REVISED DRAFT
ENVIRONMENTAL IMPACT REPORT
for the
Rispin Mansion Project

SCH# 97121056

June 2003

Prepared for:
City of Capitola
420 Capitola Avenue
Capitola, CA 95010

Denise Duffy & Associates, Inc.
PLANNING AND ENVIRONMENTAL CONSULTING

REVISED DRAFT
ENVIRONMENTAL IMPACT REPORT
for the
Rispin Mansion Project

SCH# 97121056

June 2003

Prepared for:
City of Capitola
420 Capitola Avenue
Capitola, CA 95010

Denise Duffy & Associates, Inc.
PLANNING AND ENVIRONMENTAL CONSULTING

REVISED DRAFT
ENVIRONMENTAL IMPACT REPORT
for the
Rispin Mansion Project

SCH# 97121056

June 2003

Prepared for:
City of Capitola
420 Capitola Avenue
Capitola, CA 95010

Denise Duffy & Associates, Inc.
PLANNING AND ENVIRONMENTAL CONSULTING

REVISED DRAFT
ENVIRONMENTAL IMPACT REPORT
for the
Rispin Mansion Project

SCH# 97121056

June 2003

Prepared for:
City of Capitola
420 Capitola Avenue
Capitola, CA 95010

Denise Duffy & Associates, Inc.
PLANNING AND ENVIRONMENTAL CONSULTING

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

This page intentionally left blank.

1.0 INTRODUCTION

♦ ♦ ♦

AUTHORIZATION AND PURPOSE

This Revised Draft Environmental Impact Report (Revised Draft EIR) reviews and evaluates the environmental impacts of the currently proposed Rispin Mansion project. The Rispin Mansion project, for the purposes of this Revised Draft EIR, consists of two separate but related actions: (1) the amendment of the Redevelopment Plan for the existing Capitola Redevelopment Project to add the Rispin Mansion property and adjacent library and municipal parking lot to the Project area; and (2) the updated development proposal for the Rispin Mansion submitted by the developer in 2001/2002, as described in the text and depicted in the plans herein. The Rispin Mansion development proposal includes development of the Inn at the Rispin Mansion, renovation of the Mansion and grounds, improvements to the adjacent parking lot at the Clares Street and Wharf Road library, and establishment of a habitat enhancement/adaptive management program to preserve and protect adjacent and on-site biological resources. The Rispin Mansion project includes restoring the historic Rispin Mansion and gardens, and developing the Rispin Mansion property to include visitor-serving accommodations with 28 rooms and meeting and wedding facilities for groups of 49 or fewer. To accommodate the project parking demand, the project proposes to improve an existing paved area across Wharf Road to provide a 60-space parking lot to serve the Rispin Mansion project and the existing library uses (expandable to 85 spaces for "event parking" through the use of a valet parking system). A detailed description of the project characteristics is provided in **3.0 Project Description**. Attached to this Revised Draft EIR is a document prepared by the project applicant that contains all of the site plans, floor plans, elevations, landscaping plans and other materials.

This Revised Draft EIR has been prepared for the City of Capitola, the Lead Agency for the project. The EIR focuses on evaluation of potentially significant project impacts, including the following topics: land use, geologic and geotechnical issues, hydrology and water quality, biological resources, cultural resources, visual/aesthetics, traffic and circulation, noise, air quality, and public services.

This EIR has been prepared in accordance with the California Environmental Quality Act (CEQA) as amended, and CEQA Guidelines. As stated in the CEQA Guidelines, an EIR is an "informational document" with the intended purpose to "inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project." Although the EIR does not control the ultimate decision on the project, the Lead Agency must consider the information in the EIR and respond to each significant effect identified in the EIR. As defined in the CEQA Guidelines, a "significant effect on the environment" is:

> ... a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on

the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

Social, economic, or beneficial impacts are not considered significant adverse impacts under CEQA. Although economic information may be included in an EIR, CEQA Guidelines Section 15131(a) states: "Economic or social effects of a project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effects. The focus of the analysis shall be on the physical changes."

This Revised Draft EIR may also be used in the future as part of a Federal environmental review. Federal review may be necessary for the project to receive Historic Investment Tax Credit from the State Office of Historic Preservation or a Community Development Block Grant (CDBG) for economic development from the California Department of Housing and Community Development. It is possible that Federal or State funds could also be obtained to assist with restoration of the historic Rispin garden and/or riparian restoration on the Mansion site. The Coastal Commission will be requested to grant either a Local Coastal Program Amendment or a Coastal Development Permit for the project and will also use this EIR for information on which to base a decision.

Pursuant to Public Resources Code Section 21090, this Revised Draft EIR will serve as a project EIR for the proposed amendment to the Capitola Redevelopment Plan. The proposed amendment would: (1) add the Rispin Mansion property and adjacent library and municipal parking lot to the existing Capitola Redevelopment Project area, and (2) make various revisions to existing limitations in the Redevelopment Plan related primarily to financing, including time limits on incurring indebtedness, receipt of tax increment and the effectiveness of the redevelopment plan.

EIR PROCESS

A Notice of Preparation (NOP) for the EIR was circulated on December 16, 1997 to State, regional, and local agencies and to interested community organizations and individuals after the developer filed a development application. A 30-day comment period on the NOP provided agencies, organizations and individuals the opportunity to identify issues and/or concerns that should be addressed during the preparation of the Draft EIR. Revised development applications and plans were submitted to the City in February 1998, March 1998, January 1999, and April 1999. Subsequently, the plans were revised multiple times in 2001 and 2002.

On November 20, 1998, the City distributed a Draft EIR to interested responsible and trustee agencies, groups, organizations, and individuals for a public review period through January 4, 1999. The City received 10 comment letters. A response to comments document was prepared in March 1999 and included an assessment of the Developer's Mitigated Project that was submitted in January 1999. In March and April of 1999, during public hearings on the project, the developer revised the plans several times to respond to comments by the Planning Commission, Rispin Steering Committee, and members of the public. Based on the changes in the plans and changes in circumstances, the City chose to recirculate the EIR so that the public and decision-makers could

clearly understand the project proposed at that time. The Recirculated Draft EIR was distributed on December 18, 2000 for a public review period through January 31, 2001. The City received 11 comment letters, one (1) letter from the State Clearinghouse acknowledging compliance with CEQA review requirements, and two (2) additional letters from the State Clearinghouse for transmittal of comment letters received from state agencies after the close of the state review period. In November 2001, based on comments received and changes in the plans, including the removal of the mini-park project from the overall Rispin project, the City again chose to recirculate a revised EIR to allow the public and decision-makers to clearly understand the most recent proposed project.

Due to financing and taxing issues associated with adding the Rispin Mansion property and adjacent library and municipal parking lot to the existing Capitola Redevelopment Project area, another NOP was circulated on March 13, 2003 to the State Board of Equalization, county officials, and affected taxing entities. A 30-day comment period on the NOP provided these entities the opportunity to identify issues and/or concerns that should be addressed during the preparation of the Revised Draft EIR.

This Revised Draft EIR is based upon the final version of the site plans that are dated 8/24/01 (Joe L. Akers) and 9/10/02 (Paul Davis Partnership), plans for the interior of the Mansion (Paul Davis Partnership) dated 1/15/99, 1/18/99, 1/22/99, and 9/10/02, landscaping plans (Barbara Bernie Landscape Design) dated 7/7/02 and 9/11/02, and various renderings of the overall landscape plan, the landscape design south of the Mansion, and the historic lawn area.

The analysis in this Revised Draft EIR is partially based on analysis performed for the project in the 1998 Draft EIR and 2000 Recirculated Draft EIR, because the project has been reduced in scale and in level of impact in most areas. In addition, the EIR attempts to address concerns and issues raised in the aforementioned 11 comment letters received on the 2000 Recirculated Draft EIR. Regarding recirculation of this Revised Draft EIR, CEQA Guidelines Section 15088.5 (f)(1) states:

> "When the EIR is substantially revised and the entire EIR is recirculated, the lead agency may require that reviewers submit new comments and not respond to those comments received during the earlier circulation period. The lead agency shall advise reviewers, either within the text of the revised EIR or by an attachment to the revised EIR, that although part of the administrative record, the previous comments do not require a written response in the Final EIR, and that new comments must be submitted for the revised EIR. The lead agency need only respond to those comments submitted in response to the recirculated revised EIR. The lead agency shall send directly to every agency, person, or organization that commented on the prior draft EIR a notice of the recirculation specifying that new comments must be submitted."

This Revised Draft EIR will be published and circulated for review and comment by the public and other interested parties, agencies, and organizations during a 45-day review period; new comments must be submitted on this Revised Draft EIR. Following the public review, a Final EIR will be prepared that includes only responses to comments received during the public review period on this Revised Draft EIR [as provided for by Section 15088.5 (f)(1)]. The Final EIR will then be presented to the City Council of the City of Capitola. The City Council must ultimately certify that

it has reviewed and considered the information in the EIR prior to the City approving the project, and that the EIR has been completed in conformity with the requirements of CEQA.

It is not the purpose of an EIR to recommend either approval or denial of a project. CEQA requires that decision-makers balance the benefits of a proposed project against its unavoidable environmental risks. Although the EIR does not control the Lead Agency's ultimate decision on the project, the Lead Agency must consider the information in the EIR and respond to each significant impact identified in the EIR. If significant adverse environmental impacts are identified in the EIR, approval of the project must be accompanied by written findings, as follows:

A. Changes or alterations have been required in, or incorporated into, the project, which avoid or substantially lessen the significant environmental effects as identified in the completed EIR.

B. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency, or can and should be adopted by such other agency.

C. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the EIR.

State law requires that a public agency adopt a monitoring program for mitigation measures that have been incorporated into the approved project to reduce or avoid significant effects on the environment. The purpose of the monitoring program is to ensure compliance with environmental mitigations during project implementation and operation. A mitigation monitoring program will be prepared as part of the Final EIR.

REPORT ORGANIZATION

The EIR is organized into seven sections that conform to the required contents of an EIR established in CEQA (Article 9, Contents of Environmental Impact Reports). The section titled **2.0 Summary** provides a brief summary of the project, a summary of the revisions made to the 2000 Recirculated Draft EIR, potential for significant impacts, recommended mitigation measures, and alternatives to the project. The section titled **3.0 Project Description** provides a description of each component of the project, including planning, construction, and operations. It also summarizes the changes that were made to the project due to changes in circumstances, as well as in response to issues raised in and comments on the 2000 Recirculated Draft EIR. The project description is provided at a level of detail available at the time of the writing of the Revised Draft EIR.

The section titled **4.0 Environmental Setting, Impacts and Mitigation Measures** comprises topical sections that describe the major categories of potential environmental impacts associated with the project. Each topical section describes the local and regional setting and the known environmental impacts of the project. This Revised Draft EIR considers the full range of potential environmental impact issues. Each issue has been analyzed against established standards of significance where applicable. Mitigation measures are recommended for each significant impact.

The section titled **5.0 CEQA Considerations** discusses unavoidable and irreversible project impacts, growth inducement, and cumulative impacts. The section called **6.0 Alternatives** evaluates a range of alternatives that could feasibly attain the goals of the project while potentially lessening the intensity of the impacts. Finally, **7.0 References** lists the persons who prepared the report, persons contacted, and a bibliography.

This page intentionally left blank.

2.0 SUMMARY

♦ ♦ ♦

PROJECT OVERVIEW

This Revised Draft Environmental Impact Report (Revised Draft EIR) reviews and evaluates the environmental impacts of the currently proposed Rispin Mansion project. The Rispin Mansion project, for the purposes of this Revised Draft EIR, consists of two separate but related actions: (1) the amendment of the Redevelopment Plan for the existing Capitola Redevelopment Project to add the Rispin Mansion property and adjacent library and municipal parking lot to the Project area; and (2) the updated development proposal for the Rispin Mansion submitted by the developer in 2001/2002, as described in the text and depicted in the plans herein. The Rispin Mansion development proposal includes development of the Inn at the Rispin Mansion, renovation of the Mansion and grounds, improvements to the adjacent parking lot at the Clares Street and Wharf Road library, and establishment of a habitat enhancement/adaptive management program to preserve and protect adjacent and on-site biological resources. The Rispin Mansion project includes restoring the historic Rispin Mansion and gardens, and developing the Rispin Mansion property to include visitor-serving accommodations with 28 rooms and meeting and wedding facilities for groups of 49 or fewer. To accommodate the project parking demand, the project proposes to improve an existing paved area across Wharf Road to provide a 60-space parking lot to serve the Rispin Mansion project and the existing library uses (expandable to 85 spaces for "event parking" through the use of a valet parking system). A detailed description of the project characteristics is provided in **3.0 Project Description**.

SUMMARY OF REVISIONS TO 2000 RECIRCULATED DRAFT EIR

Regarding recirculation of this Revised Draft EIR, CEQA Guidelines Section 15088.5 (g) states that "when recirculating a revised EIR, either in whole or in part, the lead agency shall, in the revised EIR or by an attachment to the revised EIR, summarize the revisions made to the previously circulated draft EIR." This Revised Draft EIR contains numerous revisions to the 2000 Recirculated Draft EIR in response to issues raised in and comments on the 2000 Recirculated Draft EIR, as well as due to changes in circumstances.

The following components of the project discussed in that document have been eliminated:

- Garage Units;
- Deliveries driveway on north side of the project site;
- Valet turn-out on Wharf Road; and
- Mini-park project.

In addition to project components that have been eliminated, a few notable changes have been made to the previous project. The south end units are now in a single, compact building instead of two buildings. Also, during operation Mode B, site access

will be provided via zero-emissions vehicles (ZEVs), which may drive on public streets, instead of golf carts. In addition, preservation and enhancement of the on-site and adjacent biological resources is now a fundamental component of the overall Rispin project.

The discussion of environmental setting, impacts and mitigation measures has been updated for each topical area, where necessary and applicable. In addition, discussion of the following key issues has been added, updated, revised and clarified as necessary (this list is not exhaustive, but highlights the key issues that have been added, updated, revised and clarified):

- Public access/open space guarantees (through appropriate legal instrument)
- Riparian vegetation, including updated delineation
- Monarch butterfly overwintering habitat/ESHA, including consistency with Coastal Act and City of Capitola ESH ordinance
- Steelhead
- Cultural resources
- Traffic and circulation
- Stormwater runoff drainage improvements
- Project alternatives

AREAS OF CONCERN

The following environmental areas of concern have been identified in previous environmental reviews of projects at this site, and comments on those documents, and are therefore evaluated in detail in this EIR:

- Geology and Soils
- Hydrology and Water Quality
- Biotic resources including riparian vegetation/steelhead, monarch butterfly habitat, and trees
- Historic resources of the project site
- Traffic and circulation
- Noise
- Air Quality
- Public Services

SUMMARY OF PROJECT ALTERNATIVES

The following alternatives are described and analyzed, then compared to the proposed project. Also, the ability of each alternative to reduce the identified impacts is discussed. Other than the No Project Alternative, which is required by CEQA, the selected alternatives could feasibly obtain some, most, or all of the basic objectives of the proposed project, though perhaps to a lesser extent than the proposed project, and are

capable of eliminating significant adverse impacts of the project, or reducing them to a level of insignificance.

- Alternative 1 — No Project Alternative
- Alternative 2 — Alternative Site Configuration (25-Unit Rispin Redevelopment Plan)
- Alternative 3 — Rispin Mansion Bed and Breakfast
- Alternative 4 — Reduced Scale Alternative

The alternatives evaluation found that although alternatives 2, 3 and 4 would reduce the level of severity of impacts compared to the proposed project, the alternative that may have the fewest environmental impacts was Alternative 1, the No Project Alternative. With implementation of Alternative 1, however, none of the project objectives would be accomplished. In addition, it can be reasonably assumed that there are existing drainage issues that adversely impact the steelhead population within Soquel Creek and, with the numerous trespassing violations on the property, many other impacts may adversely affect the riparian vegetation as well as the monarch butterfly habitat. A No Project Alternative would not provide the habitat enhancements that the proposed project will achieve.

Alternatives 2 and 3 would not have a significant and unavoidable impact with respect to monarch overwintering habitat ESHA. Alternative 2 would have less severe impacts than the proposed project, and would achieve all of the basic project objectives at or near, and in some cases above, the level of the proposed project. Alternative 3 would have less severe impacts than Alternatives 2 and 4, and would achieve some of the basic project objectives, but to a lesser extent than Alternatives 2 and 4, and the proposed project. Alternative 4 would have less severe impacts than Alternative 2 and the proposed project, and would achieve most of the basic project objectives, but to a lesser extent than Alternative 2 and the proposed project.

Alternatives 3 and 4 appear to have less severe impacts than Alternative 2; however these alternatives may not be considered to be economically feasible or preferable. More importantly, under Alternatives 3 and 4, without the proposed habitat management, maintenance, and monitoring activities, the condition of the monarch's overwintering habitat will likely continue to deteriorate, perhaps to such a degree that the site would eventually no longer be suitable as overwintering habitat for the monarch. Based on the above analysis, its ability to reduce significant and unavoidable impacts, and achievement of the basic project objectives, and as concurred by Dr. Arnold (see **Appendix C**), the environmentally superior alternative is Alternative 2.

SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION

The project and cumulative impacts identified during the course of this environmental analysis are summarized in this section. The impacts are grouped with similar ranking beginning with impacts not found to be significant, followed by significant (in addition to potentially significant) impacts that can be mitigated, and ending with significant and unavoidable impacts. Therefore, the mitigation measures do not appear in consecutive order as presented in the EIR text. This summary should be used in conjunction with a

thorough reading of the report. The summary is intended as an overview; the report serves as the basis for the summary.

Less-than-Significant Impacts

No significant impacts due to the Rispin Mansion project were identified in **4.1 Land Use and Planning**. **Table 1** in that section outlines the project's consistency with the General Plan, Local Coastal Program, and Coastal Act.

Significant or Potentially Significant Project Impacts That Can Be Mitigated To A Less-Than-Significant Level

Geology and Soils

Impact: Due to the amount of grading and potential for large magnitude earthquakes in the project area, there is a potential for exposure of people and structures to hazards during seismic events. *This is a potentially significant impact that can be reduced to a less-than-significant level by implementing the following mitigation.*

Mitigation

R-1 Buildings shall be constructed in accordance with applicable Building Codes including the Historic Building Code and the site recommendations presented in the geotechnical and geologic hazard assessment by J. V. Lowney & Associates (January 1991) including, but not limited to, specifications regarding clearing, site grading and preparation, footings, foundations, slabs-on-grade, site drainage, and pavements or turf block.

