(A)

1. Unacceptable:
   a. Exceeds 80 dB(A), 60 minutes per 24 hours
   b. Exceeds 75 dB(A), 8 hours per 24 hours

2. Discretionary, Normally Unacceptable:
   a. Exceeds 65 dB(A), 8 hours per 24 hours
   b. Loud repetitive sounds on site

3. Discretionary, Normally Acceptable: Does not exceed 65 dB(A) more than 8 hours per 24 hours

4. Acceptable: Does not exceed 45 dB(A) more than 30 minutes per 24 hours.

The U. S. Government also has jurisdiction over all noises occurring under conditions of employment, even if interstate commerce is not involved. The maximum level for an eight hour day is presently 90 dB(A) but consideration is being given to reducing this level. While most people agree that this level is too high the cost to employers of reducing the level to 85 decibels is considerable. These regulations are administered by the Occupational Safety and Health Administration. Another program is the efforts of the Environmental Protection Agency. It works with manufacturers of equipment and appliances to develop designs that generate less noise. Noise level standards have been adopted in several categories to encourage progress in noise reduction.

The State of California Vehicle Code establishes maximum decibel levels for all vehicles based on the year of their manufacture. These requirements are projected into the future and gradually reduce the permissible noise level as illustrated below:

| Year of Manufacture | Maximum Noise Level in Decibels (dBA) | |
|---|---|---|
| | Automobiles | Vehicles Over 6,000 Pounds |
| 1968 - 72 | 86 | 88 |
| 1973 - 74 | 84 | 86 |
| 1975 - 77 | 80 | 83 |
| 1978 - 87 | 75 | 80 |
| after 1987 | 70 | 70 |

The Vehicle Code (Section 27151) makes it unlawful to operate a vehicle which is emitting noise levels above those applicable when it was first sold. Off-road vehicles are subject to established dB(A) levels also, but they are exempt if used only on the owner's property. Enforcement of off-road noise violations is hampered because Highway Patrol vehicles are not equipped to engage in off-road pursuit.

The state has also adopted "Noise Insulation Standards" (see Chapter 1, Article 4 of Title 25 of the California Administrative Code). Their purpose is to "establish uniform minimum noise insulation performance standards to protect persons within new hotels, motels, apartment houses, and dwellings other than detached single family dwellings from the effects of excessive noise...".

Requirements for interior airborne sound insulation and impact sound insulation are established for wall and floor-ceiling assemblies utilizing the sound insulation ratings incorporated in the Uniform Building Code.

For exterior noises the requirement specifies that with windows closed, the community noise equivalent level (CNEL) attributable to exterior sources shall not exceed an annual CNEL of 45 dB in any habitable room. An acoustical analysis of the proposed design is required when the proposed structure will be located within the 60 dB CNEL contour line around any airport, the select system of county roads and city streets, freeways, state highways, railroads, rapid-transit lines and industrial areas. Suggested means of noise reduction include orientation of the structure, set-backs, shielding, and sound insulation of the building.

Noise also can be subject to the nuisance laws of the state (state penal code) or a city. These codes require that the plaintiff demonstrate that the offending noise constitutes a nuisance. Because the burden of proof lies on the plaintiff and involves the time and expense of a jury trial, this method of control is seldom used. To facilitate legal recourse for private parties many cities have adopted noise ordinances which establish criteria for determining when a noise constitutes a violation. When a violation is recorded, usually in response to a complaint to the local police department, the violator can be cited and the police department handles the prosecution.

The League of California Cities model noise ordinance is a typical example. It regulates: (1) noises generated by radios, television, amplifiers and similar audio transmitters between the hours of 10 p.m. and 7 a.m., (2) equipment such as air conditioners and fans, (3) restricts construction activity within 500 feet of a residential zone; and, (4) makes it unlawful to generate disturbing noise near posted institutions such as schools, hospitals and churches.

Two basic problems have evolved in the administration of noise ordinances. First, although attempts have been made it has proved difficult to develop ordinance provisions for some types of noise, such as noise created by animals, special events, etc. In many cases only a small percentage of the potential noise sources are actually covered and this limits the effectiveness of the ordinance in controlling overall noise levels. Further, it means that some types of noise are treated more strictly than others because of administrative problems.

Secondly, measurement of noise levels is a technical task requiring fairly sophisticated equipment and technique. If the enforcement officers are not well trained the courts may dismiss the evidence as inadequate to support the charges. Another related difficulty is insuring that the noise level recording is an accurate representation of the offending noise. In fact,

the presence of other noise in the area can distort the recorder reading and in effect suggest a noise level higher than actually attributable to the specific noise source. Blowing of the wind, falling rain, or a barking dog - almost any noticeable noise will affect the readings and the operator must be aware of this and be able to compensate - or the evidence will be inaccurate. In spite of these limitations noise ordinances are still the best local means of attempting to control noise on a community-wide basis.

