NOTICE OF MEETING OF THE
ADVISORY PLANNING COMMISSION OF THE
TAHOE REGIONAL PLANNING AGENCY

NOTICE IS HEREBY GIVEN that on January 9, 1980 at 10:00 a.m. at the hearing room of the Tahoe Regional Planning Agency, located at 2155 South Avenue, South Lake Tahoe, California, the Advisory Planning Commission of said agency will conduct its regular meeting. The agenda for said meeting is attached to and made a part of this notice.

Dated: January 2, 1980

By: Philip A. Overeynder
Manager
Tahoe Regional Planning Agency
PRELIMINARY AGENDA

I CALL TO ORDER AND DETERMINATION OF QUORUM

II APPROVAL OF AGENDA

III DISPOSITION OF MINUTES

IV PUBLIC WORKS
   A. South Tahoe Public Utility District, Sewer Line Installation at Fallen Leaf Lake, El Dorado County
   B. Tahoe City Public Utility District, Phase IV Bike Trails, Placer County

V CLEARINGHOUSE
   A. Heritage Conservation and Recreation Service/Incline Village General Improvement District, Incline Village Park Athletic Field, Washoe County
   B. U.S. Environmental Protection Agency/Incline Village General Improvement District, Incline Lakes Facility, Washoe County
   C. U.S. Environmental Protection Agency, Draft Environmental Impact Statement, Proposed Wastewater Treatment Facilities, South Shore, Lake Tahoe Basin

VI PLANNING MATTERS
   A. Land Use Ordinance Amendments
      1. High Density Apartment Land Use District
      2. Standards for Timesharing, Interval Ownership Condominiums
   B. Subdivision Ordinance Amendments Relating to Condominium Conversions

VII REPORTS
   A. Public Interest Comments
   B. APC Members

VIII RESOLUTIONS

IX CORRESPONDENCE

X PENDING MATTERS

XI ADJOURNMENT
Public Works
South Tahoe Public Utility District
Sewer Line Installation at Fallen Leaf Lake
El Dorado County

Summary

The South Tahoe Public Utility District proposes to construct approximately 5,800 linear feet of sewer collection lines at the southwest end of Fallen Leaf Lake in order to service 39 existing recreational residences. The residences are currently under special use permit on lands administered by the U.S. Forest Service, Lake Tahoe Basin Management Unit. The project will result in exportation of sewage as required by the Porter Cologne Act and will eliminate a potential source of water quality degradation.

Individual service lines ranging in length from 30 to 60 feet will be the responsibility of the permittee and all residences will be required to connect to the system. All residents will be required to participate in the system as a condition of the Forest Service permit. The sewage treatment capacity to serve the residences will be provided from that which is reserved for the U.S. Forest Service. The collection system is designed to operate only on a seasonal basis since the Forest Service permits do not allow permanent residents.

Previous Approvals

The Agency conditionally approved the Fallen Leaf Lake Sewer System as proposed by the South Tahoe Public Utility District on February 28, 1973. The Environmental Information Report submitted by the applicant at that time included the projected wastewater flows from the currently proposed project but did not include a specific design or financial program to sewer the 39 recreational residences. A supplemental information report, design details and construction documents have been submitted for the Agency's review as part of the current application.

Construction Methods

The proposed construction will take place within an area classified as a high hazard geomorphic unit. Although glaciated granitic uplands in this area have a low erosion hazard, construction within the area poses some special problems. The general lack of a soil mantle in which to place the sewer line poses some special problems for restoration of the site after construction. Minimum excavations of 12 inches are proposed because of the rocky character of the service area. In extremely rocky areas, the collection lines will be concrete encased with native rock backfill placed over the concrete. On steep cross slopes, the sewer line will be located at existing grade and will need structural support provided by an anchoring system and the use of iron pipe. Native rock backfill will also be utilized in this area to cover construction scars. The project involves a stream crossing of the sewer line over Celesta Creek.

Recommendation

Agency staff recommends approval of the project as submitted.

12/31/79
TAHOE REGIONAL PLANNING AGENCY
STAFF SUMMARY AND RECOMMENDATION

Public Works
Tahoe City Public Utility District
Phase IV Bike Trails
Placer County

Project Description

The Tahoe City Public Utility District proposes to construct approximately 3 miles of bicycle trails in the Tahoma and Homewood areas of Placer County. The proposed Phase IV bicycle trail would link the existing trails in Placer County to existing trails in El Dorado County and would provide for a continuous bikeway from Tahoe City to Sugar Pine Point State Park. The project would minimize an existing safety hazard for nonmotorized vehicle transportation and would encourage the use of alternative modes of transportation to businesses and recreation centers. The project is in accordance with the Placer County Bike Trail Master Plan which when completed will provide for connection of Tahoe City, Sugar Pine Point State Park, D.L. Bliss State Park and Tahoe State Recreation Area. The project includes 20,000 lineal feet of either 8 feet or 18 feet wide bike trail, 2,300 lineal feet of striping and 3 bridge modifications at creek crossings ranging from 50 feet to 100 feet in span.

The proposed bike trail will be constructed within existing county and state rights of way and will be composed of both exclusive bikeways and delineations for bike travel along the highway shoulder of Highway 89. Disturbance of vegetation will be minimized by maintaining the travelled way within existing transportation corridors.

Existing Land Use

This phase of the bike trail system is primarily within a developed portion of the Basin. Existing land use in the immediate vicinity of the project is primarily Low Density Residential with isolated areas of commercial uses including the Homewood area.

Land Capability

The land capability within the project area is classified as land capability level 5. The soils have a slight erosion hazard and moderately high to high runoff potential. The project's proximity to Lake Tahoe and several tributary streams will require erosion control measures outlined in the applicant's information report to be strictly adhered to.

Grading and Vegetation Protection

The alignment selected will closely follow existing transportation corridors. Only minor grading will be required in these areas. Tree removal has been minimized through the route selection and by providing for a meandering trail which will be field located to avoid unnecessary tree removal.

12/31/79
Stream Crossings

The project involves stream crossings on Madden Creek, Homewood Creek, and McKinney Creek. The Homewood Creek crossing will utilize two 36 inch culverts and a grouted rock rip rap base. The McKinney Creek crossing would involve the extension of a headwall over the existing culvert crossing on Highway 89 to provide the additional space for the bikeway. The applicant has not provided calculations on the ability of the proposed stream crossings to carry the 100 year flood. The Agency's Handbook of Best Management Practices recommends that second order streams such as Homewood Creek be crossed by a bridge rather than culverts.

Recommendation

Agency staff recommends approval of the project as submitted with the condition that a bridge crossing of Homewood Creek replace the culvert crossing.
Clearinghouse
U.S. Heritage Conservation and Recreation Service
Incline Village Park Athletic Fields
Washoe County

Background

The Agency has received a request for comment on the proposed federal funding of the Incline Village Park athletic fields. The athletic fields and variance to grade within a stream environment zone were reviewed and approved by the Agency at the December, 1979 meeting of the Governing Board. At that time, it was noted that the project was proposed to utilize federal funding from the Heritage Conservation and Recreation Service and would require the Agency's review as a clearinghouse item. The attached staff summary provides information on the athletic fields as approved by the Agency.

Federal Flood Plain Policy

The federal policy with regard to protection of flood plains and related wetlands is embodied in Executive Order 11988 and Executive Order 11990. These companion documents establish the procedures which must be followed in providing for federally financed activities or construction taking place within a flood plain or on wetlands. The prescribed procedure includes an evaluation of the environmental impacts of the activity as well as consideration of alternatives to the proposed activity. Since the athletic fields are partially located within a 100 year flood plain and within an area meeting the definition of "wetlands" and proposes to utilize federal funding, the project would be subject to the requirements.

Recommended Comments

Agency staff recommends that the Heritage Conservation and Recreation Service be notified that the Agency has approved the athletic fields as a public works project with specific findings that the project was found not to be detrimental to the environment of the stream zone and that the proposed federal funding should be subject to the requirements of the above-referenced executive orders.
Public Works
Incline Village General Improvement District
Incline Village Park Athletic Fields
Variance to Grade Within a Stream Environment Zone
Washoe County

Summary

The Incline Village General Improvement District (IVGID) proposes to construct three athletic fields near the intersection of Tahoe Boulevard and Southwood Drive in Incline Village. The proposal is part of the master plan for parks and recreation facilities in the Incline Village area. The proposed facility would be partially shared with the Incline Village Middle School which would be located on a site adjacent to the athletic fields. The Washoe County School District and IVGID would enter into a joint use agreement for the use of the athletic fields and parking facilities. The majority of the parking facilities for the athletic fields would be located on the proposed Incline Village Intermediate School site and would serve the school uses and the athletic fields.