Impact: Clearing vegetation, site grading, construction, and concentrated discharge of collected runoff could result in erosion and increased sedimentation, if not properly controlled. This effect will be even more severe than at most other sites due to the steep slope of the west bank of Soquel Creek on the project site. *This is a potentially significant impact that can be reduced to a less-than-significant level by implementing the following mitigation.*

Mitigation

R-2 The Contractor shall implement the following measures, at a minimum:

- Install and maintain silt basins and fences or straw bales along drainage paths during construction to contain on-site soils until bare slopes are vegetated. Carefully stockpile graded soils away from drainages.

- Restrict grading and earthwork during the rainy season (October 15 through April 15) and stabilize all exposed soils and graded areas prior to onset of the rainy season through mulching and reseeding. Temporary mulching and reseeding (using a biologist/botanist approved native seed mix) will reduce erosion by establishing quick growing plants to stabilize disturbed areas

which will not have permanent landscaping installed for a period of time or which may be redistributed at a later date. Permit grading after April 15 and before October 15 only with installation of adequate sediment and erosion control measures.

- Revegetate graded slopes with appropriate native plant species (as determined by a qualified botanist) immediately upon completion of grading.
- Comply with all applicable City of Capitola ordinances including landscaping compatibility for erosion control.

Hydrology and Water Quality

Impact: Development of the proposed Rispin Mansion project will result in increased runoff and alteration of existing on-site drainage patterns by increasing storm water flows to the existing Soquel Creek drainage. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation (in addition to mitigation measures R-29 through R-33 in **4.4 Biological Resources**).*

Mitigation

R-3 The Rispin Mansion project drainage system shall be designed to control the release of storm water flows to pre-development levels using on-site detention, percolation and proper system capacities. The design of the drainage system shall be prepared and submitted to the City to demonstrate that the project complies with this measure and other applicable City standards.

Impact: Construction activities including clearing vegetation, grading, and/or excavation of land would have the potential for causing siltation and sedimentation of Soquel Creek or other downstream water bodies. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-4 The project applicant shall prevent sediments or other pollutants resulting from construction activities from entering storm water discharge. During construction, the following measures shall be implemented by the construction contractor:

- Only clear land that will be actively under construction within 6 to 12 months;
- Stabilize disturbed areas except where active construction is taking place. Provide permanent stabilization during finish grade and landscape the site;
- Dispose of all construction waste in designated area, and keep storm water from flowing on or off of these areas;
- Divert or intercept storm water before it reaches Soquel Creek, using temporary dikes, swales, or pipe slope drains; and

- Perimeter controls shall be placed where runoff enters or leaves the site prior to clearing, grubbing, and rough grading. Perimeter controls may include dikes, swales, temporary storm drains, sand bags or hay bales. Secured maintenance contracts shall be established to keep these systems operating.

R-5 The project applicant shall submit a Notice of Intent to the Regional Water Quality Control Board to obtain a State Water Resources Control Board General Construction Storm Water Permit. This shall include preparation and approval of a Storm Water Pollution Prevention Plan (SWPPP) and implementation of Best Management Practices to reduce water quality impacts as required by the Regional Water Quality Control Board. At a minimum, the measures in mitigation R-2 through R-9 shall be included in the SWPPP and implemented.

Impact: Surface runoff from the parking area within the project site would contain elevated levels of contaminants compared with existing conditions. If allowed to enter Soquel Creek, these contaminants would eventually enter downstream drainage areas and potentially lead to degradation of aquatic and upland habitat and impacts on associated flora and fauna. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation (in addition to mitigation measures under Impacts on Steelhead Habitat and Other Riparian and/or Aquatic Species in **4.4 Biological Resources**).*

Mitigation

R-6 The Rispin Mansion project parking area shall be swept on a regular basis (four times per year). Vacuum or regenerative air sweepers are effective at removing the finer sediments that often bind a higher proportion of heavy metals. The sweeping frequency shall be increased just before the wet season (to once per month in September and October of each year) to remove sediments accumulated during the summer.

R-7 Install energy dissipators, sand traps and grease/sediment traps in storm drain outfalls that serve the Rispin site. All catch basins/traps that receive runoff from any areas subject to vehicular use shall be designed for both active filtration and active treatment of runoff.

R-8 The Rispin Mansion project shall maintain catch basins and storm water inlets on a regular basis to remove pollutants, reduce high pollutant concentrations, prevent clogging of the downstream conveyance system, and maintain the catch basins' sediment trapping capacity. Inspection of the drainage system shall be performed annually and repairs and/or cleaning shall be completed prior to November 15.

R-9 Minimize the amount of fertilizers and herbicides applied to the Rispin Gardens. Utilize slow-release chemical fertilizers and herbicides and avoid application prior to scheduled irrigation. The use of fertilizers and herbicides on-site must not conflict with the relevant mitigation intended to protect monarch butterflies (see mitigation R-25 in **4.4 Biological Resources**).

Biological Resources

Impact: Erosion or slope slippage from development on the steep slopes above Soquel Creek could harm the riparian vegetation and decrease the habitat values of the riparian habitat or the creek itself.

This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of mitigation measures R-1 and R-2 (Geology and Soils) and R-4 and R-5 (Hydrology and Water Quality). In addition, steelhead mitigation measures R-27 through R-42 are also applicable.

Impact: Potential nesting trees occur within the study area. While no nesting raptors were observed during the site assessment, species-specific surveys (including the 300-foot offset from project boundaries) were not conducted. Pre-construction nesting surveys are required to eliminate the potential presence of nesting raptors within, or within 300 feet of, project boundaries. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-10 Pre-construction surveys for nesting raptors shall be performed by a qualified biologist to be retained by the applicant. If raptor nests are located during pre-construction surveys, a 300-foot buffer shall be established around each nest for the duration of the breeding season (August 1st, or until such time as the young are fully fledged as determined by a qualified biologist in coordination with the California Department of Fish and Game) to prevent nest harassment and brood mortality. Every effort shall be made to avoid removal of, or impact to, known raptor nests within project boundaries. If trees known to support raptor nests cannot be avoided, limbing or removal of these trees may only occur during the non-breeding season.

Impact: Suitable habitat for pallid bats, Townsend's big-eared bats, and small-footed myotis occurs within the project area, especially within the abandoned Rispin Mansion itself. Pre-construction surveys for these species are required. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-11 Pre-construction surveys for roosting bats must be performed 30 days prior to construction by a qualified biologist to be retained by the applicant. If roosts are found, a Memorandum of Understanding (MOU) with the CDFG shall be obtained by the contractor in order to remove bat species, or the construction schedule shall be modified to initiate construction after August 1, when young are assumed to have fledged. Alternative habitat will need to be provided if bats are to be excluded from maternity roosts. If this is the case, a species-specific roost with comparable spatial and thermal characteristics shall be constructed and provided. CDFG and species-specific bat experts shall be consulted regarding specific designs if roost removal becomes necessary.

Impact: The existing driveway is located within the main roosting area of the butterfly habitat. When butterflies are roosting at the site, vehicle and pedestrian use of the driveway has the potential to disturb the monarch butterfly habitat due to vibration, changes in air temperature, and air pollutants in engine exhaust. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-21 During facility operation between October 1 and February 28 (or as determined by the monarch biologist) of each year, the driveway shall only be accessed by zero emission vehicles for guest drop-off and deliveries, as outlined in the Mode A/B Site Operation Program discussed above. Between March 1 and September 30, use of the site for guest drop-off and valet service in standard vehicles, in addition to the above, will be acceptable. Vehicles taller than the lowest tree canopies shall be restricted from entering the site.

Impact: Use of blowers may be incompatible with the use of the habitat by butterflies. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-22 Landscape and ground maintenance workers must be informed of conservation issues regarding overwintering monarch habitat through a training seminar conducted by the monarch expert. Use of blowers shall be prohibited between October 1 and February 28.

Impact: Exhaust and low frequency vibrations, inherent to the operation of heavy equipment, as well as activities involved with the trimming/removal of trees on the project site, may disturb and/or dislodge roosting monarchs during the overwintering season. This will increase colony disturbance and butterfly mortality. The severity of this impact will depend on the distance of roosting butterflies from the area where the equipment is being operated. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-24 Site preparation (e.g., tree trimming, tree removal, grading, excavation, and roadbed construction) on the project site shall ***not*** occur when monarchs are potentially present (October 1 through February 28).

Impact: If insecticides are used on the Rispin Mansion site, butterflies ingesting nectar or dew may ingest toxic residues in the process of feeding. The use of biological insecticides (including bacteria, viruses, protozoans and nematodes used in the control of undesirable insects) can result in long-term contamination of the habitat. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-25 Use of biological insecticides (including bacteria, viruses, protozoans and nematodes) that are effective in the control of all lepidoptera shall be prohibited throughout the habitat. Chemical insecticides shall not be applied during the overwintering season (October 1 through February 28). Use of chemical insecticide agents during the non-roosting season may be done only if approved by the consulting butterfly expert. Grounds maintenance workers shall be made aware of monarch habitat conservation requirements as they pertain to grounds management (see mitigation R-22 above).

Impact: Outdoor guest/visitor activities during the roosting season may disturb the roost area (e.g., dust, vibration, and night-lighting). [Noise from operation of the Rispin Mansion and associated visitor serving uses is not expected to adversely affect the monarch. Overwintering habitat for this butterfly is often located in noisy locations. The vast majority of butterflies that have been studied to date have been found to be deaf, so noisy locations do not bother them. Indeed, uses similar to those proposed at the Rispin Mansion now occur at motels in Pacific Grove (Butterfly Town, USA) where Monarch overwintering habitat is located among and adjacent to motels that exercise fewer restrictions in their guest and visitor-serving activities than are proposed for the Rispin Mansion (Dick Arnold, Ph.D.).] *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-26 The following measures, at a minimum, shall be implemented during the time when monarchs are potentially present in the habitat (October 1 through February 28, or as determined by the monarch biologist):

- All pedestrians/visitors/guests shall be kept outside of the monarch roosting area by monarch biologist approved fencing.
- Outdoor activities, such as weddings, will be limited to designated portions of the Mansion property to avoid roosting area disruption.
- Outside night-lighting along the paths, and at the Mansion and South End Building shall utilize low wattage bulbs and fixtures that are mounted close to ground level and directed away from the roosts. In addition, lighting shall not be directed toward Soquel Creek or on-site riparian vegetation.

Impact: The proposed redevelopment of the Rispin Mansion property may impact the Soquel Creek and associated riparian vegetation through erosion, vegetation removal, and increased stormwater runoff, which in turn could adversely impact steelhead. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation (also see riparian mitigation above).*

Mitigation

R-27 The removal of any riparian or upland trees on the Rispin site that provide shade to the Soquel Creek shall not be allowed unless immediately replaced. The amount of shading within the creek currently supplied by Rispin property trees

shall be established as a base-line, and any actions reducing this percentage shall require management to improve stream shading by a City approved forester/botanist. Such management shall include planting of native riparian tree species along the creek (i.e. big-leaf maple, sycamore, alder, cottonwood, box-elder, willow), to provide shade and aid in cooling of the creek, and to enhance habitat.

R-28 Protect the eucalyptus grove and patches of redwood trees as valuable sources of shade to the stream, erosion prevention on the steep slope, and as monarch butterfly habitat.

R-29 Consult with a qualified engineer (as determined by the City) to see if runoff from the library parking lot could be detained to reduce the peak discharge level to the pre-development rate. If feasible (to be decided with contracted engineer), install a buried stormwater detention facility near the driveway that would feed into the existing drainage system.

R-30 Retrofit the storm drain pipe buried across the Rispin bench with a detention tank that can meter out water at a slower rate, with an overflow in the event that the tank becomes overwhelmed. This shall be done in consultation with a qualified engineer.

R-31 Stabilize the drainage channel leading from the energy dissipater to the creek (located in the south-central portion of the site). This shall be done in coordination with a qualified engineer.

R-32 The addition of impermeable surfaces at the Rispin Mansion site shall be accompanied with an effective drainage plan. This drainage plan shall ensure the capture of any increase in runoff on the bench (as much as is feasible), without additional overland movement of water down the steep slope toward the creek (to minimize erosion and sedimentation, and the introduction of pollutants).

R-33 Improve the existing driveway on the south end of the site to facilitate rain percolation. Re-surface the driveway with porous pavement blocks or comparable material.

R-34 Extend the drainpipe from the walkway grate leading to the Rispin-Peery Bridge to Soquel Creek.

R-35 Investigate the hydrologic source of water flowing under the west footing of the Peery Park walk/bicycle bridge and re-route it away from the footing to a stable release point. This shall be done in coordination with a qualified engineer.

R-36 Remove non-native/invasive species in work areas within the riparian habitat (i.e. drainage improvements) as much as is feasible, and re-plant with appropriate native riparian species. A qualified botanist shall determine an appropriate native species palette in coordination with the monarch biologist.

R-37 As much as is feasible, and in coordination with the monarch specialist, remove non-native/invasive species (especially pampas grass) in the vicinity of the Peery Park walk/bicycle bridge.

R-38 Repair or replace the retaining wall along the eastern edge of the Rispin Mansion. The replacement of this wall will require erosion/sedimentation control techniques recommended by a qualified engineer.

R-39 Replace the fence above the retaining wall of the Rispin Mansion to exclude people from accessing the creek through created footpaths.

R-40 Construct a meandering footpath from the Rispin site to Soquel Creek that is less erosive than the existing trail paralleling the storm drain down to the energy dissipater. No trees shall be removed or substantially limbed during construction of this trail. The trail shall be covered with base rock and designed to avoid the concentration of storm runoff. Although this trail will be preferable to the existing one, do not clearly mark the trail or encourage its utilization.

R-41 Revegetate the existing shortcut path on the west side of the Rispin property (adjacent to the walkway) with native vegetation. Plant native thorny shrubs or undesirable species, such as blackberry or poison oak, adjacent to the walkway to discourage further use of the existing path.

R-42 To avoid disturbance to steelhead (and other aquatic or semi-aquatic wildlife), nighttime lighting of the riparian habitat and/or Soquel Creek shall not be allowed. On-site lighting required for Mansion grounds shall not be oriented towards the creek.

Cultural Resources

Impact: Project development may result in disturbance of unknown archaeological resources. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-43 In the event that any archaeological or paleontological resources or human remains are discovered during grading or construction anywhere on the site, work shall be ceased within 150 feet of the find until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, appropriate mitigation measures shall be formulated and implemented in accordance with CEQA Section 15064.5. All identified archaeological sites should be evaluated using the California Register of Historical Resources criteria, established by the State Office of Historic Preservation. Any discoveries shall be reported to the City Planning Director.

R-44 In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the following steps shall be taken:

1) There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

   A. The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and
   B. If the coroner determines the remains to be Native American:

      1. The coroner shall contact the Native American Heritage Commission within 24 hours.
      2. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descendent from the deceased Native American.
      3. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or

2) Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance.

   A. The Native American Heritage Commission is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the Commission.
   B. The descendent identified fails to make a recommendation; or
   C. The landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

Impact: Some architectural features of new construction including roof coverings, paint colors, the glass-enclosed Rispin Pavilion and the adjacent tent structure: 1) may not be visually compatible with the Mansion and would potentially harm the historic relationships within the District (Standard #9, 10); 2) may potentially create a false sense of historical development (Standard #3); and 3) may change the historic character of the property (Standards #1, 2). *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-45 The design of all new structures and materials of construction shall be compatible with and complement the Rispin Mansion's style as designed by George McCrae for Henry Allen Rispin. This design concept should be reviewed and approved by the City of Capitola prior to beginning final design or

construction to ensure that the project meets the Secretary of Interior's Standards for Treatment of Historical Properties. In particular, State and local decision-makers shall consider the following recommendations:

- The final design of the Rispin Pavilion shall be based on review and approval by the State Historic Preservation Officer such that material of construction, colors, and architectural style are appropriately compatible with and complement the historic features of the site. The use of walls and roofs of glass is discouraged.
- The final design of building roof covering shall be based on review and approval by the State Historic Preservation Officer such that the covering and other changes near the Mansion are in compliance with the Secretary of the Interior's Standards and Guidelines. Consideration should be given to using terraces with planting in containers, as an alternative to sod roofs over new structures.
- The color scheme of new buildings shall be based on review and approval by the State Historic Preservation Officer such that the colors contrast with the Mansion's white paint to differentiate the old buildings from the new, and are compatible with and compliment the Mansion (i.e., light tan or off-white).

Impact: Despite the improvements that restoration will promote, the extensive work to be undertaken on the Mansion (and well-house) has the potential to violate the Standards for Rehabilitation #1, 2, 3, 5, 6, 7 and 9. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-46 The design and rehabilitation of the Rispin Mansion (and well-house) must comply with the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Historic Buildings, and the California State Historical Building Code. These documents shall be used as guidance documents for all agencies granting approval for the Rispin Mansion project.

R-47 Before construction begins, a Level 2 Historic American Building Survey/Historic American Engineering Record report on the Mansion and the entire District must be prepared in order to preserve a record of the Mansion.

R-48 Maintain an exhibit documenting and interpreting the history of the Rispin Mansion and its place in the community within the lobby, hallway, or other suitable location within the Mansion.

Aesthetics

Impact: The visual character of the site would be substantially altered as a result of construction, buildout, and occupancy of the project. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the*

following mitigation. [Note: aesthetic mitigation (and related design elements) must not conflict with, and should be done in coordination with, mitigation presented in ***4.5 Cultural Resources****.]*

Mitigation

R-49 Obtain Architectural and Site Review approval from the City.

R-50 On-site utilities, including heating and cooling systems located on building roofs, must be located in inconspicuous areas or screened.

R-51 Building materials must be of a material or color that minimizes visual disruption and glare.

R-52 Any on-site buildings, signs, fences, walls, and entry gates must be consistent with the character of the Mansion and adjacent land uses.

Impact: Development of the Rispin Mansion project would introduce increased glare and night lighting to the project site and surrounding area compared with existing conditions, which could adversely affect nighttime views in the project area. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation (in addition to mitigation measures R-26 and R-42 in* ***4.4 Biological Resources****).*

Mitigation

R-53 Lighting must be designed to minimize off-site glare. The type, height, and spacing of lighting shall be approved by the City. Lighting must be directed downward and away from Soquel Creek and residences to the east. Lights must be of minimum intensity necessary for safety lighting. Light standards shall be a maximum of 15 feet high.

Traffic and Circulation

Impact: The project will contribute to existing deficiencies at the Clares Street and Wharf Road intersection during the Saturday MD peak hour conditions. The existing plus Rispin Mansion project condition at this intersection during the Saturday MD peak hour would be a vehicle delay of 77.1 seconds (LOS F). *This is a significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-54 The Rispin Mansion project shall contribute its fair share of construction costs for the installation of an exclusive right turn lane on the southbound Wharf Road approach to the intersection with Clares Street; the improvement shall be implemented prior to project occupancy. This improvement would change the Saturday midday LOS at Clares Street and Wharf Road from LOS F to LOS C under existing plus project conditions during the Saturday MD peak hour. After the exclusive right-turn lane is installed, the City shall monitor this intersection in the future and if the intersection LOS degrades to D, signalization shall be

installed or other improvements implemented to ensure that the LOS remains at C.