Land Use Classification Standards. Noise ordinances are based on ambient standards for general land use categories. The model noise ordinance includes standards recommended by the League of California Cities and another set (about 5 decibels higher) recommended by the Pacific Gas and Electric Company. The standards listed below were developed from the HUD standards reported above. Essentially they are slightly higher than the PG&E recommendations. These standards were used in evaluating ambient noise problems in the community and are recommended for adoption as the official standard. They can be incorporated in any noise ordinance that might be considered and used in reviewing zoning issues and environmental impact reports.

| Land Use Classification | Desired Ambient Level, dB(A) | |
|---|---|---|
| Residential, rural-suburban | night | less than 40 - 45 |
| | day | less than 45 - 50 |
| Residential, suburban | night | less than 45 - 50 |
| | day | less than 50 - 55 |
| Residential, low-density urban | night | less than 50 - 55 |
| | day | less than 55 - 60 |
| Residential, medium/high density | night | less than 55 - 60 |
| | day | less than 60 - 65 |
| Commercial zones, districts | night | less than - 65 |
| | day | less than - 70 |
| Industrial zones, districts | | less than - 75 |

It is evident that most of the noise control effort is being exerted at the state and federal levels where it undoubtedly has the widest impact. Control of noise related to motor vehicles, aircraft and railroad equipment is pre-empted by federal and state agencies. However, efforts to improve enforcement at the local level may be necessary. Otherwise there is little that can be done about such noise problems by local government.

At the local level noise reduction can be achieved in the design and location of local roads, the routing of local bus systems, the designation of truck routes, the separation of noisy commercial and industrial activities, outdoor assembly areas, and airports from residential areas, the provision of increased setbacks for dwellings along busy streets and through careful orientation and construction of dwellings.

Many of these situations are controllable through the zoning and subdivision ordinances. Others are public projects where consideration of noise impacts would be included as part of the environmental impact report. Noise impacts

must also be covered in environmental impact reports for large private developments and this enables the city and other affected agencies to consider ways to reduce noise impacts at the design stage. The standards included in the Noise Element of the General Plan provide a valuable yardstick in reviewing development proposals. A noise ordinance such as the model discussed above is another local option aimed at reducing noise levels.

Future Noise. Our society has become very tolerant of excessive sound and only in the last 10 years have serious efforts been undertaken to reduce noise pollution. The efforts by agencies at the federal, state, and local levels summarized above are having an effect. Public concern over preserving the "quality of life" is growing and this should sustain the momentum achieved unless the cost to the social and economic sectors of our society becomes unacceptable. The trend is toward quieter equipment and appliances. Limitations on fuel supplies will dampen the projected increase in usage of the automobile. And, young people may become aware of the ear damage potential in loud music and turn the volume down. On the other hand noise reduction efforts may be counteracted by an increase in the number of noise generating devices.

The impact of educational programs, noise reduction programs, and the social and economic condition of our society will all have a bearing on how much noise reduction will be accomplished. Because it is difficult to predict the outcome in any of these areas it is almost impossible to adequately support any projection of future noise levels. Therefore, no specific projection of ambient noise levels has been attempted. It is likely that the rate of increase in noise levels will be reduced, but noise levels will probably continue to increase in the future.

The State Department of Transportation has prepared L10 noise contours for state highways in the planning area for 1995. These contours are available at the local public works department. These projections were based on traffic flow estimates derived in 1973 - before shortages in fuel supplies and higher costs began having an impact on driving habits. Once these projections have been adjusted based on more recent experience more realistic long range noise projections will be possible, although their accuracy and consequent value as a planning tool will still be in question for the reasons cited above.

# SCENIC HIGHWAY ELEMENT OF THE TRINIDAD GENERAL PLAN

# SCENIC HIGHWAY ELEMENT OF THE TRINIDAD GENERAL PLAN

## SCENIC HIGHWAY ELEMENT

The purpose of the Scenic Highway Element is fourfold: (1) to inform the city of the State Scenic Highway Program including identification of state and county roads that are, or could be, designated as scenic routes under the state program (2) to develop standards and criteria by which a local scenic route system can be developed and maintained (3) to make recommendations on (a) whether a local scenic route system supplementing the state program is feasible and desirable (b) whether other scenic amenities in the community deserve protection or enhancement, and (4) to facilitate coordination between the city and the county regarding scenic routes traversing both jurisdictions.