A portion of the project site lies within the stream environment zone (SEZ) and 100 year flood plain of Third Creek. The TRPA Grading Ordinance prohibits grading within an SEZ except in connection with a single family residence, utilities, drainage structures or roadways. A variance to grade within an SEZ is therefore required under the provisions of the TRPA Grading Ordinance.

Land Use

The athletic field site is presently classified Tourist Commercial by the Agency and would accommodate much more intensive uses than those proposed. However, day use areas, such as parks, playgrounds and athletic fields are a specifically allowed use in the Tourist Commercial District. The area adjacent to and to the east of the site is classified recreation and is presently utilized for tennis courts as part of Incline Village Park. Upon completion of the park facilities, according to IVGID's master plan, the athletic fields would form a portion of the park facilities which would stretch in a corridor from Lake Tahoe to Tahoe Boulevard, a distance of approximately 3/4 of a mile.

The IVGID park master plan indicates that certain areas should be reclassified to reflect the proposed recreational use of the property. Agency staff has discussed this matter with the applicant and has recommended that a General Plan amendment be initiated.

Existing Site Conditions

The site of the proposed athletic fields has been partially disturbed as a result of past construction activities in three separate phases (Figure 1). The majority of the site was apparently logged approximately 20 years ago. A substantial portion of the site, consisting of all that area except for a strip approximately 200 feet wide on either side of Third Creek, has been stripped of topsoil for use in construction of the Incline Village golf courses approximately 10 years ago. The central portion of the site has been used intermittently as a site for stockpiling spoil material.

Although seriously disturbed, portions of the site have been substantially restored as a result of natural growth and the stabilization of the West Fork of Third Creek. That portion of the site delineated as Area I on Figure 1 is currently utilized for a construction staging area and for stockpiling fill material. This area remains substantially disturbed.
The timing of disturbance activities in this area is difficult to establish because of the continuous use as a stockpile area. As recently as August, 1979, Agency staff requested that IVGID confine its activities to existing disturbed areas, since it was found that filling of the SEZ was taking place. Restoration of Area I is therefore highly desirable.

The area delineated as Area II on Figure 1 has been affected by the removal of topsoil. This area is rapidly recovering from previous disturbance activities. Aerial photographs indicate substantial vegetation regrowth has taken place in the last 10 years. A substantial number of seedling lodgepole pines have been established in this area. The shallow root structure of dead trees in this area along with the presence of lodgepole pine seedlings and willows indicates that this area has been subject to a seasonably high groundwater table in the past. A field inspection conducted by the applicant on November 30, 1979 revealed that the groundwater table was at a depth in excess of 10 feet at that time.

Area III on Figure 1 was the least modified by past activities and hence would require the least amount of site restoration. The area is characterized by riparian vegetation such as willows, alders, grasses and lodgepole pines. The topsoil is approximately 2 feet deep and hence the establishment of new vegetation since the area was logged has taken place rapidly.

Stream Environment Zone Delineation

The applicant has identified the distribution of riparian vegetation on the site as well as the delineation of the 100 year flood plain. The 100 year flood plain varies in width from approximately 100 feet to 325 feet and generally includes the areas characterized by riparian vegetation (Figure 2). The Flood Drainage Study prepared by the applicant indicates that the stream flow splits into two channels during flood events. The secondary channel, which accommodates flows which occur from overtopping of the main channel, would be eliminated as a result of the proposed project.

Land Capability and Allowed Coverage

The site is classified as Invville Stoney Coarse Sandy Loam, 2 to 9% slopes, Land Capability Level 6. The site would be allowed up to 30% impervious surface coverage under the recommendations of the land capability system. However, since the site is classified Tourist Commercial, up to 50% impervious surface coverage would be permitted under the provisions of the Land Use Ordinance.

Project Description

The proposed project is the second phase of implementation of a master plan for parks and involves the construction of athletic fields adjacent to the proposed Incline Village Middle School. This phase consists of construction of a baseball field, a softball field, and a field suitable for either soccer or baseball along with related parking facilities for 21 cars and walkways. The facility is adjacent to the proposed Incline Village Middle School which consists of the school building, athletic courts and parking for 100 cars. The athletic fields will be operated under a joint use agreement between the school district and IVGID.

12/10/79
Baseball Field - The proposed baseball field located at the southerly end of the site will be completely within an area currently used for stockpiling excavated material (Area I). Construction will involve removal of the 17 remaining trees, regrading of the site to create the nearly level playing surface, and installation of a turf area, drainage facilities, and slope stabilization of cut and fill slopes. No modification of the flood plain will occur as a result of construction of this area.

Along with the proposed construction of the baseball field, a substantial portion of the existing stockpiled material would be moved to one of the other playing fields and the area would be stabilized through revegetation. The grading plan indicates the maximum fill slopes for the baseball field to be approximately 8 feet which approximates the current situation in the area. The slope stabilization plan indicates areas to be riprapped and reseeded. All drainage from the playing surface would be collected and infiltrated on site. Overflow drainage would be directed to the adjacent stream zone. The overall condition of this area will be substantially improved as a result of construction.

Baseball and Soccer Field - The proposed combined baseball and soccer field, located in the northwestern portion of the site will be partially within the currently disturbed area, Area I, and partially within Areas II and III. The baseball and soccer field will encroach into the stream environment zone a distance of approximately 150 feet. The closest disturbed area to the main channel of the West Fork of Third Creek is 75 feet.

Construction of the baseball and soccer field will require cut and fill slopes of approximately 10 feet at the maximum. The grading and slope stabilization plans indicate those areas to be riprapped and revegetated.

The primary concern with construction in this area is encroachment within the 100-year flood plain and elimination of the existing secondary stream channel. The flood plain analysis prepared by the applicant indicates, however, that the secondary channel in this area is primarily backwater. Filling of this area would therefore not result in increased velocities of stormwater which could cause resource damage on adjacent lands.

A second concern with construction of this area is the depth to groundwater in relationship to the proposed cut slope. The subsurface excavation and report prepared by the applicant's soils engineer indicates that no substantial groundwater flows would be intercepted as a result of the cut slope. However, in the event that minor seepage of groundwater would be incurred, Agency staff recommends that infiltration trenches be installed to percolate any water which is intercepted on the site.

12/10/79
Softball Field - The third primary feature of the proposed project is the construction of a softball field between the adjacent fields previously described. The softball field is located almost entirely within the area characterized by riparian vegetation and approximately two-thirds of the field is within the 100 year flood plain.

The grading plan indicates that the elevation of the softball field would be below that of the main stream channel in the vicinity of the field. Flood volumes which exceed the capacity of the main channel may therefore result in stream channel cutting in this area since the existing secondary channel would be eliminated. The applicant proposes to mitigate this problem by raising the elevation of the field and by constructing a berm or channel to divert flood flows away from the softball field and by rock riprap on all cut slopes. This mitigation would result in impeding the passage of approximately 1/3 of the volume of the 100 year flood and may be subject to failure.

Traffic and Air Quality

The traffic and air quality analysis were performed in conjunction with the Middle School proposal. Please refer to that staff summary for information relative to both sites.

Public Services

The applicant has submitted letters from Sierra Pacific Power Company and IVGID indicating their ability to provide electrical, water and sewer service to the project. Sierra Pacific Power indicates that its transmission lines do not meet acceptable industry standards and that service to the project and other customers may be subject to interruption of service. IVGID indicates its ability to provide water and sewer service "is contingent upon availability of existing and future sewage capacity and water rights and any action brought against the District contesting such rights." Conversations with IVGID indicate that the per unit water consumption data submitted to TRPA provided for the expansion of its park facilities, including the irrigation of the proposed athletic fields. The proposed would therefore not adversely affect the ability of IVGID to provide water service consistent with the report presented by Agency staff at the November, 1979 Governing Board meeting.

Land Coverage

The project involves a parking facility for 21 cars and walkways which provide access to the athletic fields. The impervious surface coverage which would result from construction of all facilities including the school grounds would be 12.6%. Although the athletic fields themselves would not be considered as impervious surface, the routine use of these facilities would reduce the permeability of the soils and thereby reduce on-site infiltration and increase runoff. In order to compensate for the loss of infiltration occurring on site, staff has recommended that infiltration trenches be constructed in order to detain all runoff from the athletic fields on site.

12/10/79
Local Agency Action

The project has been approved by the Washoe County Commissioners.

Analysis

Agency staff concurs with the applicant that it is appropriate to site the athletic fields immediately adjacent to the proposed Middle School. This siting makes the maximum use of facilities as well as minimizes the duplication of related facilities such as parking lots. Agency staff also concurs that portions of the proposed project will result in substantial improvements to existing site conditions. In particular, the proposed baseball field will result in restoration of a substantially modified area while actually reducing encroachment into the SEZ.

Construction of the combined baseball and soccer field results in only minimal encroachment into the 100 year flood plain in an area which is primarily characterized by backwater. No substantial adverse impacts are expected to result from construction in this area. The required findings to allow a variance to grade within the 100 year flood plain could therefore be made with regard to this area.