Note: If an exclusive right turn lane on the southbound Wharf Road approach to the intersection is not constructed prior to project occupancy, this impact would be a significant and unavoidable short-term impact.

Impact: The proposed Rispin Mansion project would: 1) increase vehicle (including truck), bicycle and pedestrian use of the area, and 2) increase left turn movements on Wharf Road. These project features present potentially significant safety impacts. *This is a significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-56 Install signs to encourage pedestrians to use the crosswalk at the intersection of Clares Street and Wharf Road.

R-57 Install a stop sign at the project driveway approach out onto Wharf Road.

R-58 Because vehicular access to the site will be restricted, and because the project parking area is located north of the Wharf Road/Clares Street intersection, appropriate guide signing shall be provided on Wharf Road and Clares Street to direct Rispin Mansion patrons to the parking area.

To address public concern regarding speeds and safety on Wharf Road, the City should explore the following recommended condition of approval.

Recommended Condition of Approval

- As part of the Rispin Mansion project, the applicant shall implement traffic calming measures on Wharf Road, such as sidewalk bulbs or other roadway improvements that have been demonstrated to reduce traffic speeds, subject to review and approval by the City.

Noise

Impact: Exterior noise levels due to existing traffic along Wharf Road and Clares Street at the South End Building, the upper North End Guest Rooms, the well house, and the Rispin Conservatory would exceed the City of Capitola criteria of 60 dBA Ldn or CNEL for "normally acceptable" noise levels for lodging, motels, and hotels. In addition, the exterior noise levels at other new structures may in the future exceed the 60 dBA Ldn or CNEL threshold. *This is a significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-59 All newly constructed buildings must be designed to attenuate noise inside the buildings as required for habitable structures within the 60 dBA Ldn noise

contour. Noise insulation features selected shall be incorporated in the design to ensure that noise levels do not exceed 45 dBA Ldn in habitable rooms. Conventional construction with closed windows and a fresh air supply, or air-conditioning, will normally achieve this goal.

Impact: Rispin Mansion uses, such as weddings and meetings, would result in intermittent, short-term noise increases. This noise may be audible to adjacent residents and may be considered a nuisance. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-60 The applicant must obtain an entertainment permit from the City of Capitola pursuant to Chapter 5.24 of the Municipal Code that shall include the following conditions of approval, at a minimum:

- Hours of operation for weddings and large meetings must be restricted to 8:00 a.m. to 10:00 p.m. (consistent with Chapter 9.12 of the Municipal Code, the Noise Ordinance), although small corporate breakfast meetings may occur as early as 6:30 a.m.
- Hours of operation for amplified outdoor music/use of microphones shall be restricted to 8:00 a.m. to 9:00 p.m.

Impact: Project construction will result in intermittent and short-term noise increases that will impact residents near the site. *This is a significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-61 The City shall require that the construction contractor implement noise control measures (Best Construction Management Practices) during project construction, as outlined below:

- Require use of construction equipment and haul trucks with noise reduction devices, such as mufflers, that are in good condition and operating within manufacturers' specifications.

- Require selection of quieter equipment (e.g., gas or electric equipment rather than diesel-powered equipment), proper maintenance in accordance with manufacturers' specifications, and fitting of noise-generating equipment with mufflers or engine enclosure panels, as appropriate.

- Prohibit vehicles and other gas or diesel-powered equipment from unnecessary warming up, idling, and engine revving when equipment is not in use and encourage good maintenance practices and lubrication procedures to reduce noise.

- Construct temporary plywood barriers around particularly noisy equipment or activities at appropriate heights.

- Locate stationary noise sources, when feasible, away from residential areas and perform functions such as concrete mixing and equipment repair off-site.

- Except under special circumstances approved by the City Building Official, limit construction activities to the normal working day between the hours of 8 a.m. and 7 p.m. Monday through Friday.

Air Quality

Impact: Project construction will result in a short-term, localized decrease in air quality due to dust generated during site preparation, construction, export of soil, and exhaust from construction vehicles. *This is a potentially significant impact that can be reduced to a less-than-significant level by implementing the following mitigation.*

Mitigation

R-62 Require implementation of construction practices to minimize exposed surfaces and generation of dust that include the following measures, at a minimum:

- Exposed earth surfaces shall be watered during clearing, excavation, grading, and construction activities. All construction contracts shall require watering in late morning and at the end of the day.
- Grading and other earthmoving shall be prohibited during high wind.
- Cover all inactive storage piles.
- Maintain at least 2 feet of freeboard for all loaded haul trucks.
- Throughout excavation activity, haul trucks shall use tarpaulins or other effective covers at all times for off site transport.
- Install wheel washers at the entrance to construction sites for all exiting trucks.
- Sweep streets if visible soil material is carried out from the construction site.
- Upon completion of construction, measures shall be taken to reduce wind erosion. Revegetation and repaving shall be completed as soon as possible.
- Post a publicly visible sign that specifies the telephone number and person to contact regarding dust complaints and who shall respond to such complaints, and take corrective action within 48 hours. The phone number of the Monterey Bay Unified Air Pollution Control District shall be visible to ensure compliance with Rule 402 (nuisance).

Public Services

Impact: Adequate emergency access for fire protection to the east side of the Rispin Mansion is not available. Also, the Fire Chief has outlined nine reasons why the Rispin Mansion site, as it currently exists, constitutes a significant fire hazard threat to the

community and safety personnel. *These are significant impacts that can be reduced to a less-than-significant level with implementation of the following mitigation. [Note: public services mitigation (and related design elements) must not conflict with, and should be done in coordination with, mitigation measures to protect monarch butterfly habitat and riparian vegetation in* ***4.4 Biological Resources****, as well as mitigation measure R-46 in* ***4.5 Cultural Resources****.]*

Mitigation

R-63 To enable the District to respond to fires, medical emergencies, and protect adjacent habitat areas and the community, a smaller and more maneuverable fire apparatus is required. Prior to occupancy, the project applicant shall purchase for the District a quick-attack (Type 4) fire engine that meets the specifications and design factors required by the District.

R-64 The Mansion shall be equipped with fire and smoke detection system and notification equipment, as per the Uniform Fire Code/Central Fire Protection District Adopted Standard and Amendments.

R-65 The Mansion shall be equipped with built-in fire suppression equipment such as fire sprinklers, hood and duct fire suppression equipment and related protection devices, as per the current Fire Code adopted by the District.

R-66 The area around the Mansion is a wooded area with highly combustible eucalyptus trees and dead debris. The area adjacent to the Mansion shall have a defensible fire zone and proper clearances, based on consultation and approval by the District.

R-67 Wet stand pipes or fire hydrants shall be installed at the north and south ends of the Rispin Mansion building to provide adequate fire flow water to the east side of the building, including the vegetation on the steep slopes between the building and Soquel Creek, based on consultation and approval by the District.

R-68 The remodel of the Mansion shall be completed with seismic and earthquake protection standards for occupancy use.

R-69 Fire and paramedic rescue access and egress into and within the site and buildings shall be identified for emergency responses to the Mansion.

R-70 Emergency services and on-going fire prevention inspections for fire and life safety code compliance shall be required.

R-71 The current taxation of the Mansion and the proposed RDA expansion properties generate no tax revenue for the fire/paramedic and prevention services currently required for the Mansion. Future development will require an agreed-to revenue mechanism for the services required to protect the new development of the Mansion.

R-72 All buildings shall comply with all current, applicable codes, standards, and ordinances.

Impact: Given the overall water supply constraints in the area, the project's additional water usage would exceed capacity of the existing water supply. *This is a significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation, including compliance with SCWD's "zero-impact" program (see NOP response letter in Appendix A).*

Mitigation

R-73 The applicant shall apply for water connection approval ("will serve" letter) from the SCWD.

R-74 The number and size of all water meters shall be determined by SCWD.

R-75 The final design shall satisfy all conditions for water conservation required by SCWD at the time of application for service (as detailed in their water efficiency checklist package), including the following:

- Plans for a water efficient landscape and irrigation system that meet SCWD's conservation requirements;
- All interior plumbing fixtures shall be low-flow and all applicant-installed water-using appliances (e.g., dishwashers, clothes washers, etc.) shall have the EPA Energy Star label;
- Inspection by SCWD staff of the completed project for compliance with all conservation requirements prior to commencing water service.

R-76 In compliance with SCWD's "zero-impact" program, the development shall be required to bear the cost of retrofitting existing structures within SCWD's service area with low water use fixtures to achieve a level of water use reduction commensurate with the project's projected water use (hence the "zero impact") as determined by SCWD.

Impact: If not properly designed or maintained, the pump station proposed by the Rispin Mansion project may overflow during peak flow events or power outages, thereby causing contamination of Soquel Creek. *This is a potentially significant impact that can be reduced to a less-than-significant level by using adequate engineering design and with implementation of the following mitigation.*

Mitigation

R-77 The pump station design shall be a duplex-type, which is comparable to current public pump station standards. In addition, the pump station design shall comply with current standards and requirements regarding emergency overflow systems including, but not limited to, the following: power outage alarms, auxiliary energy source (natural gas), and worst-case capacity requirements. Operation and maintenance procedures for the pump station shall be established to maintain reliability. The pump station design and operations/maintenance procedures shall be reviewed and approved by the SCCSD.

Impact: There is a potential for the increased wastewater flows to exceed capacity of the existing wastewater lines in the project vicinity or to degrade the system to an unacceptable condition. In addition, future construction in the area may damage the

force main. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-78 The applicant shall obtain a "will serve" letter which requires payment of permit fees[1] and a capacity study in order to comply with SCCSD requirements for connecting to the existing wastewater system in the project vicinity. In addition, the applicant shall pay for infrastructure improvements required to accommodate the increased wastewater flows generated by the project.

R-79 The location of the Rispin Mansion force main shall be marked to prevent future damage to the line.

Significant or Potentially Significant Cumulative Impacts That Can Be Mitigated To A Less-Than-Significant Level

Hydrology and Water Quality

Cumulative Impact: Cumulative development in the Soquel Creek watershed could increase sediment loading in the creek. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Cumulative Mitigation

C-1 The City of Capitola shall continue its efforts to implement the Soquel Creek Lagoon Enhancement project, and work with the County to ensure that other storm drain and water quality improvements are implemented to reduce cumulative watershed impacts.

Traffic and Circulation

Cumulative Impact: The project will contribute to an existing level of service deficiency on Highway 1 in the vicinity of the project. *This is a significant cumulative impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Cumulative Mitigation

C-4 The Rispin project shall contribute its fair share of construction costs (pro-rata contribution) for the widening of Highway 1 to six lanes between State Park Drive and Larkin Valley Road, using the findings of the PSR completed in 2002.

---

1 The current fee schedule requires payment of a fee equivalent to $12 multiplied by the estimated number of gallons of sewage discharged per day of average daily flow.

Cumulative Impact: Under General Plan conditions, the Wharf Road/Clares Street intersection will operate at an overall LOS D (33.1 seconds of delay per vehicle) during the weekday PM and LOS F (120.3 seconds of delay per vehicle) during the Saturday MD peak hours. Cumulative condition weekday PM and Saturday MD peak hour volumes at this intersection satisfy Caltrans peak hour signal warrants. *This is a significant cumulative impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Cumulative Mitigation

C-5 The Rispin project shall contribute its fair share of construction costs (pro-rata contribution) for the installation of an exclusive right turn lane on the southbound Wharf Road approach to the intersection with Clares Street; the improvement shall be implemented prior to General Plan buildout. This improvement would change the LOS at Clares Street and Wharf Road to LOS C under General Plan buildout conditions during Saturday MD and weekday PM peak hours. After the exclusive right-turn lane is installed, the City shall monitor this intersection in the future and if the intersection LOS degrades to D, signalization shall be installed or other improvements implemented to ensure that the LOS remains at C.

Note: If an exclusive right turn lane on the southbound Wharf Road approach to the intersection is not constructed prior to General Plan buildout, this impact would be a significant and unavoidable cumulative impact.

Cumulative Impact: Under General Plan Buildout conditions, the 41st Avenue/Highway 1 southbound off-ramp intersection will operate at an overall LOS E (89.2 seconds of delay per vehicle) during the Saturday MD peak hour and 41st Avenue/Highway 1 northbound off-ramp intersection will operate at an overall LOS D (40.1 seconds of delay per vehicle) during the Saturday MD peak hour. *This is a significant cumulative impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Cumulative Mitigation

C-6 The Rispin project shall contribute its fair share of construction costs (pro-rata contribution) for the reconstruction of the Highway 1/41st Avenue interchange to include three through lanes on 41st Avenue and an additional exclusive right turn lane on the northbound 41st Avenue approach to the southbound Highway 1 on-ramp; the improvement shall be implemented prior to General Plan buildout. With construction of this improvement, the LOS at the Highway 1 southbound ramp intersection and the Highway 1 northbound ramp intersection would be improved to LOS C under General Plan buildout conditions during the Saturday MD peak hour.

Note: If the interchange is not reconstructed to provide three through lanes on 41st Avenue over Highway 1 and an exclusive right turn lane on the northbound 41st Avenue approach to the southbound Highway 1 ramp prior to General Plan buildout, this impact would be a significant and unavoidable cumulative impact.

Cumulative Impact: Under General Plan Buildout conditions, the 49th Avenue/Capitola Road intersection is projected to operate at LOS D (29.6 seconds of delay per vehicle) during the Saturday MD peak hour. Weekday PM and Saturday MD peak hour volumes at this intersection satisfy Caltrans peak hour signal warrants under cumulative conditions. *This is a significant cumulative impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Cumulative Mitigation

C-9 The 49th Avenue/Capitola Road intersection should be monitored by the City and a traffic signal installed when warranted based on intersection operations and volumes. Signalization of the intersection would result in LOS C operations during the weekday PM and Saturday peak hours.

Note: If the intersection is not signalized when intersection volumes and operations warrant, this impact would be a significant and unavoidable cumulative impact.

Public Services

Impact: Given that the SCWD is actively planning for water supply improvements but has not developed specific funded programs, cumulative water demand could exceed available water supply. *This is a potentially significant cumulative impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

C-10 Until programs are defined, the SCWD will continue to require new development to provide low-flow fixtures and water-conserving landscaping to reduce water consumption levels of urban development and minimize the impacts of new cumulative growth. The project shall incorporate water conservation features in accordance with SCWD requirements.

C-11 The City supports the District's efforts to develop a regional plan and to require low-flow fixtures and water-conserving landscaping of new development. To help mitigate potentially significant cumulative water supply impacts, the City will participate in the integrated plan as requested and assist with implementation of feasible recommendations that may be adopted by the SCWD, which may include various water supply improvements and funding mechanisms, such as fees, on new development.

SIGNIFICANT AND UNAVOIDABLE IMPACTS

The Rispin Mansion project would result in the following significant and unavoidable impacts:

- project and cumulative impacts to monarch butterfly overwintering habitat (ESHA);

- project and cumulative impacts on existing deficiencies at the 41st Avenue/Clares Street intersection;
- cumulative impacts on 41st Avenue north of Clares Street and 41st Avenue north of Highway 1;
- cumulative impacts on Capitola Road segments east and west of 46th Avenue; and
- cumulative impacts on Wharf Road north of Clares Street.

In addition, some significant intersection operations impacts would be considered significant and unavoidable short-term impacts if the recommended intersection improvements are not implemented prior to project occupancy (as noted below).

In order to approve the project, the City of Capitola will be required to adopt findings in support of a statement of overriding considerations for each impact identified as significant and unavoidable.

Significant and Unavoidable Project Impacts

Biological Resources

Impact: South of the Rispin Mansion, construction of the South End Building, parking spaces, pathway, cantilevered wall, and security guard quarters/ZEV garage in and below the well-house would constitute non-resource dependent uses within monarch overwintering habitat and may result in loss of and damage to mature trees in the monarch overwintering habitat and one cypress and one redwood tree just south of the site. *This is in violation of the Coastal Act (Section 30240) and therefore constitutes a significant and unavoidable impact. Implementation of the following mitigation, in addition to the Mode A/B Site Operation Program requirements, will not reduce this impact to a less-than-significant level, but will avoid significant ESHA degradation and will allow development in a fashion that is compatible with ESHA.*

Mitigation

R-12 The monarch's overwintering habitat at the Rispin Mansion site shall be permanently managed by an independent monarch biologist, who is hired by the owners/operators of the Rispin Mansion and who will periodically report to the City Council. Please note that the judgment of the monarch specialist overrides the opinions of the applicant, landscape architect, arborist, and work crews that may be involved in the decision making process. At a minimum, the monarch biologist will have the following duties:

a) advise the owners/operators of the Rispin Mansion when monarch butterflies begin to use the overwintering habitat in the fall so the Mansion can shift to fall/winter operational mode, and similarly, advise the owners/operators when the monarchs have left the Rispin Mansion site in the spring so the Mansion can shift to spring/summer operational mode;
b) work with the arborist to determine how to best prune the trees at the Rispin Mansion to enhance overwintering habitat values for achieving wind protection, dappled light, roost limbs, etc.;
c) work with the landscape architect to insure that appropriate plant taxa are used to enhance overwintering habitat values for the monarch, and that the

selected plant materials are placed at the most appropriate locations on the site;

d) monitor and manage the gradual removal of invasive/non-native ivy from the site as it is replaced by alternative, more desirable (native) nectaring sources;
e) routinely work with the landscaping crew to insure that maintenance practices are compatible with protection and enhancement of the monarch's overwintering habitat;
f) periodically re-evaluate overwintering habitat conditions for the monarch and provide recommendations for corrective actions and improvements;
g) prepare a monarch overwintering habitat monitoring and management plan for the Rispin Mansion site, which will identify methods for annual monitoring of the butterfly and its habitat, plus identify specific management practices for all parts of the roost areas; and
h) advise the owners/operators about methods for raising butterflies in the restored Rispin aviary and propagating the milkweed food plant of monarch larvae in non-roosting portions of the site.
i) ensure that tree pruning and removal is done in accordance with the Interim Management Plan for Preservation of Rispin Mansion Butterfly Habitat and Screening of Rispin-Peery Bridge Connection (April 2003, Lewis Tree Service).

R-13 The applicant shall take proper measures to avoid damage to the remaining oaks, cypress and redwood in these areas. Specifically, grading or construction shall not occur within 15 feet of the base of all oak, cypress and redwood trees unless performed under the supervision of a qualified on-site arborist.

R-14 A final landscaping and tree mitigation plan shall be implemented that contains the following measures for tree preservation during construction. This plan shall be reviewed and approved by the City of Capitola prior to construction.