### The State Scenic Highway Program

A State Scenic Highway Program was established in 1963. This program includes standards, guidelines and a Master Plan map showing which state highways are eligible for official designation. The state role in implementing the program includes the preparation of a corridor study at the request of the local governments having jurisdiction over land use in the scenic corridor, and they review and approve the local scenic corridor protection plan and install the "poppy" signs along the officially designated route. The corridor study suggests scenic highway corridor boundaries, identifies scenic values and defines the relationship of the right-of-way to its surrounding environment. It also notes the scenic and aesthetic elements that should be preserved and potential locations for roadside rests, vista points and areas for information sites. This report is for the use of the local jurisdiction in the development of the local scenic corridor protection and enhancement program.

The local protection plan and program must include as a minimum: (1) Regulations of land use density or intensity of development (2) Provisions for review of site planning on proposed developments (3) Control of outdoor advertising (4) Control of earth moving and provisions for landscaping cuts and fills and (5) Control of the design and appearance of structures and equipment. Citizen involvement during the corridor study and development of the local program is stressed.

Once the local protection program is in effect the local jurisdiction can request official designation. If the Director of Transportation approves the program the state then proceeds with placement of the signs and other efforts to identify the route.

In addition to state highways, county roads may be officially designated as scenic routes if the county has designated the route in the scenic highways element of its general plan and adopted a protection program that meets the criteria for state highway protection programs. The state does not perform the corridor study, but they are available to provide technical assistance.

Although the program would appear to have much appeal very few portions of the eligible state routes have been designated. Those that have been are mostly segments within state and federal parks where public ownership of the land makes implementation of a protection plan almost a formality. Resistance to adding more land use controls within the scenic corridor, and concern about increased tourist impacts on the roadway corridor and adjacent communities are two reasons that more segments of eligible state routes have not been designated.

Highway 101 through the planning area is eligible for state scenic highway designation. The county, which controls land use adjacent to most of the length of the highway, has requested that the state prepare the corridor study for the segment of Highway 101 from the Arcata Airport to the Del Norte County line. This study has not been undertaken pending an indication from the county of its willingness to adopt a protective program. Although the highway as it passes through the planning area includes few spectacular views, the scenery along the road to the south and the north of the planning area is worthy of protection.

## Local Scenic Roads

Two county roads and one city street within the Trinidad planning area would have to be considered scenic by any standards. Stagecoach Road begins within the city limits at Trinity and Main Streets and winds its way north to connect with Patricks Point Road just beyond the planning area boundary. It provides a leisurely view of pastoral and woodland scenery enjoyed by local residents and tourists alike. It is also the main access into Trinidad Beach State Park.

Trinidad Scenic Drive begins near the Main Street-freeway interchange in the city and proceeds southerly along the coastline - affording spectacular views of the shoreline, Trinidad Head, the harbor, and the townsite. There are several accessible beaches along the route that are very popular County Parks. Beyond the planning area boundary it terminates at the Westhaven-freeway interchange.

Edwards Street runs westerly along the top of the ocean cliffs at the southern edge of the city. Below is a historic indian village, a view of the coastline and the harbor and adjacent to the road is an interesting memorial lighthouse. At the westerly end of the road it curves down the slope to the harbor and a beach access and vista point.

Both Old Stagecoach Road and Trinidad Scenic Drive are relatively free of garish roadside advertising and unsightly land uses. The existing city and county zoning regulations preclude most undesirable land uses and outdoor advertising. Edwards Street and the road to the Marina is an interesting mixture of tourist businesses, fish processing, recreational activities, and residences. City zoning controls limit the potential for objectionable signs and poor land use relationships but permitted structures could obstruct prime views from the street and upland properties.

## Scenic Route Criteria and Standards

The routes mentioned above meet most of the following criteria for a scenic route. Criteria #6 is the most significant concern due to the narrow rights-of-way, lack of centerline stripping and edge markers. The criteria are:

1. A definable scenic corridor
2. Quality in scenic view of natural, improved or historic areas
3. A variety of terrain and landscape
4. Conformance with open space and conservation objectives

5. Accessibility between areas of recreation, parks or historical interest

6. Routes of adequate design and safety

7. Control of development within the scenic corridor to prevent obstruction of important views or development of unsightly land uses

8. Screening or relocation of existing unsightly land uses

9. Complements the land use and circulation elements of the General Plan

10. Opportunity for development of vista points, roadside rests, and other amenities.

Besides these criteria which suggest the desirable character of the scenic corridor, there are policies which can be implemented to insure that the road improvements themselves do not detract from the scenic quality.

1. Where any portion of road is reconstructed, the natural grade should be followed as much as possible - minimizing cuts and fills.

2. Scenic roads should be designed for moderate travel speed.

3. Improvements related to the scenic route system, such as route location and directional signs, roadside rests and vista points, should be provided where possible, and be attractively designed to blend with the scenery.