The remaining area, consisting of the proposed softball field, is the primary area of staff concern. Grading and filling in this area may result in substantial modifications to the flood plain and adversely affect the ability to pass a 100 year flood without resource damage on adjacent lands. The applicant has evaluated staff's recommendation to delete this area from the project but has rejected this request based on an analysis prepared by IVGID which indicates the public's need for the facility, as well as a consideration for optimizing the balance of cut and fill occurring on the project site.

Required Variance Findings

Section 7.80 of the Grading Ordinance prohibits clearing of vegetation, grading or filling within an SEZ except that drainage facilities, roads and utilities may be constructed where it is found that:

"a) there will be no substantial alteration of natural flows of water or other detrimental effect on water quality; and

b) the proposed work will not be detrimental to the environment within or adjacent to the stream environment zone."

Area 1 - Construction Area
Area 2 - Topsoil Removed
Area 3 - Logged Area


Figure 1
**Incline Village Park Athletic Fields**

**Incline Village Middle School**

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**NOTE:**

Riparian Vegetation Extends Beyond The Property Boundaries

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- Limits of 100 Year Flood Plain
- Limits of Riparian Vegetation

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Figure 2
The Incline Village General Improvement District (IVGID) has submitted an application to the Environmental Protection Agency (EPA) for partial funding to undertake the study of alternative methods of providing sewage collection and disposal for the Incline Lake area. The area encompasses forty 1.5 to 5 acre leaseholds in the proximity of Incline Lake. Incline Lake is located west of State Route 28 approximately 1/2 mile north of the present IVGID boundary. The present limit of the existing sewer system is approximately 8,000 linear feet from the study area. The elevation of Incline Lake is 8,322 feet, or 1,000 feet above the elevation of the highest point of the present system.

Nature of the Project

The project area consists of 40 building sites held as leaseholds controlled by the Incline Lakes Corporation. There are 4 existing houses, one of which is occupied year-round. The property is classified as Rural Estates by the Agency. Further development on the remaining 36 vacant leaseholds could be facilitated by provision of sewer service.

None of the typically required subdivision improvements have been made. The existing houses have individual sewage disposal systems with septic tanks. To comply with the Nevada executive order dealing with exportation of sewage, use of septic tanks and leech fields is prohibited and systems to collect, treat and export sewage are required.

Participation by the Federal Government requires a three step process. First, a facilities planning study must be undertaken. After selection of a preferred alternative, a final design is prepared. Funds for construction of approved projects are made available in Step 3. For each step, a separate application must be processed. This application is the first step in the three step process.

Proposed Plan of Study

This plan of study will be undertaken by the consulting firm of CH2M Hill and is proposed to expand upon a preliminary investigation made in 1975 by Osgood Engineers. Osgood Engineers identified three methods of exporting sewage from the area:

1. Use of holding tanks and periodically hauling the sewage by trucks;

2. An export pipeline to a treatment facility outside the Lake Tahoe Basin;

3. Installation of a trunk sewer to the IVGID system.

1/2/80
The study plan indicates that other as yet unspecified options may also be studied. At this time, the study proposal identifies the connection to IVGID as the most desirable solution.

Staff Analysis

The plan of study does not include any details for proposed environmental analysis. In order to assure a full specification and complete analysis of all alternatives, staff proposes that the study scope be expanded.

Staff proposes that six additional considerations be included for analysis by the consultants and that staff be kept informed and allowed to comment further as the study is developed.

The following are the six areas of concern that should be specifically addressed in the proposed environmental assessment. The study is not limited by this inclusion to only analyze these six points but should still include all areas that are part of a complete environmental impact assessment.

1. The effect of a service area expansion on the District's ability to meet current Federal waste discharge requirements.

2. The effect on the natural environment in the areas where trenches would be placed including effect on high hazard and wet lands.

3. The effect on the natural environment at Incline Lake proper by facilitating further development.

4. The effect on future development potential in the Incline Village area by providing expanded service area.

5. Compatibility with the current TRPA General Plan for the Incline Village area.

6. Compatibility with other Federal, State and local plans.

Recommendation

Staff recommends that the subject A-95 Clearinghouse item be approved subject to the following conditions:

1. Inclusion of the six items of concern specified above in the study proposal for specific analysis.

2. Provision for Agency staff input during the facility plan formulation stage and Agency review of the completed facility plan.

1/2/80
Clearinghouse
U.S. Environmental Protection Agency
Draft Environmental Impact Statement,
Proposed Wastewater Treatment Facilities,
South Shore, Lake Tahoe Basin

Background

The U.S. Environmental Protection Agency has prepared a Draft Environmental Impact Statement (DEIS) for proposed wastewater treatment improvements at the South Tahoe Public Utility District and Douglas County Sewer Improvement District facilities. The DEIS deals only with the secondary impacts of improving and expanding the treatment works and does not provide an analysis of the direct effects of the plant improvements.

The environmental impact analysis is based on five growth scenarios which may be realized by varying degrees of relaxation of current restraints on wastewater treatment capacity of the two facilities. The population increases which could be accommodated by the expansions is distributed according to assumptions which are related to current land use plans of local governments, the California Tahoe Regional Planning Agency and the TRPA. The impact statement therefore is in part an analysis of the impacts of the Agency's General Plan. The report also addresses the impacts of "spillover" population increases in the Carson Valley which may result from insufficient sewage treatment capacity within the Basin to accommodate the expected growth.

Conclusions of the Report

The DEIS analyzes five different growth scenarios with regard to their impact on water quality, air quality, noise, visual resources, land use, housing, transportation, public facilities, and cultural resources. The projected impacts are outlined in the attached summary document.

Proposed Mitigation Measures

The DEIS recommends upgrading and expansion of the two facilities as proposed by the Districts with the condition that commitments for implementation of proposed mitigation measures be obtained from the appropriate entities. Table 4 of the attachment includes a summary of recommended mitigation measures along with entities which would be responsible for their implementation. Local governments within the two service areas are currently evaluating the DEIS and the extent that the mitigation measures recommended in the document may be implemented. It should be noted that the document identifies the Tahoe Regional Planning Agency as an implementing agency for the majority of the proposed mitigation measures.

Issues Posed by the DEIS

The basic issues before the Agency are:

1. Does the document present an accurate statement of the impacts of development according to the Agency's General Plan and ordinances currently in effect?
2. Are the proposed mitigation measures necessary to avoid the projected adverse impacts?

3. Should the Agency be responsible for the mitigation measures listed in the document in order to assure that federal funding is available to upgrade and expand the facilities as proposed by the two districts?

Agency staff will be prepared to provide an analysis of each of the above issues and to facilitate a discussion of the document.
SUMMARY

WHAT IS THE PROBLEM?

The South Tahoe Public Utilities District (STPUD) and the Douglas County Sewer Improvement District No. 1 (DCSID) provide wastewater treatment to the south shore area of the Lake Tahoe Basin. Recently, they have had difficulties in plant operations and treatment reliability. These problems have resulted in violations of state and federal requirements for sewage and for the quality of the water into which the sewage is discharged.

For STPUD, occasional fish kills in Indian Creek Reservoir where the sewage is disposed have occurred. Also, leakages from the export pipelines have caused direct discharge of sewage into waters of the Lake Tahoe Basin. As a result of the problems and violations, the Lahontan Regional Water Quality Board issued a cease and desist order to the district in 1977. The order required plant modifications and imposed a limit on sewer connections until STPUD could demonstrate compliance with the waste discharge requirements.

For DCSID, effluent quality is unable to meet the existing effluent limitations. The need for plant improvements is critical now, because the state of Nevada has recently taken over the permit authority from the U.S. Environmental Protection Agency (EPA) and has proposed even more stringent effluent limitations. Presently, during the growing season, treated wastewater is used for irrigation. However, during the rest of the year, DCSID must discharge the effluent to the Carson River. Continued use of the river for disposal would require installation of advanced wastewater treatment process units to meet the more stringent effluent limitations.

WHAT IS THE SOLUTION?

To meet requirements for sewage quality and to meet the needs of anticipated growth, STPUD is planning to improve and expand its sewage treatment facilities and to change its sewage disposal site; DCSID is planning to upgrade its facilities and modify its sewage disposal method. To this end, they have undertaken planning programs and have applied to EPA for federal funds to help design and construct the new facilities.

WHAT HAS BEEN DONE?

Both of the districts have prepared "facilities plans" to define various means or alternatives for improving the treatment facilities. In addition, environmental assessments of these programs have examined the potential impacts on the air, water, land, and biological resources of the region. For STPUD this assessment was
prepared as an environmental impact report, under the California Environmental Quality Act of 1970. For DCSID, the assessment is contained in the facilities plan document. These reports are available at the offices of STPUD, DCSID, the Lahontan Regional Water Quality Control Board, and EPA, Region IX.