- Provide for an on-site consulting arborist during preliminary grading.
- Establishment of a tree preservation zone (TPZ) by installing fencing, with stakes embedded in the ground, no less than 48 inches in height, at the dripline (the perimeter of the foliar canopy) of the tree, or at the critical root radius, as defined by the consulting arborist. This installation will be done prior to any construction activities.
- Within the dripline of existing trees (the TPZ), no storage of construction materials, debris, or excess soil will be allowed. Parking of vehicles or construction equipment in this area is prohibited. Any solvents or liquids shall be properly disposed or recycled.
- Minimize soil compaction on the construction site. Protect the soil surface with a deep layer of mulch (tree chips). The addition of mulch will reduce compaction, retain moisture, and stabilize soil temperature.
- Maintain the natural grade around trees that are not removed. No additional fill or excavation will be permitted within areas of tree root development. If tree roots are unearthed during the construction process, the consulting arborist will be notified immediately. Exposed roots will be covered with moistened burlap until a determination is made by the on site arborist.

- Any areas of proposed trenching will be evaluated with the consulting arborist and the contractor prior to construction. All trenching on this site will be approved by the on-site arborist. Trenching within a tree dripline will be performed by hand. Tree roots encountered will be avoided or properly pruned under the guidance of the consulting arborist.
- Unauthorized pruning or canopy alterations of any tree on this site will not be allowed. If any tree canopy encroaches on the building site the required pruning will be done on the authority of the consulting arborist and monarch expert and to ISA pruning guidelines and ANSI A300 pruning standards. Education of landscaping and maintenance personnel shall be required prior to commencement of construction.

R-15 The final landscaping and tree replacement/mitigation plan shall include the following components:

- For every mature tree (of any species) that is removed, four (4) 24-inch box trees or twelve (12) 15-gallon trees shall be planted. For every sapling tree that is removed, one (1) 24-inch box tree or three (3) 15-gallon trees shall be planted. Loss of acacia clumps must be replaced at a 1-to-1 ratio (i.e., one 24-inch box or three 15-inch box) based on the number of trunks in the group. The on-site arborist shall determine the type of tree (i.e., mature, sapling, clump) that is being removed or permanently damaged prior to its removal. The following species may be used for replacing the acacia that are removed, based on their size and foliage, as recommended by the butterfly expert (Dick Arnold, Ph.D.):
  - Red ironbark *(Eucalyptus sideroxylon),* recommended by both Elizabeth Bell and Dick Arnold as a roosting tree
  - Holly-leaf cherry *(Prunus ilicifolia)*, recommended by Dick Arnold as a windscreen
  - Monterey cypress *(Cupressus macrocarpa)*, windscreen
  - Sydney blue-gum *(Eucalyptus saligna),* windscreen
  - Swamp mahogany *(Eucalyptus robusta),* windscreen
  - Coast redwood (*Sequoia sempervirens*), windscreen
  - California bay *(Umbellularia californica),* windscreen
  - Red alder *(Alnus rubra),* windscreen
  - Cooibah *(Eucalyptus microtheca)*, roost tree
  - Hinds willow *(Salix hindsiana)*, winter nectar source
  - Western black willow *(Salix lucida)*, windscreen/nectar source
  - Arroyo willow *(Salix lasiolepis)*, windscreen/nectar source
- The locations on the project site for replacement trees shall be in conformance with guidance from the qualified monarch expert to eventually compensate for limbs and trees lost due to project construction. As part of

the landscaping and tree replacement/mitigation plan, implement the following:

- Acacia limbing or removal will be confirmed by consultation with the monarch biologist to be retained by the applicant and shall be done in accordance with the Interim Management Plan for Preservation of Rispin Mansion Butterfly Habitat and Screening of Rispin-Peery Bridge Connection (April 3, 2003, Lewis Tree Service).
- Replacement planting shall be done in consultation with the retained monarch biologist.
- As replacement plantings reach a sufficient size and stature to replace the remaining existing acacias (as determined by the consulting monarch biologist), these acacias will be permanently removed.
- Replacement plant taxa to be used for windscreening, dappled light, and nectar shall be the same as those listed above in the approved planting list, and those recommended in the landscape plans by Dick Arnold (also those recommended by The Monarch Project 1993).
- Trees must be planted between any parking or unloading/loading spaces near the Mansion and Area A to buffer the direct impacts to butterflies (see approved planting list above).
- Adequate setbacks to building walls shall be provided from tree trunks (15-foot minimum) to create "tree protection zones". Trees shall be protected with fencing during construction.
- A temporary fence, as approved by the on-site arborist, shall be placed around the entire roosting area bounded by Wharf Road, the south-gate access road and the Mansion fence that extends from the well-house to the south gate. This area shall not be used for parking or equipment and materials storage during the construction phase.

R-16 Widening of the existing driveway on the south side of the site shall not be allowed.

R-17 During reconstruction/resurfacing of the driveway, the applicant shall adhere to specific guidelines for roadbed design, construction materials and procedures provided by the consulting arborist in order to avoid above and below ground damage to the trees near the driveway. These construction guidelines shall include the following:

- hand grading or use of mini-excavator;
- road bed fill not to exceed four inches in the acacia area;
- use of light-colored, water permeable substrate for the road and parking lot surface;
- establishment of tree protection zones;
- limit use of driveway during construction to vehicles that clear the tree canopy; and

- prohibit use of this driveway for construction vehicles and equipment between October 1 and February 28.

R-18 The final placement of the cantilevered wall along the Wharf Road site boundary shall be determined through on-site consultation with the monarch butterfly specialist or arborist to minimize damage to acacias that are important to the monarch habitat. The final design of the cantilevered wall shall provide for proper drainage and avoidance of root damage to preserve the trees in the habitat. The design specifications of the wall shall be reviewed and approved by the arborist.

R-19 Avoid removal of lower eucalyptus or acacia limbs for creation of the pathway, unless recommended by the arborist to address safety concerns, to minimize potential canopy loss within the monarch habitat. Vegetation pruning and clearing shall be minimized and barriers shall be installed along the pathway to keep visitors off of undisturbed areas. The final design of the pathway shall be completed in coordination with the monarch butterfly expert. All acacia pruning and/or removal shall be done in accordance with the Interim Management Plan for Preservation of Rispin Mansion Butterfly Habitat and Screening of Rispin-Peery Bridge Connection (April 3, 2003, Lewis Tree Service).

R-20 Buildings shall not be placed beneath canopy driplines except as authorized by the monarch butterfly expert. Boardwalks and viewing platforms or patios may be placed beneath driplines if the existing eucalyptus canopy is maintained. Only limited limb removal for view enhancement and safety concerns may occur, but it must be consistent with health of trees and performed under the guidance of the consulting arborist and monarch butterfly specialist.

Impact: Emissions from fireplace chimneys (smoke, heat and carbon dioxide) in the vicinity of roost areas can cause disturbance of roosting monarchs; this may lead to increased flight activity, emigration, mortality and reduced colony stability. *This is in violation of the Coastal Act (Section 30240) and therefore constitutes a significant and unavoidable impact. Implementation of the following mitigation, in addition to the Mode A/B Site Operation Program requirements, will not reduce this impact to a less-than-significant level, but will avoid significant ESHA degradation and will allow development in a fashion that is compatible with ESHA.*

Mitigation

R-23 Any new buildings south of the Mansion on the project site must be designed and built without wood-burning fireplaces or stoves (gas-burning fireplaces are acceptable). Operation of wood-burning fireplaces in the Mansion and the Rispin Conservatory shall be prohibited if it has the potential to create adverse conditions during the time when monarchs are potentially present in the habitat (October 1 through February 28, or as determined by the monarch biologist). A fireplace plan shall be developed, subject to review by the butterfly expert and approval by the City of Capitola. The fireplace plan shall include at a minimum:

- a description of the locations and design of exhaust system features, and

- an operational program that specifies the methods (such as warning signs and lockable ignition switches or gas valves) proposed to ensure that fireplaces do not create adverse conditions, including restrictions on operations proposed in the Mode A/B Site Operation Program detailed above, for times when butterflies are potentially present in the Rispin habitat.

Traffic and Circulation

Impact: The Rispin Mansion project will contribute to existing deficiencies at the 41st Avenue/ Clares Street intersection during the weekday PM peak hour and Saturday MD peak hour. The existing plus Rispin Mansion project weekday PM peak hour condition at this intersection is a vehicle delay of 41.7 seconds (LOS D) and the Saturday MD peak hour condition is a vehicle delay of 55.3 seconds (LOS D). *This is a significant and unavoidable impact. The following mitigation measure can reduce the impact, but not to a less-than-significant level.*

Mitigation

R-55 The Rispin Mansion project shall contribute its fair share of construction costs for the installation of an exclusive right turn lane on the southbound 41st Avenue approach to Clares Street; the improvement shall be implemented prior to project occupancy. With construction of this improvement, the LOS would remain at LOS D during the weekday PM and Saturday MD peak hours with 40.3 seconds of delay and 49.5 seconds of delay, respectively.

Significant and Unavoidable Cumulative Impacts

Biological Resources

Cumulative Impact: Cumulative development has the potential to significantly impact the availability and suitability of monarch butterfly overwintering habitats in the region due to general degradation of and disturbance to those habitats. *Implementation of the following mitigation will avoid significant ESHA degradation.*

Cumulative Mitigation

C-2 Cumulative projects shall be properly sited with adequate buffers from monarch butterfly habitats to avoid physical degradation to the habitat. Removal or substantial limbing of significant trees or other permanent changes to monarch butterfly habitats (including changes to the wind protection, shading, amount or accessibility of roost sites and nectar sources) shall be prohibited, except as approved by a qualified butterfly expert.

Traffic and Circulation

Cumulative Impact: The following road segments will operate at unsatisfactory levels of service under General Plan Buildout conditions:

1. 41st Avenue north of Clares Street; and
2. 41st Avenue north of Highway 1.

Implementation of the mitigation measure listed below will reduce cumulative impacts, but it is not certain that impacts will be fully mitigated. *This is a significant and unavoidable cumulative impact.*

Cumulative Mitigation

C-3 A study of the 41st Avenue corridor between Capitola Road and Highway 1 will be conducted to identify feasible improvements, including traffic signal coordination, that would improve corridor traffic operations. The proposed project shall provide a fair share contribution towards the cost for this study.

Cumulative Impact: The Capitola Road segments east and west of 46th Avenue will operate at unsatisfactory levels of service under General Plan Buildout conditions. *This is a significant and unavoidable cumulative impact.*

Cumulative Mitigation

No known mitigation currently available.

Cumulative Impact: Wharf Road north of Clares Street will operate at unsatisfactory levels of service under General Plan Buildout conditions. *This is a significant and unavoidable cumulative impact.*

Cumulative Mitigation

No known mitigation currently available.

Cumulative Impact: The 41st Avenue and Clares Street intersection under General Plan Buildout conditions will operate at an overall LOS E (72.0 seconds of delay per vehicle) during the weekday PM peak hour and LOS F (139.1 seconds of delay per vehicle) during the Saturday MD peak hour. The mitigation measures provided below can partially mitigate this impact. Until a detailed corridor study is performed to identify capacity related improvements that can be implemented, and evaluate alternative signal timing coordination plans, it is not certain whether this cumulative impact can be fully mitigated. *This is a significant and unavoidable cumulative impact.*

Cumulative Mitigation

C-7 The Rispin project shall contribute its fair share of construction costs (pro-rata contribution) for the addition of an exclusive right-turn only lane on the 41st Avenue southbound approach to Clares Street; the improvement shall be implemented prior to General Plan buildout. With construction of this

improvement, the LOS would remain at LOS E (61.5 seconds of delay per vehicle) under General Plan buildout conditions during weekday PM peak hours and LOS F (104.9 seconds of delay per vehicle) during the Saturday MD peak hour.

C-8 The Rispin project shall contribute its fair share of costs for a detailed study of the 41st Avenue corridor that evaluates the feasibility of alternative roadway improvements and alternative traffic signal coordination plans that would improve corridor traffic operations. *[Note: this is the same as cumulative mitigation C-3.]*

3.0 PROJECT DESCRIPTION

♦ ♦ ♦

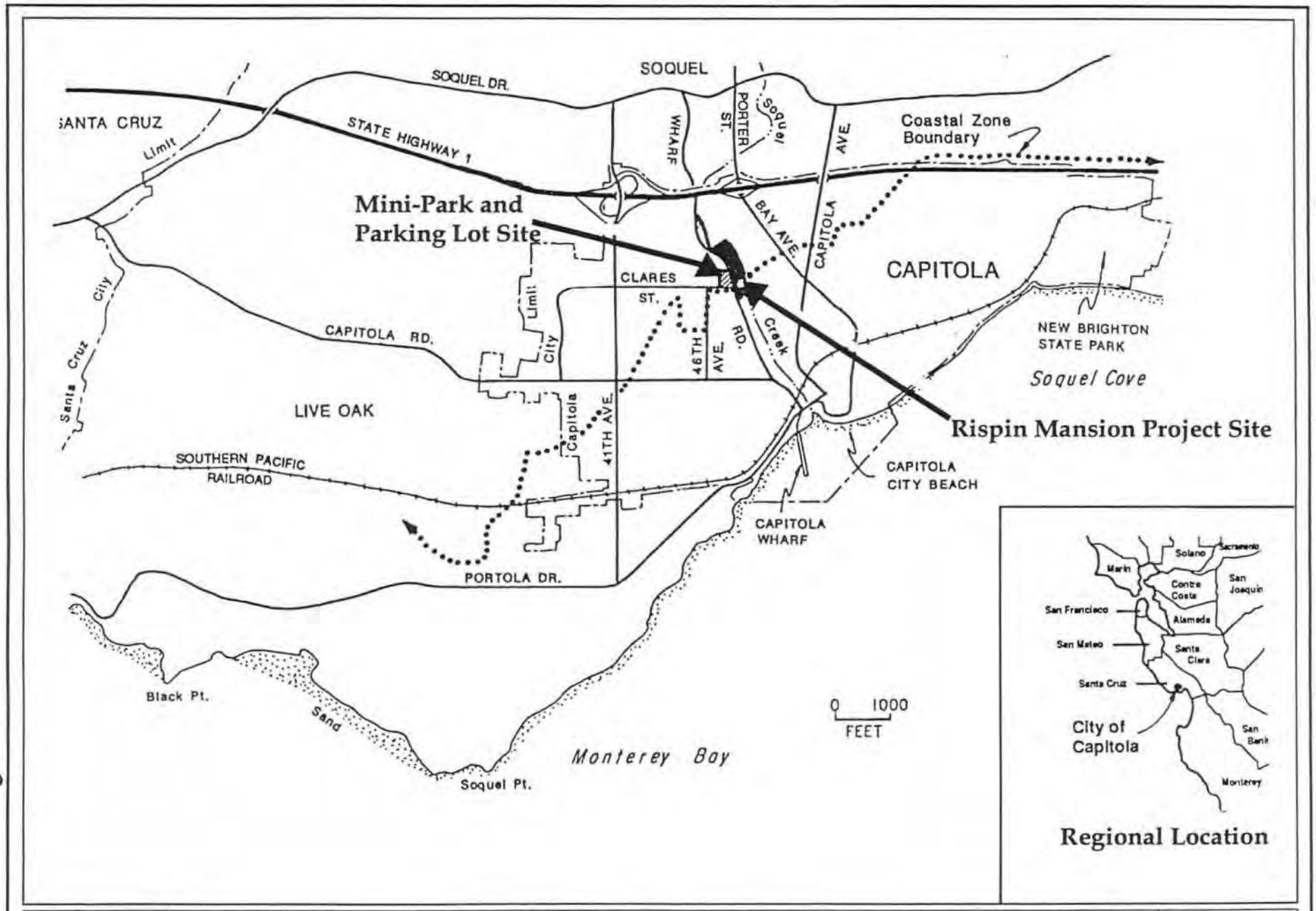
OVERVIEW

This Revised Draft Environmental Impact Report (Revised Draft EIR) reviews and evaluates the environmental impacts of the currently proposed Rispin Mansion Project. The Rispin Mansion project, for the purposes of this Revised Draft EIR, consists of two separate but related actions: (1) the amendment of the Redevelopment Plan for the existing Capitola Redevelopment Project to add the Rispin Mansion property and adjacent library and municipal parking lot to the Project area; and (2) the updated development proposal for the Rispin Mansion submitted by the developer in 2001/2002, as described in the text and depicted in the plans herein. The Rispin Mansion development proposal includes development of the Inn at Rispin Mansion, renovation of the Mansion and grounds, improvements to the adjacent parking lot at the Clares Street and Wharf Road library, and establishment of a habitat enhancement/adaptive management program to preserve and protect adjacent and on-site biological resources. The Rispin Mansion project includes restoring the historic Rispin Mansion and gardens, and developing the Rispin Mansion property to include visitor-serving accommodations with 28 rooms and meeting and wedding facilities for groups of 49 or fewer. To accommodate the project parking demand, the project proposes to improve an existing paved area across Wharf Road to provide a 60-space parking lot to serve the Rispin Mansion project and the existing library uses (expandable to 85 spaces for "event parking" through the use of a valet parking system). The City of Capitola currently owns the project sites. A detailed description of the project characteristics is provided below.

PROJECT LOCATION AND AREA

The proposed project sites (including the Rispin Mansion property and the parking lot) are located in the City of Capitola in Santa Cruz County. The City of Capitola is a coastal community 3 miles east of the City of Santa Cruz on the northern side of the Monterey Bay. The sites are located west of Soquel Creek and south of Highway 1. **Figure 3-1** shows the locations of the sites.

The proposed Rispin Mansion project sites consist of approximately 6.5 acres of land located along the eastern side of Wharf Road and an approximately ½-acre paved area located across Wharf Road, west of the Mansion site. The Rispin Mansion site is bounded by Soquel Creek to the east, open space to the north, a multiple-family residential development to the south, and a residential care facility, multiple- and single-family residences, and the parking lot/library site to the west. Across Soquel Creek, there are also single-family residences. Access to both of the sites is provided via the 41st Avenue exit off of Highway 1, Clares Street and Wharf Road.



DENISE DUFFY & ASSOCIATES, INC.