4. Natural landscaping, particularly on cuts and fills, should be provided for scenic improvements and erosion control.

Is a Local Scenic Route Program Desirable?

When questioned about the desirability of designating the scenic routes in the planning area as county scenic highways under the state program or as scenic routes in a local program some local citizens responded favorably but others had reservations or were opposed. Those in favor noted that tourists miss these scenic opportunities and shouldn't need to stop and ask where the routes are. They felt that tourism was important to the economy of the community and should be encouraged.

Those that opposed scenic route programs generally felt that present tourist influxes were all that the town could handle and that the scenic route signs would just attract more visitors. They noted that tourists could stop and ask for directions, or the routes could be identified on maps distributed at the visitors information center, or a map sign could be located at the entrance to the city. The danger of driving Trinidad Scenic Road in a large recreational vehicle was mentioned, and encouraging tourist use of this road was questioned. The problem of visitor congestion and the difficulty of turning around large

recreational vehicles at the marina was noted. Some frankly wondered if a scenic route program wouldn't be more bother than it was worth.

*Environmental Assessment. In general the establishment of scenic routes implies a desire to attract visitors and to channel or concentrate visitor traffic. If the effect is significant the visitors will have a mild stimulatory effect on local trade and will increase the traffic load of certain thoroughfares. The effects will be proportionate to the number of visitors attracted. Increase in traffic will call for an increase in maintenance and patrol activity at the public's expense. Increase in traffic will also increase the level of noise pollution and air pollution for residents adjacent to the involved thoroughfares.*

*Maintenance and signing are requisites of any roadway. The nature of the impacts will not be of kind but of degree. A new action is not suggested but a direction to the actions which must proceed anyway.*

*The construction of parking facilities and vistas near scenic attractions has certain predictable impacts. There is a long term or permanent commitment of a small plot of land with the necessary destruction of vegetation and wildlife habitat. There is an increase in runoff carrying heavy metals and petroleum by-products into surface waters at each rain. These impacts are very localized. There is a commitment of resources in the form of construction materials and the commitment of energy resources for construction. Finally, there are the short term impacts of noise and air quality degradation during construction. Proper engineering and construction practices should eliminate or mitigate construction impacts and the possible effects of geological and landscape hazards such as slippage. Maintenance, including trash pick-up will call for a commitment of public funds. Areas adjacent to vistas will receive increased use in some cases. Trails and trash are common features of the brushy areas around many north coast vistas. The presence of a vista near residences will have an impact on the residents. The nature and degree of the impact will depend as much upon the nature of the residents as upon the volume of sightseers.*

*Review of land use plans and zoning ordinances can have a variety of impacts if changes result from the review. The most likely recommendations of a review oriented to a scenic highway program would involve prohibitions against building in such a manner as to block the view, and against the installation of signs in the viewshed. Such recommendations will meet citizen resistance from the owner whose use rights are restricted and from the commercial community that benefits from billboard advertising. Social friction over the issue of property rights versus community rights may arise.*

Scenic Highway Element Recommendations

Recommendation #1: The City of Trinidad should indicate to the county whether it is interested in the official designation of Highway 101 as a State Scenic Highway and whether it will consider adopting the necessary corridor protection program for the portion of the corridor under its jurisdiction.

Recommendation #2: The City of Trinidad should support efforts to better inform tourists of local scenic opportunities. If attracting more tourism is not considered desirable, such efforts could concentrate on provision of information

on locally distributed maps, installation of a map sign at the entrance to the city, or other similar means of informing those who are already in the community. If promotion of tourism is desirable, development of a scenic route signing program in cooperation with the county could be considered in conjunction with other promotional efforts.

Recommendation #3: The city should assign special maintenance priority to scenic roads under its control and request that the county do the same. If the road is narrow and winding, signs advising drivers of these conditions should be posted at the beginning of the route. Centerline striping, road edge markers, warning signs, adequate paving width and frequent turn outs should be provided to make these roads as safe as possible for visitors. These routes could also be designated as bicycle routes.

Recommendation #4: The possibility of providing scenic vista points along Trinidad Scenic Drive should be studied. The city should continue its efforts to provide turn outs along Edwards Street for those wishing to stop momentarily to enjoy the view. The city should continue to cooperate with the owner of the marina in efforts to improve traffic circulation and increase parking in the marina area.

Recommendation #5: The Trinidad Planning Commission should review the existing zoning ordinance height limitations for structures permitted on vacant view property along Edwards Street and the road down to the boat basin. The intent of the review should be to allow compatible development while protecting existing views as much as possible.

Recommendation #6: Whenever land use changes are proposed adjacent to recognized scenic routes, or when these roads are improved the city should give careful consideration to the scenic route standards and criteria contained herein and request similar consideration by the county in the county's portion of the planning area.