From among the alternatives examined, a recommended or preferred alternative was selected by each district on the basis of its ability to meet requirements efficiently at a reasonable cost and with the least adverse effect on the environment. STPUD's preferred alternative is to abandon its advanced sewage treatment process for a secondary one (that level required by the Federal Water Pollution Control Act Amendments of 1972); to expand its treatment capacity from 7.0 million gallons per day (mgd) to 10.0 mgd; and to dispose of the treated sewage by land application in Alpine County rather than into Indian Creek Reservoir. DCSID's preferred alternative is to improve its existing secondary treatment process; to discontinue discharge to the Carson River; to dispose of the treated sewage by land application in Carson Valley, Nevada during the growing season; and to store the sewage in reservoirs at other times. (However, the district is proposing to study the feasibility of land application during the non-growing season.) The DCSID draft facility plan does not request an expansion beyond the original design capacity of 3.0 mgd.

WHAT IS TREES?

Due to the controversy attached to various local, state, and federal actions in the Lake Tahoe Basin and concern over potential environmental degradation, a decision was made by EPA to prepare an environmental impact statement (EIS) for both districts pursuant to the National Environmental Policy Act.

An environmental impact statement analyzes the effects of preferred alternatives. There are two broad categories of effects. Direct effects (also known as primary impacts) result from the construction and operation of the project. They may include excavation and clearing of open space land, grazing land or other valuable land resources; loss of views from scenic highways; and increased levels of noise, dust, and traffic during the construction period. Indirect effects (secondary impacts) are the long term consequences of implementing the project. These effects may include consequences of the direct effects, population growth, changes in land use, and the effects of these changes in resources such as air and water quality and wildlife. The indirect effects of these proposed projects are far-reaching; they may permanently alter the character of the region.

The direct effects of the treatment plant improvements and expansion were treated in the environmental assessments on the facilities plans. However, these reports did not examine the indirect effects of the project. This, then, is the purpose of this EIS, also known as the Tahoe Region Environmental Evaluation Study (TREES): to document the indirect effects of expanding and improving the STPUD and DCSID wastewater treatment facilities. This analysis of the indirect effects, along with the other studies, will be used by EPA to decide to what extent the projects can be implemented without diminishing the environmental values of the Lake Tahoe Basin and the Upper Carson River Basin.
HOW WILL INCREASED TREATMENT CAPACITY AFFECT GROWTH?

The indirect effects of most concern to EPA are the consequences of increased development of the region. If the treatment facilities are expanded, higher levels of population and economic activity could be accommodated; without expansion, development of the area would be limited. Thus a decision on how much to expand the treatment capacity is necessarily a decision on how much growth will take place.

Where this growth could be accommodated is another issue. For example, a decision to expand the STPUD facilities would facilitate increased residential development on the California side of the south shore; a decision to expand the DCSID facilities would primarily allow increased casino development and, hence, more employment and visitors on the Nevada side. Therefore, if expansion of the STPUD facilities is limited and the DCSID facilities are permitted to expand, workers attracted by casino development, who might otherwise have been housed in the California south shore areas, would "spill over" into the nearby Upper Carson River Basin to find housing.

HOW DOES TREES ASSESS THE ENVIRONMENTAL CONSEQUENCES OF EXPANDED TREATMENT CAPACITY?

To assess the indirect effects of increased sewage treatment plant capacity on the environments of the Lake Tahoe and Upper Carson River basins, five sets of assumptions concerning future population growth were developed. Known as growth scenarios, they describe the way growth will occur. The levels of development described by the scenarios vary from very little to full buildup of available land (under current land use plans) in the south shore.

The population and urbanization levels of each of these growth scenarios are summarized, and the treatment capacity needed to serve each of the scenarios are shown on Table 1. A 10 million gallons per day (mgd) facility in STPUD would correspond to the growth level anticipated under either Scenario 2 or 5. The consequences of expanding capacity to 10 mgd can be seen by reviewing the impacts associated with Scenarios 2 and 5.

The description and analysis of impacts in TREES cover both the natural and man-made (social) environments of the Lake Tahoe and Upper Carson River basins. The natural environment includes land, water, air, biological, and visual resources. The social environment includes land use, housing, transportation, recreational facilities, public services, utilities, and cultural resources.
TABLE 1
SUMMARY COMPARISON OF THE FIVE ALTERNATIVE GROWTH SCENARIOS

<table>
<thead>
<tr>
<th>Study Area</th>
<th>Population Growth and Economic Development</th>
<th>Required Treatment Capacity (million gallons/day)</th>
<th>Activity Level Ranking</th>
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<tbody>
<tr>
<td>Scenario 1</td>
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<td>South Shore: STPUD</td>
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<td>Scenario 2</td>
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<td>9.9</td>
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<tr>
<td>DCSID</td>
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<td>3.1</td>
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<tr>
<td>Upper Carson River Basin³</td>
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<tr>
<td>Scenario 3</td>
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<tr>
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<td>Medium</td>
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<td>DCSID</td>
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<td>4.6</td>
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<tr>
<td>Upper Carson River Basin³</td>
<td>Medium</td>
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<td>Medium</td>
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<tr>
<td>Scenario 4</td>
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<td>7.2</td>
<td>High</td>
</tr>
<tr>
<td>DCSID</td>
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<tr>
<td>Upper Carson River Basin³</td>
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<td>Scenario 5</td>
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<td>DSCID</td>
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<tr>
<td>Upper Carson River Basin³</td>
<td>High</td>
<td>--</td>
<td>High</td>
</tr>
</tbody>
</table>

1 The required treatment capacity is the size needed to accommodate the expected maximum daily flows.

2 The activity level is a composite index reflecting levels of resident population, overnight visitors, housing units, commercial floor space, and employment. The ranking places each scenarios on a scale of lowest to highest.

3 The Upper Carson River Basin is east of the Lake Tahoe Basin. Both STPUD and DCSID dispose of their sewage in this area which includes the Carson Valley of Douglas County, Nevada and Alpine County, California.
WHAT ARE SOME OF THE INDIRECT EFFECTS IN THE LAKE TAHOE BASIN? 1

Natural Environment

Water Quality. Water quality in Lake Tahoe and its tributaries is affected by land disturbance and vegetation removal, both of which would increase if urbanization in the basin continues. Although the waters of the lake are still of excellent quality, nutrients from surface runoff have stimulated algal growth, particularly in near-shore waters, and large amounts of soil (sediment plumes) have been detected at mouths of tributaries draining urban watersheds. The intensity and frequency of these problems have coincided with the rapid residential and commercial development of the basin over the past decade.

Deterioration of water quality can be directly related to the level of development that occurs in high erosion hazard lands and stream environment zones (SEZs). Land disturbance in high erosion hazards lands causes excessive amounts of soil loss which, if permitted in surface waters, would diminish their clarity, disturb fish and wildlife habitats, stimulate unsightly algal growths, and reduce the visual appearance of the natural environment. Construction activities, land disturbance, and vegetation removal in SEZ (those regions which surround a stream, which may be flooded by a stream, and in which actions of man may directly affect the stream) would reduce the effectiveness of these zones to convey spring snowmelt, stormwater, and other runoff from basin hillsides to the lake. More significantly, the capacity of these zones to provide natural treatment for runoff by filtering out and settling pollutants would be eliminated. The amount of vacant land presently in these environmentally sensitive areas is indicated in Table 2.

Development of these lands accelerates nutrient and sediment loadings which could increase algal growths by as much as 30 percent and reduce clarity by as much as 20 percent during spring conditions. These effects would be especially noticeable in the near-shore waters where they would interfere with beneficial uses of aesthetic enjoyment and water contact recreation.

Biology. Lands in SEZs are also valuable fish and wildlife habitats. Thus, construction activities that encroach upon these lands would also eliminate sensitive biological resources. Based on recent development trends, development of vacant SEZ lots in the STPUD service area would range from a low of 19 percent of total vacant SEZ lots under Scenarios 1 and 4 to a high of 100 percent under Scenarios 2 and 5. In the DCSID service area, construction of housing units in SEZs would range from a low of 12 percent of total housing units in SEZs under Scenarios 1 and 2 to a high of 100 percent under Scenarios 4 and 5. However, as noted in the later discussion on mitigation of adverse impacts, STPUD, DCSID, and local governments must assure EPA that future development does not result in degradation of tributary streams and near-shore waters. Therefore, the amount of growth which will be allowed to occur in SEZs may not follow past trends.