PROJECT BACKGROUND

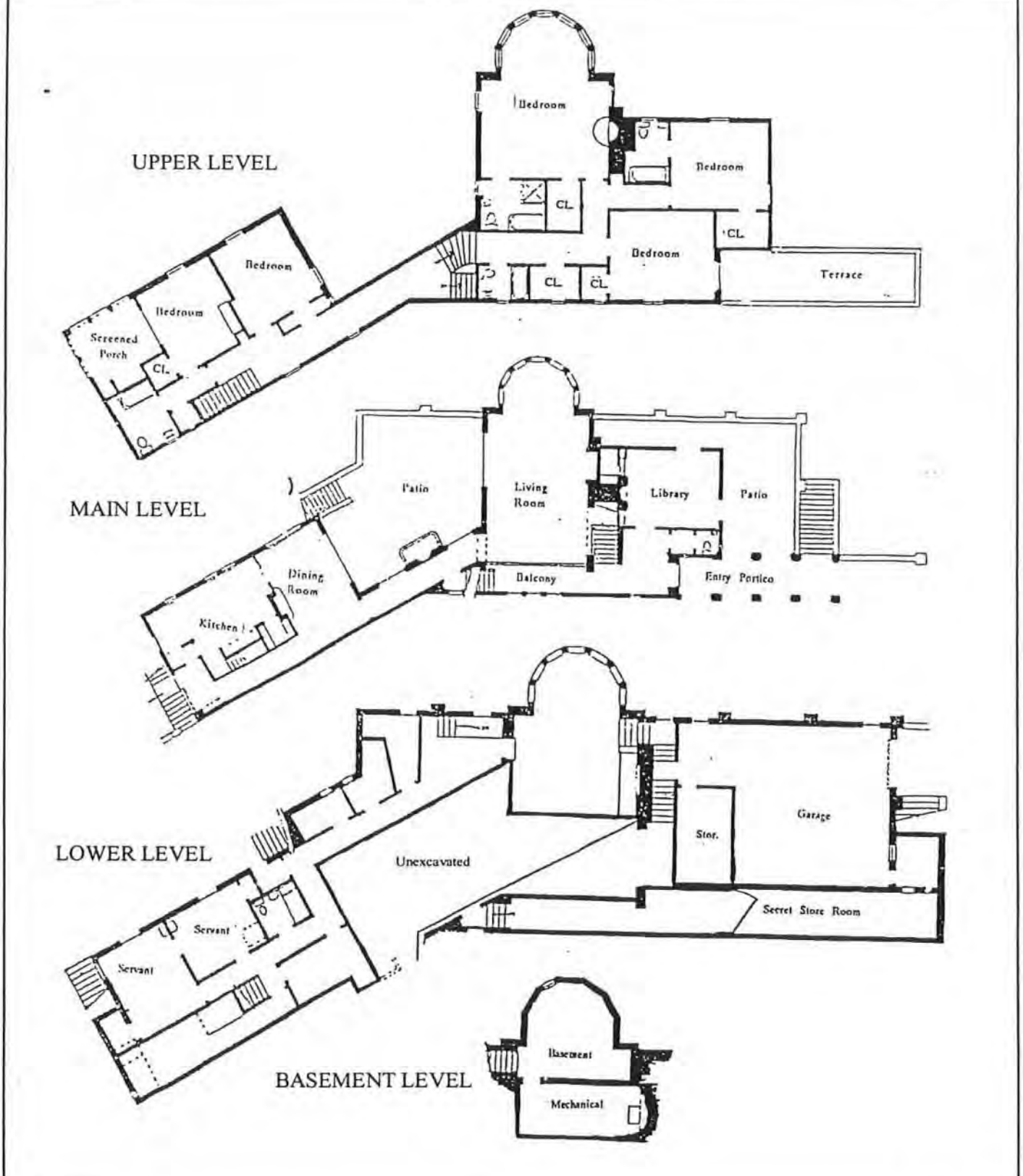
Henry Allen Rispin originally built the Rispin Mansion in 1922. The Mansion building combines mission-, Spanish colonial-, and Mediterranean-style architecture. Mr. Rispin sold the residence in 1929. There were multiple owners during the 1930s, and it was sold to the St. James Monastery of Poor Clares religious order in 1946. The Poor Clares order lived in the Mansion until 1959 when the Mansion was sold again to an investor group. Since 1960, the Mansion building has been vacant and numerous developments have been proposed for the site. In December 1985 the City of Capitola purchased the Rispin Mansion property, and in 1989 the City purchased five acres on Clares Street.

The City itself first proposed rehabilitation of the Rispin Mansion and construction of a regional library in 1991. In 1996-1997, the City sold four of the five acres on the western side of the Clares/Wharf site to Kaufman & Broad, who constructed a small-lot, single-family residential development. The Rispin-Peery bicycle/pedestrian trail and bridge over Soquel Creek were built in 1996. The trail enters the site just north of the Rispin Mansion building and weaves through the property connecting to Wharf Road. The area proposed for the joint-use parking lot was paved in 1996-1997 on the Clares Street site as a condition of development approval for the Kaufman & Broad project. In 1998-1999, the City developed a 4,200 square-foot modular library on the Clares/Wharf site, but much of the Rispin Mansion property has been left untouched. Currently the Rispin Mansion is surrounded by chain-link fence that has been damaged and vandalized. Existing site features of the Rispin Mansion site are shown on the existing site plan attached to this document. **Figure 3-2** shows the existing floor plan of Rispin Mansion.

In November 1997, the City entered into an Exclusive Right to Negotiate Agreement (ENA), with the development team of Ron Beardslee and Dan Floyd (with Paul Davis as architect), and the developer filed a development application. A Notice of Preparation (NOP) for the EIR was circulated on December 16, 1997 to State, regional, and local agencies and to interested community organizations and individuals (see **Appendix A**). A 30-day comment period on the NOP provided an opportunity to identify issues and/or concerns that should be addressed during the preparation of the Draft EIR. Revised development applications and plans were submitted to the City in February 1998, March 1998, January 1999, and April 1999. Subsequently, the plans were revised multiple times in 2001 and 2002.

On November 20, 1998, the City distributed a Draft EIR to interested responsible and trustee agencies, groups, organizations, and individuals for a public review period through January 4, 1999. The Draft EIR evaluated a potential permanent 7,000 square-foot library and mini-park in addition to the Rispin Mansion project.[1] The City received 10 comment letters. One of these comment letters, from the Rispin project applicant, included the "Developer's Mitigated Project" that attempted to mitigate for impacts identified in the DEIR and to address the comments received during public review. A Response to Comments document was prepared in March 1999 and included an assessment of the Developer's Mitigated Project. In March and April of 1999, during public hearings on the project, the developer revised the plans several times to respond to comments by the Planning Commission, Rispin Steering Committee, and members of the public. Based on the changes in the plans and changes in circumstances, including the removal of the potential permanent library at the Clares/Wharf site from the overall Rispin project, the City chose to recirculate the EIR so that the public and decision-makers could

[1] The Rispin Mansion project evaluated in the 1998 EIR included restoration of the Mansion and gardens, addition of 34 visitor-serving accommodations (including eight within the Mansion), and meeting and wedding facilities.



N

Rispin Mansion Existing Floor Plan

Figure 3-2

clearly understand the project proposed at that time. The Recirculated Draft EIR was distributed on December 18, 2000 for a public review period through January 31, 2001. The City received 11 comment letters, one (1) letter from the State Clearinghouse acknowledging compliance with CEQA review requirements, and two (2) additional letters from the State Clearinghouse for transmittal of comment letters received from state agencies after the close of the state review period. In November 2001, based on comments received and changes in the plans, including the removal of the mini-park project from the overall Rispin project, the City again chose to recirculate a revised EIR to allow the public and decision-makers to clearly understand the most recent proposed project.

Due to financing and taxing issues associated with adding the Rispin Mansion property and adjacent library and municipal parking lot to the existing Capitola Redevelopment Project area, another NOP was circulated on March 13, 2003 to the State Board of Equalization, county officials, and affected taxing entities. A 30-day comment period on the NOP provided these entities the opportunity to identify issues and/or concerns that should be addressed during the preparation of the Revised Draft EIR (see **Appendix A**).

This Revised Draft EIR is based upon the final version of the site plans that are dated 8/24/01 (Joe L. Akers) and 9/10/02 (Paul Davis Partnership), plans for the interior of the Mansion (Paul Davis Partnership) dated 1/15/99, 1/18/99, 1/22/99, and 9/10/02, drainage plans (Joe L. Akers) prepared in October 2002, landscaping plans (Barbara Bernie Landscape Design) dated 7/7/02 and 9/11/02, and various renderings of the overall landscape plan, the landscape design south of the Mansion, and the historic lawn area. Site plans, floor plans, elevations, and landscaping plans are attached to this document.

PROJECT OBJECTIVES

The following project objectives for the Rispin Mansion project were identified by the applicant and reviewed by the City of Capitola, which is seeking to balance the economic, historical, environmental, and community objectives in its review of this project:

- To provide public access to the restored historical Rispin Mansion, gardens, and grounds, guaranteed by appropriate legal instrument;
- To protect and enhance the ecosystem of the Rispin Mansion site, especially the riparian vegetation and the monarch butterfly habitat, guaranteed by appropriate legal instrument;
- To achieve historical certification of the project (as a rehabilitation/development project of a property on the National Register of Historic Places) from the State Historic Preservation Office/National Park Service, and obtain Historic Investment Tax Credits;
- To retain as much undeveloped open space on the Rispin Mansion site as possible, guaranteed by appropriate legal instrument;
- To provide a special event facility for public use in the gardens;
- To provide a meeting/wedding/multi-use facility for the public;
- To create a stable/profitable economic investment;
- To provide employment opportunities;

- To provide the City of Capitola with the best economic return possible while eliminating a current revenue drain; and
- To increase high-level visitor-serving days for the City and the Capitola Village.

Project objectives include rehabilitating the Rispin Mansion and providing public access to open space, a historically accurate garden, visitor-serving hotel, meeting and wedding facilities in accordance with City of Capitola land use policies and regulations. This restoration will create educational opportunities and public access to a historical area and natural open space, preserve local history, and provide a mechanism for habitat protection and enhancement. Finally, this project will provide employment opportunities and additional tax revenue for the City of Capitola, and will eliminate the current revenue drain associated with maintenance, insurance, and public safety calls to the site, which exists as an "attractive nuisance" for trespassing, vandalism, and related activities.[2]

PROJECT CHARACTERISTICS

The Rispin Mansion project proposes to restore the Rispin Mansion and the grounds on the northeast side of the intersection of Clares Street and Wharf Road. The total project area for the restoration would be less than one acre of land, of which approximately 90% will be devoted to restoring the historic gardens, the wall, the Mansion, and preservation of the monarch butterfly habitat. The City of Capitola would place under permanent conservation easements or deed restrictions the remainder of the Rispin Mansion site as open space, to maintain public access and protect biological resources. The project will add only one building at the south end of the property that contains eight visitor units, seven units north of and adjacent to the Mansion, a small glass-enclosed pavilion, a small addition to the well-house for operations and security, and a structure at the north side of the property for the Rispin Conservatory.

The currently proposed Rispin Mansion project would consist of the following:

- Restoration of the Mansion building with 13 guest rooms, living room, dining room, concierge area, small service kitchen, exercise room, and storage room;
- Construction of one new building with eight guest units on the south end of the site for visitor-serving accommodations ("South End Building");
- Construction of seven guest units north of and adjacent to the Mansion ("North End Guest Rooms"), including:
    - three units just north of and adjacent to the Mansion entirely below the level of the entrance to the Mansion and immediately beneath the laundry room/terrace,
    - one unit at the location of the laundry room/terrace,
    - three units northwest of the Mansion separated from the laundry room/terrace by a brick pathway where there is currently an existing foundation ("Poor Clares Rooms");

[2] According to a letter from the Chief of Police (see **Appendix G**), many of the more than 150 police responses to the Rispin property in 2002 required a Public Works response to fix the alarm, repair damage to the property, paint over graffiti, and to re-secure the building or fence. The Police Department, Public Works and other City departments are spending thousands of dollars each year in time and effort in attempting to keep the property secure and to limit the City's liability.

- Construction of the "Rispin Pavilion," a glass-enclosed structure, above three of the North End Guest Rooms, and placement of a tent structure adjacent to the North End Guest Rooms to provide a weather-proof setting on the north terrace and outdoor seating for the Rispin Pavilion;
- Construction of an office within the restored well-house, and small expansions below the existing well-house for security guard quarters and trash collection/ZEV parking;
- Construction of a new garden conservatory for weddings ("Rispin Conservatory");
- Restoration and addition of terraces (including the glass-covered Rispin terrace between the dining and living rooms), ADA pathways and handicap lifts, and stairways in and around the Rispin gardens and fountain area;[3]
- Improvements within the prism of the existing Rispin driveway and construction of five interim valet parking spaces south and west of the Mansion (near the well-house); and
- Use of the parking lot at the Clares/Wharf site to accommodate 60 spaces for the Rispin Mansion project and the existing library (expandable to 85 spaces for "event parking" through the use of a valet parking system).

The Rispin Conservatory and the dining room within the Mansion will be designed as "meet and eat" areas for corporate events. Weddings would be held weekends between the hours of 10:00 a.m. and 9:00 p.m., with meetings held weekdays between the hours of 8:00 a.m. and 5:00 p.m. Guest units will be in use 24 hours per day, 7 days per week.

Rispin Mansion Building and Grounds Rehabilitation

Under the proposed project, the Mansion would contain 13 guest rooms on three levels and the basement, a living room with wood-burning fireplace, a dining room, a concierge area, a small service kitchen, an exercise room, and a storage room. At least one of the units in the Mansion can double as meeting space. A historical display featuring Capitola and Rispin history is planned in the main Mansion building (see letter from the Director of the Capitola Historical Museum in **Appendix D**). One small room in the Mansion that was thought to be used for alcohol production during prohibition is proposed to be renovated and preserved for historic and educational purposes; this room will also be used for some storage. The Mansion is approximately 7,166 net square feet and 40 feet in height. The outdoor area located to the west of the Mansion (Rispin Garden) will contain formal gardens, a large lawn, a concrete wall, a sun dial, an overlook balustrade, a rose arbor, and a pool/fountain to attempt to recreate conditions of the property during Rispin's occupancy. In addition, the project proposes new interconnected pathways and handicap lifts that will provide accessibility as required by the Americans with Disabilities Act. The public will have access to the Mansion and gardens via the bike path and pedestrian bridge, as well as from Wharf Road.

In addition to the new buildings and connection features described below, site work proposed for the Rispin Mansion grounds includes the following:

- Removal and replacement of all existing utility lines underground;
- Removal of asphalt and concrete driveways/pathways, which are largely buried, and replacement with brick pavers and/or decomposed granite pathways with barriers to prevent people from accessing monarch butterfly habitat;

[3] This includes minor changes to the Rispin-Peery bicycle/pedestrian trail to accommodate site improvements.

- Development of pervious driveway improvements within the prism of the existing Rispin driveway, and five interim valet parking spaces;
- Installation of new water service, including fire and domestic lines to each of the existing and proposed buildings, using water-saving features such as low-flow fixtures, EPA Energy Star appliances, a recirculating fountain, and drip irrigation;
- Installation of a sewer pump that will be connected either with sewer lines along Wharf Road or Clares Street;
- Grading for the proposed new buildings and parking;
- Removal of three oaks (Rispin Conservatory) and four acacia clumps (South End Building);
- Construction of a six-foot tall cantilevered wall (non-contiguous footings so as to not disturb the butterfly habitat) along Wharf Road from the well house to south end property line to separate the site from the road;
- Landscaping with materials appropriate for the monarch butterfly habitat and riparian vegetation (see Habitat Enhancement/Adaptive Management Program discussion below);
- Incorporation of a monarch public education system with observation areas, plaques, etc.;
- Construction of a new wrought iron fence surrounding the remaining property to supplement the original wall;
- Construction of three arches along the entrance path that will be covered with monarch-favored vegetation;
- Rehabilitation and/or restoration of the following, using pictures of the original:
  - rose arbor,
  - sun dial,
  - north end rock wall near the Rispin-Peery trail,
  - overlook balustrade,
  - reflective pool/fountain,
  - grand stairway,
  - balustrade in cast stone,
  - brickway and terraces surrounding the lawn and fountain,
  - lawn and landscaping, and
  - the cast stone wall currently along Wharf Road.

The present condition of Rispin Mansion is not suitable for habitation due to fire damage, vandalism and natural deterioration over time. Most interior finish materials no longer exist. The work that is planned for the interior of Rispin Mansion includes asbestos testing and removal, testing the basement foundation, and strengthening the floor framing system. The following features of the Mansion are proposed to be repaired or restored, using historic photos, depending on their condition (i.e., features made of wood that have dry rot will be repaired or replaced to match existing features):

- Two structurally unsound chimneys;

- Doors;
- Window frames and sashes;
- Walls (including removing lath, which supported old plaster, and restoration with dry wall);
- Moldings; and
- Stairs and flooring.

In addition, the following will be added to the Mansion: new bathroom floors, hydronic heating, standard plumbing, electrical systems, insulation, gas, phone, and cable systems.

The following changes are proposed for the Rispin Mansion:

- Adding new windows and new doors;
- Removing and adding interior walls;
- Adding a small set of stairs on the east elevation;
- Adding a handicap elevator/lift along the west side of the Mansion;
- Removing and replacing roof;
- Rebuilding the main and secondary chimneys;
- Restoring by plastering wherever needed over the concrete walls;
- Removing mildew;
- Applying masonry surface conditioner; and
- Power washing and painting the exterior.

New Buildings Proposed

South End Building: Eight units (six at 480 square feet and two at 416 square feet) in a single, low-profile building are proposed at the south end of the site. The building will be a stepped building with a two-story configuration and a maximum building height of no more than 17 feet above the existing grade, slanting to only 11 feet above existing grade at its eastern edge. The roof has been redesigned to accommodate plantings to provide additional windscreen protection, dappled lighting, and nectar for the monarchs. The building has been redesigned to have slanted windows on its east side, which can be sealed off during the monarch's overwintering period. Lattice will be part of the exterior walls of the building to support ivy or other nectar sources for the monarchs and to help shield the building from view from historic areas of the Mansion site. The units will have gas-burning fireplaces. A pedestrian pathway (of decomposed granite and brick pavers) and a boardwalk supported by piers will provide access to the building. Four acacia clumps would be removed for construction of this building.

North End Guest Rooms: The project is proposing to construct seven units just north of the Rispin Mansion and just south of the Rispin-Peery trail. This area would include the following development:

- Three units of 352 square feet would be constructed below the existing terrace and "laundry room,"[4] at the level of the north end entry to the Mansion. The terrace will be excavated so that the units are hidden entirely below the level of the existing terrace and laundry room and will be accessed by a new stairway on the north side of the laundry room. The units will each have a private balcony, and a new brick terrace is proposed just east of these units.
- One unit (352 square feet) at the location of the existing "laundry room" would be constructed at the same elevation as the north end entry to the Mansion with entrance provided by the new stairway described above.
- The existing terrace and the former laundry room at the north entrance to the Mansion would be removed for construction and reconstructed in place.
- Three units of 336 square feet each would be constructed west of the "laundry room" and terrace on the site of an existing foundation created during Poor Clares' occupancy of the site. A brick walk will separate the units from the terrace and will lead to the service road that connects to the Rispin Conservatory. The applicant has proposed planting the flat roofs of these units with sod or use of other natural material to keep them out of view from the historic lawn area, especially the overlook balustrade.

Rispin Pavilion: A 704 square-foot glass-enclosed pavilion is proposed on the roof of three of the North End Guest Rooms. The pavilion will have a gas-burning fireplace, tables and chairs, and will be used for morning and afternoon food and beverage services and for afternoon wine for hotel guests. It will also be open to the public for small meetings on a scheduled basis.

Well-house: The well-house will be restored and expanded for operations and security uses. It will have a small office and sleeping quarters in a total of approximately 653 square feet (353 existing and 300 additional). A 512 square-foot subterranean garage will be constructed below the well-house for trash collection, bike parking, and ZEV parking/charging/maintenance. An existing well, which is unused and unsealed and has been vandalized, will be cleaned and properly abandoned or reused for landscape watering. In order to clean the well, all or a portion of the building will be demolished (and subsequently reconstructed/restored to meet historic requirements).

Rispin Conservatory: A 1,950 square-foot banquet facility for weddings and/or meetings of 49 people or less (except by special permission from the City Council) will be constructed on an existing disturbed area of the site just east of Wharf Road and just south of the Rispin-Peery bicycle/pedestrian trail. The building will include a kitchen, restrooms, a wood-burning fireplace, a handicap lift, and a place for refuse collection. This building will be shielded from view from the historic lawn area by landscape planting. Three oaks trees would be removed for construction of this building.

Joint-Use Parking Lot Program

In addition to improvements on the Rispin Mansion site east of Wharf Road, the project is proposing to improve the parking lot on the west side of Wharf Road, north of Clares Street. The improvements to the parking lot include the following:

- Striping of 60 spaces on the approximately ½-acre existing paved area (expandable to 85 spaces for "event parking" through the use of a valet parking system);

[4] The "laundry room" is an existing concrete structure north of the Mansion that currently has four walls and no roof. The room was historically used as the Mansion laundry room.

- Designation of 10 spaces as library use only during hours of library operation, including two handicapped spaces;
- Planting trees surrounding the parking lot to screen the lot from adjacent residential uses and within the parking lot in raised planters;
- Installation of safety lighting; and
- Construction of a valet kiosk.

Parking at the joint-use lot will be regulated by the use permit issued by the City. To coordinate events at the Rispin Mansion with parking demand, all events will be on a scheduled basis. With appropriate scheduling and use of the valet parking system, it is anticipated that the joint-use parking lot will provide ample parking for the library and Rispin Mansion uses at all times (see **4.7 Traffic and Circulation**). In the unlikely situation that the valet parking capacity of the joint-use lot is exceeded, there is a fall-back option: creation of a shuttle system between the Pacific Cove parking lot behind City Hall and Rispin Mansion. In addition, if and when appropriate, Rispin management may institute a policy wherein employees shuttle or carpool from the Pacific Cove parking lot.

Habitat Enhancement/Adaptive Management Program

In order to preserve and enhance adjacent and on-site biological resources, namely the monarch butterfly overwintering habitat as well as the riparian and steelhead habitat, the applicant is proposing multiple design elements and programs for the protection and betterment of these resources over time. These include, but are not limited to, reduced tree removal; stormwater drainage and treatment improvements; use of permeable materials for pathways; a program for removal of exotic and invasive plant species; restoration of existing and prevention of future informal trails down to Soquel Creek; and a whole suite of measures for the benefit of monarch butterflies and their overwintering habitat, such as the Mode A/B Site Operation Program, a monarch public education system, working with neighbors to take a more widespread approach to enhancing monarch habitat, and funding additional studies aimed at enhancing the south end of the Rispin site. These design elements and programs are discussed further in the following sections: **Geology and Soils**, **Hydrology and Water Quality**, and **Biological Resources**.

Conservation/Preservation Easements

In keeping with several of the project objectives, to assure permanent protection for the historical and biological resources of the Rispin property, and to maintain public access, a system of conservation and preservation easements is proposed. According to the applicant, over 93% of the Rispin site will either remain in public ownership and/or will be covered with habitat conservation and historic preservation easements. Maps in the attached document indicate the proposed land division of the Rispin property into areas that need private financing and areas that will remain in the public domain. In the areas where private financing is necessary to fund the proposed improvements, there will be a habitat conservation easement over the monarch butterfly habitat and a historic preservation easement over the buildings and grounds of the old Rispin Mansion, both of which would be irrevocable restrictions running with the land in perpetuity. A habitat conservation easement will also be placed over the riparian area. The Land Trust of Santa Cruz County is interested in working with the project applicant and the City of Capitola toward implementing and enforcing these easements (see letter in **Appendix G**).

Project Phasing and Schedule

Construction of the proposed Rispin Mansion project (including rehabilitation) is scheduled to begin in the year 2003, with completion during 2004.

SITE DESIGN CONSIDERATIONS

Utilities

The project requires installation of new water service, including fire and domestic lines to each of the existing and proposed buildings. The Rispin Mansion project requires installation of a sewer pump station that will be connected to existing sewer lines on Wharf Road or Clares Street. The Soquel Creek Water District will provide water service to the site and sewer service will be provided by Santa Cruz County Sanitation District. Electrical and telephone services will be provided by Pacific Gas & Electric (PG&E) and Pacific Bell, respectively. The applicant will be required to provide on-site facilities to meet the demand for these services. These services are discussed in more detail in the **Public Services** section of this EIR.

Grading

The Rispin Mansion site requires some grading to accommodate proposed buildings and uses. The site requires exporting a total of approximately 1,013 cubic yards (cy) of soil (1,423 cy of cut, 410 cy of fill); the soil will be exported to an approved disposal or stock-pile site as chosen by the contractor. Grading for the project includes 610 cy of cut for the South End Building and associated pathways; 640 cy of cut for the well-house expansion and adjacent parking spaces; 133 cy of cut for the North End Guest Rooms; 40 cy of cut for other on-site pathways; and 410 cy of fill for the Rispin Conservatory. See the **Geology and Soils** section for more information.

Storm Water Drainage

Storm water runoff at the Rispin project site flows as sheet flow to Soquel Creek and then to the Monterey Bay. Currently, less than 10% of the Rispin site is covered with impervious surfaces. The project will result in an approximate 6,025 square-foot increase in impervious surfaces on the site due to the construction of buildings, pathways, and parking. The parking lot site is currently paved. See the **Hydrology and Water Quality** section for more information.

Traffic/Circulation Improvements

The street network and parking facilities at and near the Rispin site will be improved as necessary to maintain safety and minimize congestion during construction and post-construction activities. This will include curbs, gutters, signing, striping, road improvements, and parking in accordance with applicable City standards and regulations. See the **Traffic and Circulation** section of this EIR for more information.

PROJECT CHANGES SINCE 2000 RECIRCULATED DRAFT EIR

In response to issues raised in and comments on the 2000 Recirculated Draft EIR, as well as due to changes in circumstances, the following components of the project discussed in that document have been eliminated:

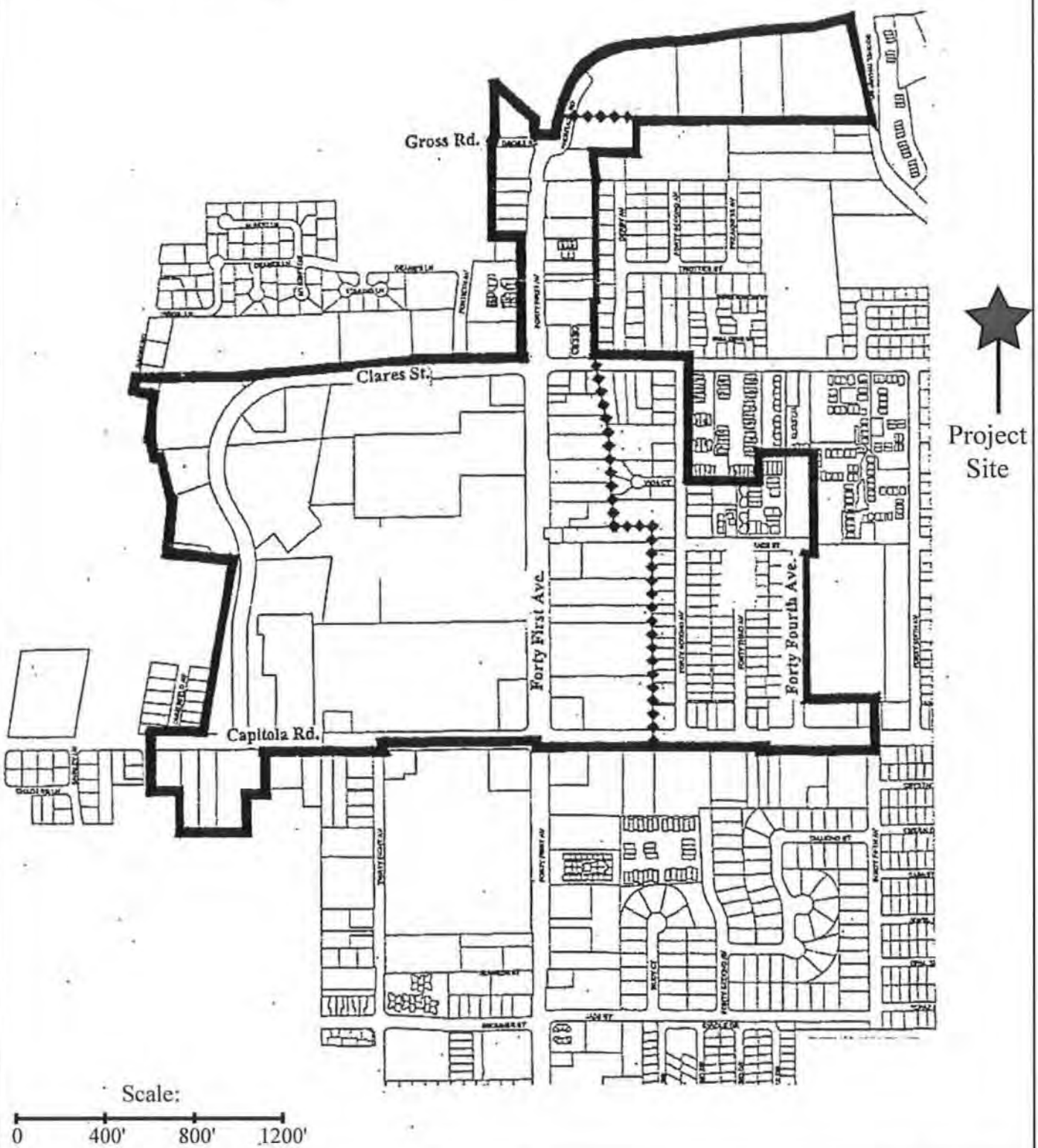
- Garage Units;
- Deliveries driveway on north side of the project site;
- Valet turn-out on Wharf Road; and
- Mini-park project.

In addition to project components that have been eliminated, a few notable changes have been made to the previous project. The south end units are now in a single, compact building instead of two buildings. Also, site access will be provided via zero-emissions vehicles (ZEVs), which may drive on public streets, instead of golf carts. In addition, preservation and enhancement of the on-site and adjacent biological resources is now a fundamental component of the overall Rispin project. To that end, many of the mitigation measures contained herein have already been incorporated into the project planning and design.

REDEVELOPMENT PLAN AMENDMENT

The Redevelopment Plan for the Capitola Redevelopment Project was adopted June 24, 1982, and since that time has been amended twice. **Figure 3-3** shows the location of the existing Redevelopment Project Area. A new amendment to the Redevelopment Plan is proposed which would add the Rispin Mansion property and the adjacent library and municipal parking lot to the Redevelopment Project Area (see **Figure 3-4**). The Redevelopment Plan amendment would also include various revisions to existing limitations in the Redevelopment Plan related primarily to financing, including time limits on incurring indebtedness, receipt of tax increment and the effectiveness of the redevelopment plan, which would not affect the physical development of the property.

Source: City of Capitola



N

Redevelopment Project Area

Figure 3-3

Source: Joe L. Akers, November 5, 2002

Scale: 1" = approximately 200'

LINE TABLE		
LINE	BEARING	LENGTH
L1	N89°18'13"W	206.91
L2	N00°26'45"E	379.03
L3	S89°18'13"E	104.12
L4	N14°33'18"W	61.03
L5	N25°25'33"W	50.94
L6	N37°28'00"W	55.64
L7	N56°29'21"W	114.50
L8	N51°13'55"E	380.86
L9	S11°56'56"E	126.74
L10	S04°59'36"W	81.61
L11	S29°00'34"E	572.55
L12	S02°39'09"W	342.01
L13	S65°33'26"W	246.38
L14	N15°19'45"W	330.15

N

Amended Redevelopment Project Area (proposed)

Figure 3-4

REQUIRED PERMITS AND APPROVALS

The EIR is an informational document for the public and decision-makers. CEQA requires decision-makers to review the EIR in their consideration of this project. This EIR provides the environmental documentation required under CEQA and will apply to the following discretionary/ministerial approvals for the project by public agencies.

The Rispin project requires approval of the City of Capitola (the Lead Agency) for the following:

- Architectural site review;
- Conditional use permit;
- Coastal development permit from the California Coastal Commission (pursuant to the California Coastal Act) and/or local coastal program amendment to shift coastal development permit jurisdiction from the Coastal Commission to the City of Capitola;
- Demolition permit;
- Amendment of the Capitola Redevelopment Plan and related approvals;
- Rezoning site to "planned development;"
- Placement of the buildings and grounds of the old Rispin Mansion under a permanent historic preservation easement;
- Placement of the remainder of the Rispin Mansion site under permanent conservation easements or deed restrictions as open space, to maintain public access and protect biological resources; and
- Other related entitlement actions, including but not limited to any public infrastructure grant programs and a possible Development Agreement between the City and the project applicant.

4.0 ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

♦♦♦

ORGANIZATION

This chapter describes each of the environmental categories potentially affected by the proposed project. Each category consists of three parts: *Introduction, Setting*, and *Impacts and Mitigation Measures*.

The *Introduction* identifies any technical studies that form the basis for analysis. The *Setting* describes the environment in the vicinity of the project, as it exists before the commencement of the proposed project, from both a local and regional perspective. In addition, it describes applicable regulations and policies when appropriate and applicable. The *Impacts and Mitigation Measures* section describes all potentially significant environmental effects of the proposed project. Project-specific impacts are described as less-than-significant, significant (or potentially significant), or significant and unavoidable. The specific criteria for determining the significance of a particular impact are identified prior to the impact discussion in each issue section and are consistent with significance criteria set forth in CEQA Guidelines, local standards, and/or professional judgment. Mitigation measures are recommended for each significant environmental effect identified in the EIR. Cumulative impacts are described at the end of each relevant section and/or in **5.0 CEQA Considerations**.

A separate *Mitigation Monitoring Program* (as required by Public Resources Code §21081.6) will be developed in conjunction with the Final EIR, outlining the mitigation measures and the monitoring and reporting methods that will be employed. The *Mitigation Monitoring Program* will be considered for adoption by the City of Capitola when certification of the Final EIR is considered.

Determination of Significance

Under CEQA, a significant impact is defined as a substantial, or potentially substantial, adverse change in the environment (Public Resources Code §21068). The guidelines implementing CEQA direct that this determination be based on scientific and factual data. The criteria for determining the significance of a particular impact are identified prior to the impact discussion in each category, and are consistent with significance criteria set forth in the guidelines implementing CEQA.

This page intentionally left blank.

4.1 LAND USE AND PLANNING

♦ ♦ ♦

INTRODUCTION

This section describes the land use issues of the development site and the surrounding areas. This section evaluates the site plan for consistency with relevant land use, zoning, and environmental policies of the City of Capitola and other responsible agencies; and potential compatibility between the proposed Rispin Mansion project and existing surrounding land uses.

SETTING

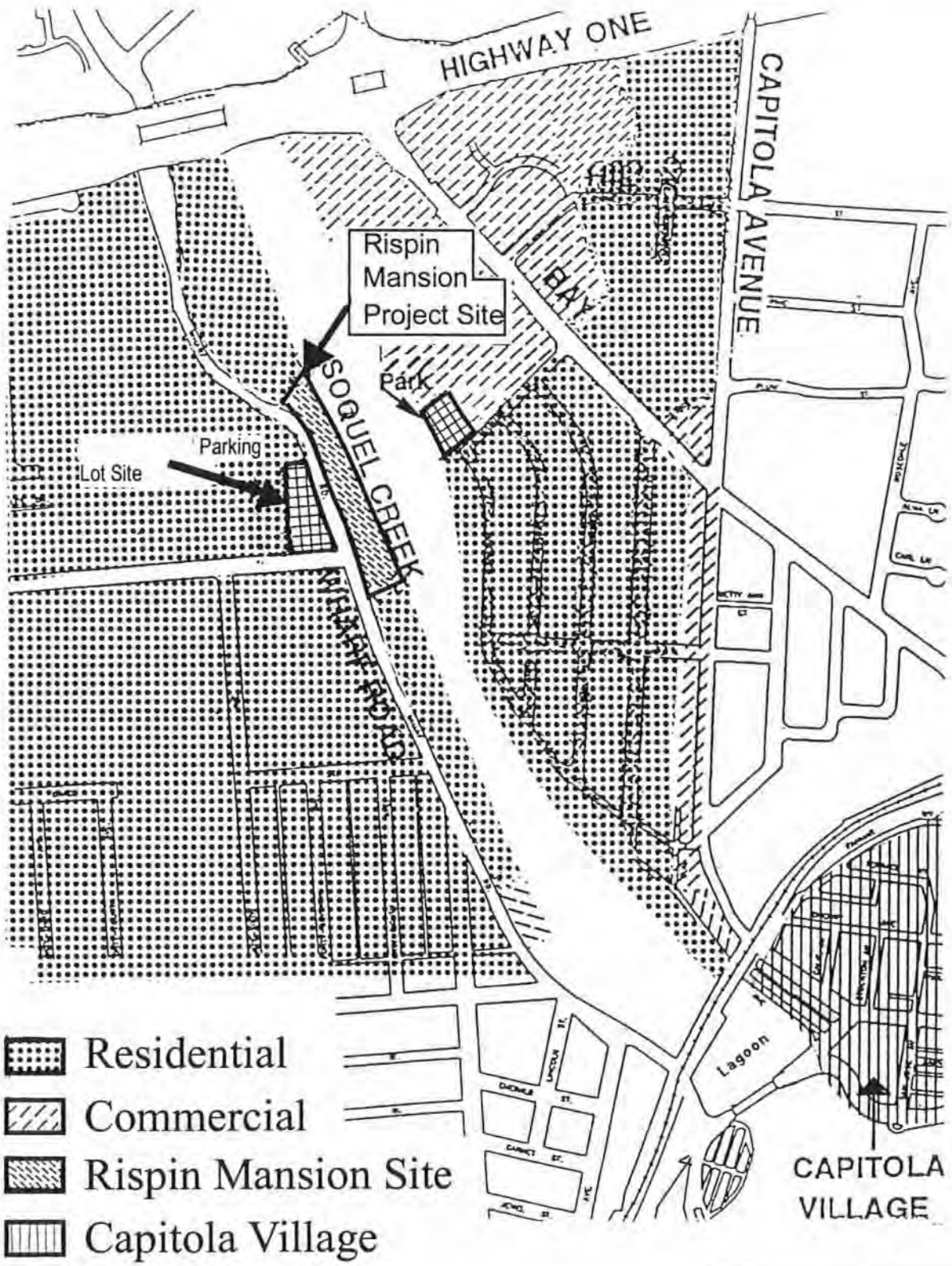
Regional Setting

The proposed project site is located in the City of Capitola in Santa Cruz County. The City of Capitola is located 3 miles east of the City of Santa Cruz on the northern side of the Monterey Bay. The City of Capitola is an urbanized coastal community located in the County of Santa Cruz between the communities of Aptos, Soquel, and Santa Cruz. The site is located west of Soquel Creek and south of Highway 1. The proposed Rispin Mansion project sites consist of 6.5 acres of land located between Wharf Road and Soquel Creek and an approximately ½ acre site on the west side of Wharf Road across from the Rispin Mansion site (the parking lot site). The regional and vicinity locations are shown in **Figure 3-1** in **3.0 Project Description**.