1The discussion here covers only the significant adverse effects. A complete discussion of impacts on both the natural and social environments is contained in the EIS.
<table>
<thead>
<tr>
<th></th>
<th>High Erosion Hazard Lands</th>
<th>Stream Environment Zones</th>
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</thead>
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<tr>
<td></td>
<td>STPUD</td>
<td>DCSID</td>
</tr>
<tr>
<td>Residential</td>
<td></td>
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<tr>
<td>Rural Estates</td>
<td>611</td>
<td>552</td>
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<tr>
<td>Low Density</td>
<td>2,815</td>
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<tr>
<td>Medium Density</td>
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<td>High Density</td>
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<tr>
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<tr>
<td>Tourist</td>
<td>23</td>
<td>17</td>
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<tr>
<td>General</td>
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<td>239</td>
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<table>
<thead>
<tr>
<th></th>
<th>STPUD</th>
<th>DCSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>4,129</td>
<td>298</td>
</tr>
</tbody>
</table>

ACRES OF LAND IN HIGH EROSION HAZARD LANDS OR IN SEZS WERE DETERMINED FOR RESIDENTIALLY AND COMMERCIALY ZONED LANDS ONLY. THE ACREAGE FIGURES REPRESENT THE TOTAL AMOUNT OF LAND IN LOW Capability LANDS. THE AMOUNT OF LAND IN THESE AREAS ACTUALLY AVAILABLE FOR DEVELOPMENT IS LESS BECAUSE OF THE LOT COVERAGE RESTRICTIONS IMPOSED BY TRPA AND CTRPA. LOTS IN SEZs WERE TABULATED FROM DATA COMPILED BY TRPA FOR ITS "208" WATER QUALITY MANAGEMENT PLAN.

Noise and Air Quality. Ambient noise levels would rise and air quality would deteriorate as the numbers of residents and visitors increase. Greater traffic volumes, particularly along Kingsbury Grade, would expose basin users to unacceptable noise levels. Existing traffic volumes already cause violations of the carbon monoxide (CO) air quality standard. Under all scenarios, traffic volumes in the south shore would result in more frequent violations of the CO standards; violations of as much as 65 percent above the standard are expected.

Visual Resources. Increased development would result in a worsening of visual problems. About 57 percent of the major traffic zones in DCSID and all of the major zones in STPUD in which development is anticipated are close to major roadways. Because development would occur first in areas near roadways, a relatively large number of view corridors would be removed even under low growth scenarios (Scenarios 1 and 4). Development of lots further from roads and infilling of already developed areas would occur in Scenarios 2, 3 and 5. Further development would gradually transform the character of the Lake Tahoe Basin from a natural to an urban environment in areas most accessible to visitors and residents.
Social Environment

Land Use. Changes in land use under the various scenarios are significant, as shown in Table 3. In general the smaller the percentage of land developed, the greater the flexibility in planning and coordinating the location and timing of growth to avoid conflicts between land use, environmental quality, and economic development. In the STPUD service area, Scenarios 1 and 4 provide the least change in land use and the highest degree of land use flexibility; Scenarios 2 and 5 provide the greatest change in land use and the lowest degree of flexibility. Because of the CTRPA 85 percent buildout rule in California (no further land may be subdivided until 85 percent of the lots existing on August 29, 1975 are built upon), Scenarios 2 and 5 would commit large areas of residential land to low density development. Most commercial land area is concentrated along Highway 50 and south of the intersection of Highways 50 and 89. Commercial development would increase in these areas. In the DCSID service area, Scenarios 1 and 2 would provide the least change in land use and the highest degree of flexibility. Scenarios 4 and 5 would provide the greatest change in land use and the lowest degree of flexibility.

TABLE 3
PERCENT OF VACANT LAND DEVELOPED

<table>
<thead>
<tr>
<th></th>
<th>1978</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<th>5</th>
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<tr>
<td></td>
<td></td>
<td>3</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>STPUD</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>57</td>
<td>68</td>
<td>100</td>
<td>83</td>
<td>68</td>
<td>100</td>
</tr>
<tr>
<td>General commercial</td>
<td>67</td>
<td>80</td>
<td>103</td>
<td>91</td>
<td>75</td>
<td>105</td>
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<td>72</td>
<td>82</td>
<td>88</td>
<td>72</td>
<td>96</td>
</tr>
<tr>
<td>DCSID</td>
<td></td>
<td></td>
<td>4</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>65</td>
<td>88</td>
<td>88</td>
<td>93</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>General commercial</td>
<td>21</td>
<td>36</td>
<td>30</td>
<td>56</td>
<td>100</td>
<td>100</td>
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<td>37</td>
<td>54</td>
<td>54</td>
<td>86</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Percentages exceed 100 percent for general commercial because land is assumed to be rezoned from other uses in order to accommodate projected demand for general commercial land.

Housing. Because of the growth in south shore employment and the increasing numbers of retired households and second-home buyers, demand for housing in the south shore basin would be strong under all scenarios. Housing prices are likely to increase by at least the rate of inflation under all scenarios. The higher the price of housing, the more the ability to pay for housing becomes a determinant of who can live in the Lake Tahoe Basin. The imbalance between the cost of housing and the amount households can afford may have the following results:

- demand for housing may "spill over" into nearby areas, particularly in the Carson Valley areas of Douglas County
- some households may pay more than they can presently afford for housing (e.g., up to 25 to 30 percent of income)
- some households may have to accept available housing even if their needs and preferences are not fully met
- the incidence of overcrowding may increase
- to the extent that housing opportunities are limited to second-home buyers and retired households with the willingness and ability to compete for available units, other households in these consumer groups will be unable to obtain housing in the south shore area.

Transportation. Residential and commercial growth would bring more people to the basin, which would further increase the volume of traffic. Traffic generated by residential development can be expected to increase in almost direct proportion to the population increase. Congestion interferes with the operation of emergency vehicles and buses, reduces access to business and residential areas, diverts traffic to local streets, contributes to air and noise pollution, and generally interferes with the appreciation of the environment by visitors and residents. Traffic conditions in the STPUD and DCSID areas are already now congested, and these conditions are expected to get worse under all scenarios. Any action causing even a small increase in existing traffic would have undesirable traffic impacts.

Recreation. Publicly owned recreational facilities would be inadequate to meet the needs of users anticipated under all scenarios. Visitor demand would require substantial increases in the capacity of privately owned recreational facilities. Although landowners, developers, and facility operators would benefit financially in the short-term, new privately owned facilities may have adverse effects on the aesthetic quality of the basin. Ultimately, recreational use may become so intense that the quality of the recreational experience would be dramatically degraded. Greater occupancy of recreational sites may mean greater noise, less solitude, and damage to sites themselves.

Public Services/Fiscal Concerns. Under all scenarios, demand for health services would exceed supply, and the resulting overcrowded conditions could reduce quality of care. Areas of concern are the shortage of acute-care beds, and the shortage of space to expand Barton Memorial Hospital. More intermediate and skilled nursing facilities and an in-patient mental health clinic are also needed.

Under Scenarios 2 and 5 for the Lake Tahoe Unified School District and under all scenarios for the Douglas County School District, enrollments would exceed capacity, and additional classrooms and staff would be required. As estimates do not consider distribution, capacity of individual schools may be exceeded even though enrollment growth estimated under a scenario may be less than the districtwide capacity. In both STPUD and DCSID, growth is likely to require additional personnel and equipment to maintain present levels of law enforcement services. Since the provision of adequate law enforcement services is currently constrained during peak visitor periods, this situation is likely to continue under all scenarios unless service characteristics are improved above existing levels. In both STPUD and DCSID, the higher growth scenarios may require increased equipment and personnel to maintain present levels of fire protection service. Where
facilities required to maintain existing levels of service are not provided, the probability of structural and personal damage from fire would increase, possibly resulting in poorer insurance ratings and higher premiums.

Fiscal differences among the scenarios can be evaluated in terms of which scenarios appear to be "better" and why such conclusions can be reached. A better scenario would have a greater ability to generate revenues to fund anticipated service costs. The preferred scenario from a fiscal perspective is one that: a) allows at least some growth to minimize the inefficient use of existing facilities and to prevent default on existing bonded indebtedness; b) directs growth to locations where excess capacities exist, at least to the greatest possible extent (available capacities for the many different services may not coincide); and c) directs proportionately more growth to Nevada than California because of more favorable taxation policies. For example, overall population growth is lowest under Scenario 1, so that existing unused capacity could be used without requiring costly new investment. Scenario 4 directs the greatest proportion of total south shore growth into Nevada which would result in a greater ability to generate per-unit sales tax and property tax revenues.

Utilities. Water supply in the basin is controlled by the California-Nevada Interstate Compact. Of the 23,000 acre-feet per year allocated to the California part of the basin, 12,000 acre-feet per year are available for users in the STPUD service area. Although water use in STPUD for 1978 was only 8,000 acre-feet per year, growth anticipated under the low growth scenarios would require over 80 percent of the allocation. If the occupancy rate in resident or seasonal homes increases or a trend toward greater water use begins, then even low growth levels may create a water shortage. Water use at the medium (Scenario 3) and high growth levels (Scenarios 2 and 5) would exceed compact allocations. In DCSID the medium growth levels (Scenario 3) would require more than 50 percent of the 11,000 acre-feet allocated to the entire Nevada half of the basin. Under high growth levels (Scenarios 4 and 5) more than 80 percent of this allocation would be needed to meet water demand in DCSID. With rapid growth also occurring in the Incline Village area, it is unlikely that the 11,000 acre-feet allocation would be adequate.