Existing and Surrounding Land Uses

The Rispin Mansion site currently contains the vacant deteriorated Rispin Mansion and garden/outdoor features, uncontrolled non-native and native vegetation, a partially destroyed well-house, and various deteriorating building foundations and driveways. In addition, a pedestrian and bicycle recreational trail (the Rispin-Peery trail) enters the site just north of the Mansion after crossing a bridge over Soquel Creek and switches back to connect with the Rispin driveway up to Wharf Road. The proposed joint-use parking lot is an existing paved area.

The Rispin Mansion site is bounded by Soquel Creek to the east, open space to the north, a multiple-family residential development to the south, and a residential care facility, multiple- and single-family residences, and the parking lot/library site to the west. Across Soquel Creek, there are also single-family residences. **Figure 4-1** schematically shows land uses surrounding the two sites.



N

Surrounding Land Use

Figure 4-1

Land Use Plans and Policies

City of Capitola General Plan

Land use on the project site is guided by the City of Capitola General Plan (General Plan), which was adopted in 1989, amended in January 1993 to update the Housing Element and in May 1996 with respect to the five–acre Clares/Wharf site. The General Plan contains land use designations, goals, policies and programs related to seven mandatory elements: Land Use, Circulation, Housing, Conservation, Open Space, Noise and Safety as required by California planning law. In addition, the General Plan includes goals, policies and programs relevant to the City's Local Coastal Program (LCP). The LCP and Coastal Act policies are described later in this section.

The following goals and policies (as amended May 8, 1996) are pertinent to the project. A complete list of relevant policies and goals is included in **Table 1**.

GOAL: Maintain Capitola's existing small-town scale, character, and flavor.

GOAL: Ensure that all new construction or reconstruction is compatible with existing uses.

Policy 1: Control scale and bulk of structure through appropriate controls in the Zoning Ordinance and in the Architectural and Site Design and Review process.

GOAL: Utilize existing City-owned parcels to provide additional community facilities and amenities to the extent feasible. Consider the sale of City-owned property if it is determined that the land is no longer needed to accommodate public purposes.

The 1987 "Rispin Report" recommended a combination of seven public/quasi-public functions to be accommodated at the Mansion, including museum-type space, theater/presentation space, rental space, gift shop, artists-in-residence program, meeting space, small-scale food service. The Rispin Steering Committee's recommendation for use of the site as a bed and breakfast inn included bedrooms, a dining area (open to the public at some times), meeting space, historic and art exhibit space, restoration of the riparian area, managed nature trails, the Rispin-Peery Bicycle/Pedestrian Bridge, a small outdoor performance area, restoration of the Rispin Gardens, and potential use of the Gardens and Mansion for weddings. As currently proposed, the Rispin project accommodates several of these uses as follows:

- meeting space (Rispin Conservatory, Rispin Terrace, Rispin Pavilion, and outdoor spaces; also, the living room and specified guest room(s) within the Mansion);
- bedrooms (the Mansion, North End Guest Rooms, and South End Building);
- museum-type/historic and art exhibit space (a historical display featuring Capitola and Rispin history is planned in the main Mansion building; one small room in the Mansion that was thought to be used for alcohol production during prohibition is proposed to be renovated and preserved for historic and educational purposes);
- restoration of the riparian area (see **4.4 Biological Resources**);
- managed nature trails (monarch butterfly education along managed pathways; see **4.4 Biological Resources**);
- restoration of the Rispin Gardens; and
- wedding uses (Rispin Conservatory, restored Rispin Gardens and grounds).

General Plan goals and policies regarding circulation, housing, conservation, open space, noise and safety that are relevant to the proposed project are shown in **Table 1** (at the end of this chapter) with their consistency determination.

Site and Surrounding Areas Land Use Designations: The General Plan land use map designates the entire Rispin Mansion site as "PF/VS" (Public Facility, Visitor Serving). The library/parking lot site is designated as "PF" (Public Facility). The land use designations adjacent to the site include the following (see **Figure 4-2**):

- *Across Soquel Creek (directly east of the Rispin project site):* low-medium density residential, R-LM, (5-10 units/acre).
- *Northeast of the Rispin site, across Soquel Creek:* (1) Nob Hill Shopping Center designated "C-SR" (Commercial - Shopping Regional); (2) the Santa Cruz County Sanitation District sewer pump station designated "PF" (Public Facilities); and (3) the City's Peery Park designated "P" (Parks and Open Space). This area is connected to the Rispin site and Wharf Road via a pedestrian/bicycle bridge and trail.
- *To the west of the Rispin Site:* the library/parking lot site designated "PF" and various residential uses (medium and medium-high densities).

Local Coastal Program

Because the majority of land in Capitola is located within the coastal zone, the City was required to develop and adopt an LCP to address the specific requirements of the California Coastal Act. Because the LCP includes specific policies related to the General Plan elements, the policies in the 1987 LCP were incorporated into the 1989 General Plan. It should also be noted that the Rispin Mansion project site falls at least partially within the coastal zone and the development will require a coastal development permit. Since the site is within an Area of Deferred Certification (i.e., the Local Coastal Program for the site has not been certified by the Coastal Commission), the Coastal Commission, rather than the City of Capitola, would process the coastal development permit for this project. (See discussion of the California Coastal Act below). Alternatively, the City could submit an amendment to the Local Coastal Program which, if certified, would result in transfer of permit jurisdiction to the City.

The following LCP policies related to this project are incorporated into the General Plan. The consistency of the project with these policies is found in **Table 1**.

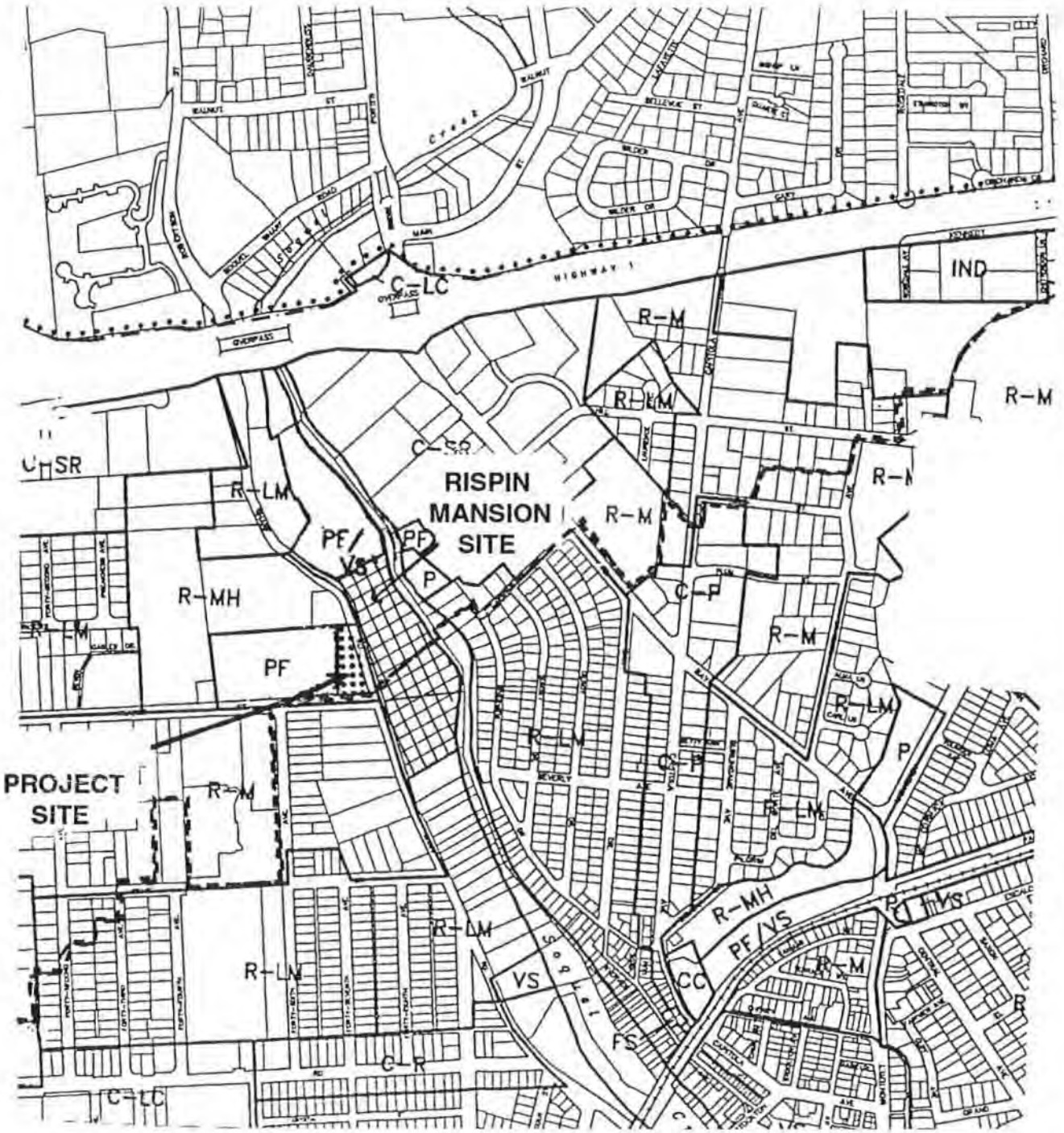
Policy 16: The City shall designate the following areas visitor serving and/or recreation uses:

(a) the Capitola Village commercial area

(b) all sandy beaches

(c) the Wharf

(d) New Brighton State Beach



Coastal Zone Boundary

Source: City of Capitola, General Plan

N

General Plan Land Use Designation

Figure 4-2

(e) El Salto Resort properties

(f) the Shadowbrook Restaurant property

(g) the Rispin parcel

(h) vacant lands between New Brighton State Beach and McGregor Drive.

Policy 17: Areas designated as visitor serving and/or recreational shall be reserved for visitor support services or recreational uses. Permissible uses include, but are not limited to, hotels, motels, hostels, campgrounds, food and drink service establishments, public facilities, public beaches, public recreation areas or parks, and related rental and retail establishments. Residential uses are also permitted on dual designated "visitor serving/residential" parcels: specifically, the Rispin Mansion parcels, a portion of the El Salto Resort, and in the Village area. Development can be accomplished through private or public means.

Figures 3-1 and **4-2** show the boundary of the coastal zone. The uses proposed by the project within the coastal zone include restoration of the Mansion and its grounds, construction of visitor serving accommodations, creation of a public garden and associated access features, and related improvements (i.e., grading, parking and pathways) to the site.

City of Capitola Zoning Ordinance

The Rispin Mansion site is within the "AR/VS/R" (Automatic Review, Visitor-Serving, Residential) zoning district. The "AR" (Automatic Review) districts are created to fulfill General Plan and/or Local Coastal Program land use plan requirements in special cases where no other zoning district could effectively accomplish the same task. This district designation is not intended to grant development privileges beyond the guidelines of the General Plan; any project or use in the AR District requires a Conditional Use Permit. The visitor-serving district at this site is an overlay district, which means "regulations imposed upon any area as a result of being a VS district, are in addition to those of the underlying district." In this case, the underlying district is "residential," although the specific residential district is not defined. The one additional restriction required for visitor-serving districts set forth in Section 17.30.020 (imposed in addition to restrictions on residential) is that no development permits shall be approved or issued unless they meet the requirements of the Local Coastal Program for visitor serving areas. The southern portion of the site is within the coastal zone, so it is within the jurisdiction of the Local Coastal Program – however, it is considered an Area of Deferred Certification, as described above. Therefore, a coastal development permit must be obtained from the California Coastal Commission or the City must amend its Local Coastal Program for this area and it must be certified for the City to obtain permitting jurisdiction.

The Rispin Mansion site is proposed to be rezoned to Planned Development (PD) to allow the Planning Commission to determine site-specific development standards for area coverage, density, yard requirements, parking and screening. The purpose of PD districts is to encourage and provide a means for effectuating desirable development, redevelopment, rehabilitation and conservation in the City, for sites which feature variation in siting, mixed land uses and/or varied dwelling types.

The joint-use parking lot site is designated as "PF F/P" (Public Facility – Parks, Open Space, and Facilities). In Section 17.42.040 public facilities are defined to include "all facilities owned, leased or operated by city, county, state or federal government, and school or other districts."

In addition, public or private schools and colleges and universities, and facilities incidental or appurtenant to the educational use are allowed. The joint-use parking lot site is located outside the coastal zone.

The City of Capitola zoning ordinance also contains an Environmentally Sensitive Habitat (ESH) ordinance. The relationship of this ordinance to the project is described in **4.4 Biological Resources.**

Redevelopment Plan

The Redevelopment Plan for the Capitola Redevelopment Project was adopted June 24, 1982, and since that time has been amended twice. **Figure 3-3** shows the location of the existing Redevelopment Project Area. A new amendment to the Redevelopment Plan is proposed which would add the Rispin Mansion property and the adjacent library and municipal parking lot to the Redevelopment Project Area (see **Figure 3-4**). The Redevelopment Plan amendment would also include various revisions to existing limitations in the Redevelopment Plan related primarily to financing, including time limits on incurring indebtedness, receipt of tax increment and the effectiveness of the redevelopment plan, which would not affect the physical development of the property. Addition of the Rispin Mansion property, adjacent library and municipal parking lot to the Redevelopment Project Area would enable the Redevelopment Agency to utilize tax increment revenues from the existing Redevelopment Project Area to assist with the redevelopment of the property and the elimination of the blighted conditions which exist there.

Other Plans/Policies

Air Quality Management Plan: The Monterey Bay Unified Air Pollution Control District (MBUAPCD) prepared the 2000 Air Quality Management Plan (AQMP) that contains goals, objectives, and policies to meet and/or maintain state ambient air quality standards. Because the project is a visitor serving residential and public facility development, consistency with the 2000 AQMP is determined on a case-by-case basis. Details of the consistency determination are found in **4.9 Air Quality**.

Congestion Management Plan: The Santa Cruz County Congestion Management Plan (CMP) is prepared in accordance with State law and contains policies and standards that seek to improve the efficiency of the transportation network, decrease the use of single-occupant vehicles, and coordinate congestion management with land use and air quality planning decisions. The CMP identifies a network including arterials and intersections that are considered regionally significant. The CMP identifies level of service (LOS) standards for freeways, principal arterials and intersections as benchmarks on which to focus the monitoring and maintenance of acceptable service levels. In accordance with CMP requirements, a "Deficiency Plan" must be prepared when an intersection LOS drops below the CMP standard. The Deficiency Plan identifies improvements and other trip reduction measures to improve operations to the desired goal for roadway segments or intersections operating below adopted CMP LOS standards. The Highway 1 north and southbound intersections with 41st Avenue, which are the only CMP intersections in the project vicinity, are evaluated in the traffic analysis.

California Coastal Act: The California Coastal Act (California Public Resources Code sections 30000 et seq) was enacted by the State Legislature in 1976 to provide long-term protection of California's 1,100-mile coastline for the benefit of current and future generations. The Coastal Act created a unique partnership between the State (acting through the California Coastal

Commission) and local government (15 coastal counties and 58 cities) to manage the conservation and development of coastal resources through a comprehensive planning and regulatory program. The 1976 Act made permanent the coastal protection program launched on a temporary basis by a citizen's initiative that California voters approved in November 1972 (Proposition 20 – the "Coastal Conservation Initiative"). The Act's coastal resources management policies and governance structure are based on recommendations contained in the California Coastal Plan called for by Proposition 20 and adopted by the Coastal Commission in 1975 after three years of planning and hundreds of public hearings held throughout the State.

For the portion of the Rispin site that is in an Area of Deferred Certification, the project requires a Coastal Permit from the California Coastal Commission as required by the Coastal Act. To obtain this permit, the applicant must apply to the California Coastal Commission, which evaluates the proposed project for consistency with the Coastal Act polices. **Table 1** contains a consistency analysis of the project with relevant Coastal Act policies. The project's consistency with Coastal Act policies in relation to environmentally sensitive habitats and other biological resources is described in greater detail in **4.4 Biological Resources**.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

In accordance with the State CEQA Guidelines and other professional standards, this analysis assumes that the proposed project would have a significant impact on land use if it would:

- conflict with adopted General Plan goals, designations or policies;
- conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project;
- be incompatible with surrounding land uses in the vicinity;
- affect agricultural resources or operations; or
- disrupt or divide the community (including low-income or minority community).

The Rispin Mansion project proposes to restore the historic Rispin Mansion and grounds, and to develop visitor-serving accommodations and facilities. The proposed project does not affect agricultural resources or operations, and does not disrupt or divide any low-income or minority communities. Conflicts with specific applicable environmental plans or policies adopted by agencies with jurisdiction over the project are discussed in the relevant sections of this EIR.

Land Use Compatibility

The project proposes a visitor-serving land use in an area surrounded by a variety of land uses. The project is considered to be generally compatible with surrounding land uses due to the buffers provided and variety of land use types in the local area. Some noise may be generated by the proposed project that may be considered to be a noise nuisance impact. This impact is discussed in detail in **4.8 Noise**.

Table 1 at the end of this chapter shows the project's consistency with applicable plans and policies in the City's General Plan/Local Coastal Program and the California Coastal Act. In

some cases, the project is consistent with implementation of mitigation measures in this EIR, or with the policy changes that are proposed prior to approval (as described above). Project consistency with issue-specific policies is discussed in the relevant sections of this EIR. When the project is not consistent with specific policies, this is considered a significant impact. Where mitigation exists for these impacts, mitigation is included in the EIR to reduce the impacts to a less-than-significant level. If no mitigation exists which can reduce the impact to a level of less-than-significant, the impact is considered significant and unavoidable.