Sewage treatment capacity in STPUD would have to be expanded under Scenarios 2, 3, and 5. With some modifications, existing facilities can accommodate growth levels of Scenarios 1 and 4. In DCSID, growth levels under Scenarios 3, 4, and 5 would require additional sewage treatment capacity. Existing capacity is barely adequate to serve growth levels under Scenarios 1 and 2. If sewage capacity is limited (under one of the lower growth scenarios), property owners who have vacant land but are unable to develop this property would lose their investment and potential to earn income. Under low or medium growth scenarios where development would be allowed on only some residential lots or land, land values may be higher than they might have been because fewer units are built and housing prices are consequently higher. Thus, landowners and investors who are allowed to build and owners of existing housing may benefit from increased values of existing property.

Continued residential and commercial development could also require expansion of the energy supply system. Although the electrical supply system has an installed capacity to accommodate the low growth projected under Scenario 1, the present
supply system, if measured by the utility company's standard margin of safety, is inadequate. Under all other scenarios, demand would exceed the installed capacity.

A single transmission line supplies natural gas to the city of South Lake Tahoe, and a branch of this line goes north through Stateline. Any failure in this system (such as breakdown at the pressure limiting station) would cause natural gas shortages or outages. Those customers whose service would be interrupted first include STPUD, schools, hospitals, hotel-casinos, and other large commercial businesses. Because the basin service area is at the end of the supply system, pressures in the pipelines are barely adequate to provide reliable service. High growth scenarios in the STPUD or DCSID service areas would create natural gas demands exceeding supply.

Cultural Resources. Adverse impacts from urbanization on archaeological or historical sites would be likely under scenarios which would lead to intensive development on undeveloped terrain in the following areas:

- Lake Tahoe shore, particularly where creeks and rivers enter the lake (Madden Creek to Meeks Creek on the west shore; Truckee River and Truckee Marsh on the south shore; Edgewood Creek and Incline Creek on the east shore)

- Truckee River Valley from the city of South Lake Tahoe to the southern extension of the study area

- Fallen Leaf Lake and adjacent drainage basins

- Cascade Lake and adjacent drainage basins

- Major and intermittent waterways and sloughs in Douglas County, particularly the branches and forks of the Carson River.

These areas would be subject to severe development pressure under Scenarios 2, 3, and 5.

WHAT ARE SOME OF THE INDIRECT EFFECTS IN THE UPPER CARSON BASIN? 1

Measurements and analysis of impacts in the Upper Carson River Basin reflect only those impact attributed to the spillover population from the Lake Tahoe Basin. The analysis does not include any impacts that may result from households coming from other areas such as Carson City or Reno.

Natural Environment

Geology. The Carson Valley is an active geological zone and subject to periodic earthquakes. Lands near major fault zones are publicly owned or are zones for low-density use, but high spillover population under Scenarios 4 and 5 may

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1The discussion here covers only significant adverse effects. A complete discussion of impacts on both the natural and social environments is contained in the EIS.
stimulate intense development in the Jacks Valley area where a significant fault runs north through the valley along the base of the Carson Range near Genoa.

**Biology.** Other impacts of urbanization of the Carson Valley and Alpine County include possible disturbance to areas of primary biological significance. Areas of primary biological significance include deer wintering areas and migratory corridors, California natural areas, a Nevada State Wildlife area, and locations of rare or otherwise important species. These areas cannot support development without some damage. Also considered of primary significance are critical nesting areas for Swainson’s Hawk, wintering areas for bald eagles and golden eagles, and wildlife areas in the Carson Range (including areas above 7000 feet in elevation) that are critical habitat for fur-bearers. These large areas could accommodate limited development, such as recreational use or low-density residential development, with suitable environmental controls.

**Water Resources.** Flood caused by high groundwater conditions, a large drainage area, and an extensive floodplain have caused significant damage in the Carson Valley. The hazards of flood damage increase proportionately with the degree of development projected within the 100-year floodplain under each growth scenario.

**Visual Resources.** Visual resources would be adversely affected under high growth scenarios, and the degree of impact would increase with level of development. The impact of development on visual conditions would be especially apparent in the valley floor, since development here would be highly visible from all roadways. Development in Alpine County would have an adverse effect if it is visible from roadways or if new roadways are required to serve the development. Lands zoned for residential use (special districts or residential) lie along all roadway units in Alpine County. These units could undergo significant deterioration in quality at high levels of growth (Scenarios 4 and 5), especially if zoned lands are developed. Development of the valley’s agricultural and undeveloped land, with a corresponding increase in roadway capacity to serve the additional population, would significantly change the visual character of the basin.

**Social Environment**

Impacts on the social environment stem from the influx of households from the Lake Tahoe Basin. Population increases from the Lake Tahoe Basin range from 22 percent to 164 percent of existing Upper Carson River Basin population. Alpine County is especially sensitive to spillover because any growth in population would represent a substantial burden on fiscal resources and public services.

**Housing.** Demand for housing is one of the most significant impacts created by spillover population. As in the Lake Tahoe Basin, housing price may become a determinant of who can live in the Carson Valley. With a strong second-home market and land use policies oriented to large-lot, low-density development, the Carson Valley may not be affordable for the spillover population (mostly young, low-income employees).
Public Services/Fiscal Concerns. The impact of accommodating the spillover population will be particularly noticeable in the delivery of public services. Under Scenarios 3, 4, and 5 (moderate and high spillover), the already great discrepancy between supply and demand for health care systems would increase. Overcrowding would reduce the quality of care. Expansion of services would require increased state and federal funding, which is often unpredictable.

The same scenarios would require additional classrooms and staff in schools. As the estimates of enrollment growth do not take into account the distribution of students within the school district, the capacities of particular schools may be exceeded even though the enrollment growth estimated under a scenario is less than the districtwide capacity.

The increase in spillover population would probably require additional personnel and equipment for law enforcement and fire protection if present levels of service are to be maintained. Upgraded service standards would require more personnel and facilities. Where facilities required to maintain existing quality of service are not provided, lower levels of law enforcement and fire protection services may result.

In the Douglas County portions of the basin, fiscal resources are likely to be available to meet service demands. A substantial revenue base from gaming activities is available to the county, and with population growth and increased gaming activity, this revenue base would increase. In Alpine County, new development on any scale would require more fiscal resources than the present tax base can provide. Much of the responsibility for the public service facilities could be shifted to the developer of new housing (and thus to the housing consumer). Requirements for service provision could affect housing prices and the scale, type, and timing of development.

Utilities. Depletion of the water supply would occur with any additional demand unless it involves a water rights transfer or a redistribution of current use patterns. Surface water supply is irregular in Carson Valley because water supplies depend on the winter snow pack in the Sierra Nevada, and the stream flows are frequently low during midsummer and winter months. Agricultural irrigation, which accounts for almost all current water use, is supported by diversions from Carson River and is seriously affected during low streamflow months. Appropriations for surface water rights have been discontinued in Carson Valley because of limitations of available supply.

Groundwater supplies are also limited. Available supply is 32,000 acre-feet, and present appropriations equal 37,000 acre-feet. However, because not all appropriations are pumped, actual use more nearly equals supply. The Nevada State Engineer has named the Carson Valley groundwater basin a "designated basin." This designation allows him to exercise greater authority over the appropriation of groundwater supplies. Individual wells on parcels one acre or smaller have been prohibited; all other applications are reviewed for their potential impact on groundwater supplies and many are denied.

The preferred wastewater treatment alternative by DCSID calls for discontinuing effluent disposal in the Carson River and implementing a land application system. The critical implications of switching to land application are reduced streamflow in the East Fork and runoff from irrigated lands. By eliminating the present discharge
at Muller Lane, DCSID will have reduced the annual average flow of the East Fork by 3 mgd which accounts for a large portion of the dry season flow. Consequently, the problems associated with diminished flow such as higher pollutant concentrations may occur more frequently. Furthermore, surface runoff from irrigated lands may be of a poorer quality than the effluent currently discharged to the river.

Cultural Resources. The Upper Carson River Basin has abundant known archaeological and historical sites, and further sites, particularly archaeological sites, are likely to be found. Thus, the potential is high for direct and indirect adverse impacts on cultural resources from land alteration associated with population growth.

HOW CAN THESE EFFECTS BE MINIMIZED?

Mitigation measures are actions to minimize the effect of an adverse impact. These actions apply only to problems resulting from implementation of a facility alternative; they cannot be used to correct existing problems. Adverse primary or secondary impacts resulting from expanding treatment capacity beyond the baseline capacity of 5.8 mgd for STPUD and 2.3 for DCSID (peak 1978 wastewater flows) are subject to mitigation.

For each problem identified in the impact assessment of this EIS, a number of mitigation measures have been defined where feasible and appropriate. Each measure is then discussed in terms of how effective it would be, what agencies would be responsible for its implementation, and when it should be undertaken. Examples of such measures for possible impacts on the basin’s natural environment are shown in Table 4.

Several other studies are currently underway that will have significant implications for the type and choice of mitigation measures to be applied in the Lake Tahoe Basin. The first study is the Nonattainment Plan that is being prepared to eliminate violations of the national ambient air quality standards of ozone and carbon monoxide. Corrective measures being proposed in that plan are aimed primarily at affecting transportation, land use and planning and stationary sources of air pollutants. The second study is the California State Water Resources Control Board's Water Quality Management Plan for the California side of the basin. Mitigation measures described in that document may address problems of erosion and eutrophication and prescribe restrictions on development in high erosion hazard lands and stream environment zones. To the extent possible, the mitigation measures to reduce adverse environmental consequences of the STPUD and DCSID facilities plans should be consistent and compatible with those identified in the other studies.

WHERE DO WE GO FROM HERE?

At this point, EPA has reviewed the studies that have been undertaken to resolve the problems confronting STPUD and DCSID. The agency recommends that the modifications to the sewage treatment processes described in the preferred alternatives for each of the two districts be undertaken. For STPUD, this means
improving certain processes of the existing plant and abandoning most of the advanced wastewater treatment facilities. The facility plan proposed disposal of secondary effluent by land application in Alpine County, California; however, the County has indicated some reluctance to irrigate with secondary effluent. Until this issue is resolved, EPA can only recommend that land application of the treated sewage be undertaken; recommendation of an effluent disposal must await the negotiations among STPUD, Alpine County, and Douglas County. Once these negotiations, which are presently in process, are complete and a site is selected, EPA will examine the environmental consequences and make a recommendation.

For DCSID, this means improving the existing secondary treatment plant, discontinuing discharge of effluent to the Carson River, land application of wastewater during the growing season, and storage of wastewater when it cannot be applied to the land. The DCSID facility plan recommended disposal of effluent on land owned by DCSID, but subsequent to the submittal of the document, DCSID negotiated a long-term contract with a Carson Valley rancher to accept summer flows. The district is also proposing to study the feasibility of land application during non-growing seasons. EPA's preferred alternative reflects this modification to the district's preferred alternative and encourages continued disposal on land owned by farmers and ranchers or on land controlled by the district.

STPUD is also seeking federal funds to expand its present treatment capacity to 10 mgd. EPA's position on this issue depends on the mitigation measures for which the district can obtain commitments. This EIS describes a number of different approaches to minimize significant adverse environmental effects. It is STPUD's responsibility to obtain commitments from various local, state, and federal agencies with authority to implement the mitigation measures and to demonstrate to EPA that there will be no deterioration of environmental quality. Accordingly, the next step between now and preparation of the final EIS is for STPUD to seek these commitments from implementing agencies. The result of this step will determine whether the project can be funded by 10 mgd as proposed by the district.

Similarly, DCSID must obtain commitments to minimize impacts of upgrading its plant to its original design capacity. Commitments to protect high erosion hazard lands, SEZs, and biological resources would be especially important for DCSID if it is to have its preferred alternative funded as proposed.
<table>
<thead>
<tr>
<th>IMPACT AREA</th>
<th>MITIGATION MEASURE</th>
<th>RESPONSIBLE AGENCIES</th>
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<tbody>
<tr>
<td>Water Quality</td>
<td>Protect stream environment zones</td>
<td>TRPA, CTRPA, U.S. Forest Service</td>
</tr>
<tr>
<td></td>
<td>Employ best management practices to control erosion (slope stabilization, revegetation, roadside and storm drainage, on-site infiltration, etc.)</td>
<td>Local governments, TRPA, CTRPA, Lahontan RWQCB, California SWRCB, Nevada DEP, U.S. Forest Service</td>
</tr>
<tr>
<td></td>
<td>Institute evaluative point system and limit on number of sewer connections to control location and level of growth.</td>
<td>Local governments, TRPA, CTRPA</td>
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<td></td>
<td>Purchase lots in environmentally sensitive areas.</td>
<td>Local governments, TRPA, CTRPA</td>
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<td></td>
<td>Compensate landowners who experience loss because of development restrictions.</td>
<td>(Would probably be determined by the courts)</td>
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<td></td>
<td>Implement system to transfer development rights to compensate owners for loss of land and to preserve critical areas.</td>
<td>Local governments, TRPA, CTRPA, EPA</td>
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</tbody>
</table>

**Seismic Safety**

<table>
<thead>
<tr>
<th>IMPACT AREA</th>
<th>MITIGATION MEASURE</th>
<th>RESPONSIBLE AGENCIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seismic Safety</td>
<td>Implement land use controls to control location of development.</td>
<td>Local governments, TRPA, CTRPA</td>
</tr>
<tr>
<td>IMPACT AREA</td>
<td>MITIGATION MEASURE</td>
<td>RESPONSIBLE AGENCIES</td>
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<tr>
<td>Biological Resources</td>
<td>Control recreational use of habitats frequented by valuable fish and wildlife species.</td>
<td>TRPA, California and Nevada Departments of Fish and Game, U.S. Forest Services</td>
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<td></td>
<td>Protect active osprey nests.</td>
<td>Local governments, TRPA, California and Nevada Departments of Fish and Game, U.S. Forest Service</td>
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<td></td>
<td>Require biological inventories for rare and endangered species as part of development application.</td>
<td>TRPA, California Department of Fish and Game, U.S. Forest Service, U.S. Bureau of Land Management</td>
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<td>Require adequate construction and management practices to protect vegetation and habitat.</td>
<td>TRPA, U.S. Forest Service</td>
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<td>Protect stream environment zones and implement erosion control standards.</td>
<td>(See “Water Quality”)</td>
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<tr>
<td>Noise</td>
<td>Implement noise control ordinance.</td>
<td>Local governments, TRPA, CTRPA</td>
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<td>Revise zoning ordinance to prevent incompatible land uses.</td>
<td>Local governments, TRPA, CTRPA</td>
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<td></td>
<td>Establish special permit procedures to implement noise reduction measures.</td>
<td>Developers, local government, TRPA, CTRPA</td>
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<td>Construct noise barriers along major highways.</td>
<td>Local governments</td>
</tr>
<tr>
<td>Air Quality</td>
<td>Implement measures adopted in the approved Nonattainment Plan.</td>
<td>Local governments, TRPA, CTRPA, others identified in the Nonattainment Plan</td>
</tr>
<tr>
<td>Visual Resources</td>
<td>Implement measures protection of water and air quality.</td>
<td>(See “Water Quality” and “Air Quality”)</td>
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<td></td>
<td>Adopt design plan with implementing ordinances for design review.</td>
<td>Local governments, TRPA, CTRPA, U.S. Forest Service</td>
</tr>
<tr>
<td></td>
<td>Establish National Scenic Area.</td>
<td>U.S. Forest Service, U.S. Congress</td>
</tr>
</tbody>
</table>
MEMORANDUM

DATE: January 2, 1980

TO: The Advisory Planning Commission

FROM: The Staff

SUBJECT: Proposed High Density Apartment Land Use District (HDA)

Based on comments from the APC and direction from the Governing Board, Agency staff has prepared the attached amendment to the Land Use Ordinance. This amendment creates a new land use district which is designed to reserve certain areas of the Basin for low and moderate income housing. The major premise of this district is that high density apartment complexes will provide this needed housing. Based on this assumption, this new district should preserve the existing housing stock now devoted to such use and also reserve undeveloped lands in appropriate areas for such future uses.

If the land use district is established, staff will initiate public hearings on areas within the Basin that would most appropriately be rezoned HDA. Some of these areas have already been mapped during the 1978 General Plan update process. The criteria for such classification was as follows:

Undeveloped
- Lands of moderate to high capability
- Close proximity to transportation corridors or high use areas

Developed
- Development pattern of 8 - 15 apartment units per acre
- Areas of redevelopment potential
- Close proximity to transportation corridors and high use areas

Staff is requesting APC comments on the proposed land use district and such impacts that may occur from its adoption.
LAND USE ORDINANCE AMENDMENTS

Add to Section 3.00 Definitions:

Apartment Dwelling Unit - A group of two or more single family dwelling units which collectively are located within a building or on a parcel of property which is in undivided ownership. These units are primarily designed to be rental units to provide housing for the permanent residents of the Region.

Add a new Section 7.130:

7.130 High Density Apartment

7.131 Specific Purposes:

To provide low and moderate income housing for residents consistent with the housing needs and environmental protection of the Region.

7.132 Permitted Uses:

None but the following uses, or those allowed pursuant to an administrative permit issued in accordance with Section 8.33, which are found to be appropriate and similar in nature, shall be permitted.

(1) Residential:

(a) Apartment dwelling units up to fifteen (15) dwelling units per acre;

(b) Multiperson dwellings not to exceed facilities for forty (40) persons per acre;

(c) Mobile home parks for permanent residences up to eight (8) mobile homes per acre;

(d) All residential uses existing as of _________ (date of second reading of ordinance).

(2) Tourist Residential: None

(3) Outdoor Recreation:

(a) All those permitted in the Medium Density Residential District.

(4) Resource Management and Agriculture:

(a) Forest management programs.

(5) Public and Quasi-Public:

(a) All those permitted in the Medium Density Residential District:
(b) Cultural facilities.

(6) Commercial:

(a) All those permitted in the Medium Density Residential District;

(b) Professional Offices.

7.133 Limitations on Land Coverage:

No person shall create land coverages in excess of the limits set forth in Section 6.20, as calculated in accordance with Section 8.22, except as otherwise permitted in accordance with Sections 8.25, 8.28 and 9.24, unless the ordinance effecting such reclassification specifically provides otherwise. Such provision shall not exceed land coverage limits in excess of fifty (50) percent of the land area.
MEMORANDUM

TO: The Advisory Planning Commission

FROM: The Staff

SUBJECT: Land Use Ordinance Amendments for Timesharing, Interval Ownership Developments

DATE: January 2, 1980

On December 12, Mr. Rusty Nash, Deputy District Attorney for Washoe County, requested an Agency determination on the status of the timesharing, interval ownership condominium in light of the recent adoption of a county ordinance which limits these projects to commercial zones. His questions as presented to the Board were:

1. What kind of density is allowable under the TRPA Land Use Ordinance?

2. What are the parking requirements for such projects?

3. What is the permitted land coverage in the Tourist Commercial land use district?

Although the TRPA Land Use Ordinance has no definition of timesharing units, the Washoe County ordinance defines them as "the actual accommodations and related facilities which are the subject of the vacation timesharing lease plan or a vacation timesharing ownership plan". Generally speaking, these units have the physical appearance of a single family dwelling condominium unit, but the length of stay of the inhabitants is a week to two weeks.

In a previous action by the Agency (approval of Club Tahoe), the timesharing condominiums were considered residential in use; thus, the project was required to reclassify its property to High Density Residential, and the project was limited to 15 units per acre. It would appear this action directly conflicts with the Washoe County actions which limit these projects to commercial zones.

To answer Mr. Nash's questions, one must determine if timesharing units are one of the following (as described in the Land Use Ordinance):

1. **Single Family Dwelling Units** - One room or group of two or more rooms, other than in a mobile home, containing one or more bedrooms, with not more than one kitchen, designed to be occupied permanently as an independent housekeeping unit by one family or one collective household with facilities for living, cooking, sleeping and eating; or
2. **Transient Dwelling Units** - One bedroom or a group of two or more rooms containing no more than one bedroom, and designed to be rented primarily by the day or week and to be occupied temporarily by one or more individuals whose permanent residence is elsewhere. Hotels and motels normally contain transient dwelling units. (The TRPA Land Use Ordinance limits the number of units with kitchens to a maximum of 10% of the total units.)

It appears that the physical structure of timesharing developments most closely resembles a single family dwelling condominium development, but the actual use pattern most closely fits that described for transient dwelling units. TRPA has no parking standards for single family or transient dwelling units.

Based on the above analysis, the Governing Board found, as permitted under Section 7.82, that timesharing condominium developments are "appropriate and similar in nature" to the uses permitted in the Tourist Commercial land use district. Within this district classification, the Governing Board found that the physical structures were most similar to those described as single family dwellings; thus, the density permitted would be 15 units per acre and the permitted land coverage would not exceed that permitted for residential uses.

The Governing Board also directed staff to prepare a Land Use Ordinance amendment to establish these findings in ordinance form and to analyze the impacts of this proposed ordinance on existing timesharing developments. Staff requests the APC comments on the attached amendments and such impacts that may occur from the adoption of these ordinance amendments.
Add to Section 3.00 the following definition:

**Timesharing Units** - Single family dwelling units which are the subject of a vacation timesharing lease plan or a vacation timesharing ownership plan.

Add to Section 7.12 of the Land Use Ordinance the following use which requires an administrative permit:

(36) *Complexes of five (5) or more timesharing units.*

Add to Section 7.80 reference to timesharing units:

7.80 **Tourist Commercial District**

7.81 **Specific Purposes:**

(1) To provide adequate space for motels, hotels and related facilities to house and provide services for tourist visitors to the Region in appropriate locations.

7.82 **Permitted Uses:**

None but the following uses, or those allowed pursuant to an administrative permit issued in accordance with Section 8.33, which are found to be appropriate and similar in nature, shall be permitted:

(1) **Residential:**

(a) Single family dwelling units up to fifteen (15) dwelling units per acre;

(b) Multiperson dwellings not to exceed facilities for forty (40) persons per acre;

(c) *Mobile home parks for permanent residences up to eight (8) mobile homes per acre.*

(2) **Tourist Residential:**

(a) Transient dwelling units up to forty (40) units per acre, provided that up to ten (10) percent of such dwelling units contained in any motel or other development devoted to the provision of transient dwelling units may include kitchen facilities;

(b) **Recreation vehicle parks up to fifteen (15) mobile homes per acre [deleted];**

(c) **Timesharing units up to fifteen (15) units per acre.***
(3) Outdoor Recreation:
   (a) All those permitted in the High Density Residential District;
   (b) Skiing facilities;
   (c) Outdoor amusement facilities.

(4) Resource Management and Agriculture:
   (a) Forest management program.

(5) Public and Quasi-Public:
   (a) All those permitted in the High Density Residential District;
   (b) Transportation facilities.

(6) Commercial and Industrial:
   (a) All those permitted in the High Density Residential District;
   (b) Indoor amusement facilities;
   (c) Limited commercial;
   (d) Service stations.

7.83 Limitations on Land Coverage:

No person shall create land coverages in excess of thirty-five (35) percent if a residential or a timesharing use and fifty (50) percent if any other use of the land included in the application for a permit, as calculated in accordance with Section 8.22 of this ordinance, except as otherwise permitted in accordance with Sections 8.25, 8.28 and 9.24 of this ordinance.

This provision shall apply only to those lands contained in Tourist Commercial Districts as shown on the Tahoe Regional Plan as originally adopted. The limitations on land coverage set forth in Section 6.20 shall be applicable to lands which may be reclassified into such district in the future unless the ordinance effecting such reclassification specifically provides otherwise.
TAHOE REGIONAL PLANNING AGENCY

MEMORANDUM

DATE: January 2, 1980

TO: The Advisory Planning Commission

FROM: The Staff

SUBJECT: Amendments to the Subdivision Ordinance for Condominium Conversions

Based on the comments from the APC and the direction of the Governing Board, the staff has drafted these attached amendments to the Subdivision Ordinance. The intent is to include condominium conversions into the ordinance and to indicate that they will be reviewed with the same standards as all other subdivisions. Staff has also included an amendment that requires the Agency to make findings of compliance with Agency ordinances and plans along with the standard health, safety, etc. findings that are now required of administrative permits.

Staff requests the APC comments on the attached amendments and such impacts that may occur from the adoption of these ordinance amendments.
SUBDIVISION ORDINANCE AMENDMENTS

Add to Section 3.00 Definitions:

Condominium Conversion - Any change in the form of ownership of real property wherein persons obtain ownership interest of individual units thereof, including but not limited to condominiums, community apartments, stock cooperatives, and any other form of such interest regulated by this ordinance.

Subdivision - Any real property, improved or unimproved, or a portion thereof, shown on the latest adopted tax roll of a local government as a unit or as contiguous units, which is divided for the purpose of use, sale, lease or financing, whether immediate or future, into five (5) or more condominiums, or into two (2) or more condominium units through condominium conversion, or into five (5) or more lots, or in which five (5) or more undivided interests are created or are proposed to be created.

Add new Section 4.34:

Approval by the permit-issuing authority and the Agency may be granted only if it is found that the tentative map is in compliance with all applicable TRPA plans and ordinances and that the establishment, maintenance, or operation of the proposed subdivision or associated uses will not be detrimental to health, safety, peace, morals, comfort and general welfare of persons residing or working in the neighborhood of the proposed subdivision or detrimental or injurious to property and improvements in the neighborhood or to the general welfare of the Region, and will not cause any substantial harmful environmental consequences on the land of the applicant or on other lands or waters.

Change Section 4.34 to 4.35.