City of Capitola General Plan: Generally, consistency exists between a proposed project and the General Plan when the changes proposed are compatible with, and do not obstruct the attainment of the objectives, land uses, and programs specified in the General Plan. The project is consistent with the land use map designation of "PF/VS" (Public Facility, Visitor Serving) because the project proposes the following uses: visitor-serving accommodations, meeting space, and public access/open space guaranteed by appropriate property restrictions (e.g., conservation easements or deed restrictions). Therefore, the project is generally consistent with overall policies and goals of the General Plan.

CUMULATIVE LAND USE IMPACTS

See **5.0 CEQA Considerations**.

Table 1
Project Consistency with General Plan, LCP, and Coastal Act Policies

Policy #	Policy	Project Consistency
GENERAL PLAN LAND USE ELEMENT		
1	Control scale and bulk of structure through appropriate controls in the Zoning Ordinance and in the Architectural and Site Design and Review process.	Consistent as proposed
16 (LCP)	The City shall designate the following areas visitor serving and/or recreation uses: (a) the Capitola Village commercial area, (b) all sandy beaches, (c) the Wharf, (d) New Brighton State Beach, (e) El Salto Resort properties, (f) the Shadowbrook Restaurant property, (g) the Rispin parcel, (h) vacant lands between New Brighton State Beach and McGregor Drive.	Consistent as proposed
17 (LCP)	Areas designated as visitor serving and/or recreational shall be reserved for visitor support services or recreational uses. Permissible uses include, but are not limited to, hotels, motels, hostels, campgrounds, food and drink service establishments, public facilities, public beaches, public recreation areas or parks, and related rental and retail establishments. Residential uses are also permitted on dual designated "visitor serving/residential" parcels: specifically, the Rispin Mansion parcels, a portion of the El Salto Resort, and in the Village area. Development can be accomplished through private or public means.	Consistent as proposed
GENERAL PLAN OPEN SPACE, PARKS & RECREATION ELEMENT		
17	Multiple use of public and quasi-public facilities for park and open space purposes should be made whenever possible.	Consistent as proposed
21 (LCP)	It shall be the policy of the City of Capitola to provide for new park sites to fill the existing City park needs. It is also the policy of the City to ensure the protection of passive open spaces through proper development design and permit conditions.	Consistent as proposed (publicly open gardens & open space)
22 (LCP)	The City shall develop and acquire active park and passive open space sites sufficient to meet the recreational needs of the community.	Consistent as proposed (publicly open gardens & open space)
23	The Rispin Property is a unique and historic cultural resource. Any future restoration of the property shall be undertaken in such a manner so as to enhance its cultural value to the community.	Consistent after implementation of mitigation R-45 through R-48
24 (LCP)	It shall be the policy of the City of Capitola to provide for the protection, preservation, and proper disposition (where necessary) of archaeological, historical, and paleontological resources within Capitola. This policy shall be implemented in cooperation with the landowners, developers, State Historic Preservation Office and the Archaeological Regional Research Center.	Consistent after implementation of mitigation R-43 through R-48
35	Because of the environmental sensitivity of the natural ecosystem, the City will maintain existing pathways and park sites for public use, but will prevent further disruption that might occur because of expansion of path systems along Soquel Creek.	Consistent as proposed
GENERAL PLAN CONSERVATION ELEMENT		
12 (LCP)	Parking lots and storm drains, and storm water runoff culverts shall be improved by installing energy dissipators and sand traps or other types of grease/sediment traps in conjunction with new development or intensification of use.	Consistent after implementation of mitigation R- 7 and R-8

Table 1
Project Consistency with General Plan, LCP, and Coastal Act Policies

Policy #	Policy	Project Consistency
13 (LCP)	The City shall, as a condition of new development, ensure that run off does not significantly impact the water quality of Capitola's creeks and wetlands through increased sedimentation, biochemical degradation or thermal pollution.	Consistent after implementation of mitigation R-6 through R-9
18 (LCP)	It shall be the policy of the City to protect the winter resting sites of the Monarch Butterfly in the eucalyptus groves of Escalona Gulch and Soquel Creek as designated on Map VI-2 (see map on page 43 of the General Plan) by requiring detailed analysis of the impacts of development on the habitat.	Consistent (see **4.4 Biological Resources** and **Appendix C** for this "detailed analysis")
GENERAL PLAN SAFETY ELEMENT		
6	Emergency routes for fire and police shall be accessible at all times and shall be kept free of traffic obstacles.	Consistent as proposed
12 (LCP)	The City shall require all new building plans, for public use structures or multi-residential (more than three units), to conform with the Uniform Building Code construction standards.	Consistent as proposed
13 (LCP)	It shall be the policy of the City of Capitola to adequately plan for natural hazards in new development, reduce risks to life and property, and revise all plans and the Zoning Ordinance to be in conformance with all policies of the Coastal Act relating to hazards and shoreline structures.	Consistent as proposed
14 (LCP)	All geologic/engineering reports required by the City pursuant to the policies of this component shall be prepared according to the guidelines for practice issued by the California Division of Mines and Geology, specifically CDMG notes Numbers 37 (Guidelines on Geologic/Seismic Reports), 43 (Recommended Guidelines for Determining the Maximum Probably Earthquakes), 44 (Recommended Guidelines for Preparing Engineering Geologic Reports) and interpretative Coastal Commission Guidelines for Bluff Top Development.	Consistent after implementation of mitigation R-1
GENERAL PLAN NOISE ELEMENT		
2	Ensure that new development or proposed changes to development mitigate noise to acceptable levels.	Consistent after implementation of mitigation R-59 through R-61
GENERAL PLAN CIRCULATION ELEMENT		
1	Level of service C shall be the acceptable standard for circulation within the City with the exception of the Village area. As used in this provision, the Village is defined as the area bounded by the beach, the railroad right-of-way, Monterey Avenue, and Soquel Creek.	Consistent after implementation of mitigation R-54 and C-5, C-6 and C-9
3	Major developments or General Plan amendments will be required to demonstrate that the desired level of service is maintained.	Consistent after implementation of mitigation R-54 and C-5, C-6 and C-9
32	Require bicycle parking or storage facilities at new private and public developments where appropriate.	Consistent as proposed
36	Where feasible and consistent with the Pedestrian Plan, pedestrian facilities should be provided along the frontage of new development.	Consistent as proposed

Table 1
Project Consistency with General Plan, LCP, and Coastal Act Policies

Policy #	Policy	Project Consistency
38	All new development in the City shall provide parking consistent with the requirements identified in the parking ordinance or in an estimate of parking demand, whichever is higher.	Consistent as proposed

Table 1
Project Consistency with General Plan, LCP, and Coastal Act Policies

Policy #	Policy	Project Consistency
California Coastal Act Policies		
§ 30210	Maximum access and recreational opportunities shall be provided for all people, consistent with public safety and the need to protect public rights, rights of private owners, and natural resource areas from overuse.	Consistent as proposed: public access would be provided to the Rispin Mansion and grounds, and would continue to be provided to the Rispin-Peery trail.
§ 30212.5	Wherever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.	Consistent as proposed: the area is not likely to experience overcrowding due to nature of the Mansion and grounds.
§ 30213	Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.	Consistent as proposed: although the accommodations may not be considered lower cost, the project will increase visitor accommodations and recreational opportunities available for Capitola Beach and Village access.
§ 30214 (a)	The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following: (1) Topographic and geologic site characteristics; (2) The capacity of the site to sustain use and at what level of intensity; (3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses; (4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.	Generally inconsistent: with mitigation provided in **4.4 Biological Resources**, the project would limit vehicle and pedestrian access through the monarch habitat during roosting periods; the project proposes to allow public access only during daylight hours to minimize disturbance to adjacent residences, and would provide for trash collection; however, proposed development on the southern half of the site that is not resource-dependent would result in a significant and unavoidable adverse impact on monarch ESHA (see **4.4 Biological Resources**)
§ 30223	Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.	Consistent as proposed: the project would provide increased recreational opportunities (accommodations, public gardens and historical information).

Table 1
Project Consistency with General Plan, LCP, and Coastal Act Policies

Policy #	Policy	Project Consistency
§ 30240 (a)	Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.	Generally inconsistent: numerous project elements and mitigation measures are proposed in **4.4 Biological Resources** to reduce potential impacts on monarch butterflies and their habitat, and to preserve and enhance on-site and adjacent biological resources; however, proposed development on the southern half of the site that is not resource-dependent would result in a significant and unavoidable adverse impact on monarch ESHA (see **4.4 Biological Resources**)
§ 30250 (a) (in part)	New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. (c) Visitor-serving facilities that cannot feasibly be located in existing developed areas shall be located in existing isolated developments or at selected points of attraction for visitors.	Generally inconsistent: numerous project elements and mitigation measures are proposed in **4.4 Biological Resources** to reduce potential impacts on monarch butterflies and their habitat, and to preserve and enhance on-site and adjacent biological resources; however, proposed development on the southern half of the site that is not resource-dependent would result in a significant and unavoidable adverse impact on monarch ESHA (see **4.4 Biological Resources**)
§ 30251 (in part)	The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.	Consistent as proposed. The project would greatly improve an existing blighted site within the coastal zone by allowing restoration and reuse of a deteriorated infill site.

4.2 GEOLOGY AND SOILS

♦ ♦ ♦

INTRODUCTION

This section describes the geotechnical and geological constraints of the site based on the preliminary Geotechnical Engineering Investigation by J.V. Lowney & Associates (1991). This report is in Appendix K of the Rispin Mansion Project Draft Environmental Impact Report (City of Capitola, April 1991), which is on file at the City of Capitola City Hall and included by reference in this EIR. The geotechnical evaluation and geologic hazards assessment of the site by J. V. Lowney & Associates for a previously proposed version of the project included the following:

- a surface reconnaissance of the site, review of available geologic maps and literature, and observation of aerial photographs to evaluate the site for potential geologic hazards;
- exploration of the subsurface soil conditions by drilling three borings and obtaining relatively undisturbed soil samples for observation and testing;
- evaluation of the physical and engineering properties of the subsurface soils by observing and testing representative samples; and
- an engineering analysis to evaluate site earthwork, building foundations, slabs-on-grade, and pavements for the 1991 project.

In addition, Nolan Associates reviewed the site plan and conducted a site visit to assess requirements to ensure public and structural safety of the original north end building that the applicant proposed in early project design and that was evaluated in the 1998 DEIR; this is available for review at the City of Capitola City Hall.

SETTING

Regional Geology

The City of Capitola lies on a marine terrace incised by coastal streams including Soquel Creek. The Pliocene Purisma formation underlies the region and consists of interbedded siltstone and sandstone. This geologic unit strikes northwest and dips slightly southwest. Local outcrops of severely weathered soft, light grayish-brown sandstone was found in the steeper, lower portions of the bluff west of Soquel Creek.

Regional Seismicity

The project site is located in one of the most seismically active areas of the country. Significant earthquakes occur along well-defined, active fault zones that trend northwesterly. The regional faults of significance potentially affecting the project site include the San Andreas, the Zayante-Vergeles, and the Palo Colorado-San Gregorio. The most probable seismic hazards to the site are from the San Andreas fault (in the Santa Cruz Mountains) and the Palo Colorado-San

Gregorio fault. Seismic historical records of the area show that earthquakes of 6.5-7.0 magnitude occur periodically on the San Andreas Fault (City of Capitola, 1991 and 1998).

The main trace of the San Andreas Fault is approximately 9 miles northeast of the project site. One of the largest earthquakes in the Santa Cruz area occurred on October 17, 1989 due to movement on this fault and measured 7.1 on the Richter scale. Ground shaking in Capitola from the 1989 Loma Prieta earthquake caused vertical and horizontal ground accelerations of 0.6 g and 0.54 g, respectively (g = acceleration of gravity). The epicenter of the Loma Prieta earthquake was approximately 4.6 miles southeast of the project area (Ibid.).

The Zayante-Vergeles fault is located approximately 5.5 miles northeast of the project site, and the Palo Colorado-San Gregorio is located approximately 14 miles southwest of the project site. The California Division of Mines and Geology considers the Zayante fault active, although it has not caused any significant earthquakes historically, only some aftershocks after the Loma Prieta earthquake. The Palo Colorado-San Gregorio fault is not well understood, but is considered potentially active with an estimated maximum credible magnitude of 7.7 and a recurrence level of 800+ years (Reynolds Associates, 1995).

Site Seismicity

According to previous geologic hazards investigations, no known fault zones cross the project site, so fault rupture is not anticipated (City of Capitola, 1991 and 1995). Liquefaction, differential compaction of near surface soils, and lateral spreading can present seismic hazards during earthquakes. The potential for these hazards to occur are dependent on soil conditions and geological patterns.

Soil liquefaction occurs when loose, saturated sandy soil deposits lose internal strength and transform from a solid to a liquefied state due to reduced stresses within the soils mass. This phenomenon is most often induced by strong ground shaking associated with earthquakes. Soils susceptible to liquefaction are sands of low to medium relative density, relatively free of silt and clay, and saturated. Liquefaction variables include duration of earthquake loading, earthquake acceleration, depth to groundwater, and the potential influence of man-made structures.

Soil differential compaction (or settling) occurs when an earthquake causes nonuniform compaction of the soil and movement of near-surface soils. Lateral spreading is a form of planar failure. It occurs in both soil and rock masses, when the soil mass strains along a weak plane and spreads toward an area of stress release, such as an open water body, channel, or excavation. As blocks free, the stress release regresses from the release area to the head. Failure is unpredictable due to uncertainty in the location of the first tension crack.

Site Topography

The Rispin Mansion project site slopes gently to moderately east toward Soquel Creek before it drops along a steep bluff with slopes ranging from 2:1 (horizontal to vertical) to 0.5:1 into the creek. Slopes on the upper terrace portion of the site range from approximately 10:1 to 4:1. The undisturbed slopes are densely vegetated with trees, shrubs, and ground cover. The eastern bank of the creek is substantially lower than the western bank.

The Mansion grounds have several retained cuts and fills of up to 10 feet. The Mansion has not experienced any structural problems, except for a four-foot retaining wall supporting the west side of the driveway that was slightly damaged during the Loma Prieta earthquake. In addition, driveway fills just west of the Mansion have settled, causing a minor separation between the Mansion basement wall and the driveway (City of Capitola, 1991).

The Clares/Wharf site gently slopes west to east toward Soquel Creek, with a total relief of less than 10 feet. The large portion of the Clares/Wharf site on which the library and paved parking area is located was graded and paved to reduce the slope even further except near the boundaries with Clares Street and Wharf Road, where the slope increases slightly.

Site Soils and Landsliding

The bedrock on the project site is overlain by surficial deposits including residual soils and younger marine terrace deposits on the upper terrace, and colluvium and alluvium in and near the creek. The marine terrace deposits that underlie the majority of the project area are estimated to be up to 40 feet thick and to consist of semi-consolidated, dense marine sands of Quaternary age. These deposits have a low potential for liquefaction (City of Capitola, 1991).

Soils on the west bank of Soquel Creek are primarily silty sands and sandy silts. They have been classified primarily as Danville loam, which are characterized as well-drained alluvial soils with low permeability. Surface runoff is slow and erosion hazard is slight to nonexistent with vegetation coverage (U.S. Soil Conservation Service, 1980). The slopes appear stable, although some trees have slight downward inclination indicating the presence of some active surficial slope creep. A small shallow earthflow was noted north of the project area, adjacent to State Highway 1, and a potentially large, ancient rotational slump was noted just north of the project area adjacent to Soquel Creek (City of Capitola, 1991).

IMPACTS AND MITIGATION MEASURES

Standards of Significance

In accordance with the State CEQA Guidelines, and agency and professional standards, a project impact may be considered significant if the project would:

- expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.
    - Strong seismic ground shaking.
    - Seismic-related ground failure, including liquefaction.
    - Landslides;
- result in substantial soil erosion or the loss of topsoil;

- be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse; or
- be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

Exposure of People and Structures to Seismic Events or Soil Instability

The project would result in exposure of people and structures to seismic events due to its location within a seismically active region. There is no evidence demonstrating the existence or location of a fault zone in the site vicinity, therefore the hazard posed to the site by ground surface rupture is less-than-significant. The subject property rests on sands that contain a significant portion of fine-grained material that are dense to very dense. For this reason and based on engineering judgment, the potential for liquefaction at the site is low, and liquefaction hazards are less-than-significant. According to the 1991 Rispin Project EIR, the probability of nonuniform compaction of soil resulting in the movement of near-surface soil during a seismic episode is low.

The project site is located adjacent to, or on (in the case of the North End Guest Rooms and portions of the Mansion) a steep, ancient coastal bluff. Dense semi-consolidated sands and interbedded sandstone and siltstone underlie the project site. After the 1906 earthquake and the 1989 Loma Prieta earthquake, no evidence of lateral spreading was reported west of Soquel Creek (City of Capitola, 1991). According to the 1991 Rispin Project EIR, the probability of lateral spreading occurring in the project area is low.

All new or rehabilitated structures in the project area must conform to the Uniform Building Code (UBC) or other applicable Building Code, such as the Historic Building Code (for existing structures deemed historically significant). The purpose of the earthquake provisions of the UBC is primarily to safeguard against major structural failure and loss of life, not to limit damage or maintain function (Uniform Building Code, 1997 sec. 1626.1).

Table 2 shows the approximate amount of grading for the various project components from calculations prepared by Akers & Associates (October 30, 2002; see **Appendix B**).

Table 2
Amount of Grading

Area of Grading	Amount
South End Building and associated pathways	610 cy of cut
Well-house expansion and adjacent parking spaces	640 cy of cut
North End Guest Rooms	133 cy of cut
Other pathways	40 cy of cut
Rispin Conservatory	410 cy of fill
Total	1,423 cy of cut 410 cy of fill
Net change (export)	1,013 cy

This amount of grading may impact structures and the public due to geotechnical instability during seismic events or post-grading soil behavior, and may present secondary impacts to air or water quality (particulate emissions during transport of exported soil) and traffic. The secondary impacts of export of soil are discussed in the Air Quality, Hydrology and Water Quality, and Traffic and Circulation sections.

Impact: Due to the amount of grading and potential for large magnitude earthquakes in the project area, there is a potential for exposure of people and structures to hazards during seismic events. *This is a potentially significant impact that can be reduced to a less-than-significant level by implementing the following mitigation.*

Mitigation

R-1 Buildings shall be constructed in accordance with applicable Building Codes including the Historic Building Code and the site recommendations presented in the geotechnical and geologic hazard assessment by J. V. Lowney & Associates (January 1991) including, but not limited to, specifications regarding clearing, site grading and preparation, footings, foundations, slabs-on-grade, site drainage, and pavements or turf block.

Erosion

The project involves approximately 1,423 cy of cut during grading and site preparation. In addition, the project involves removal of three oaks and four acacia clumps.

Impact: Clearing vegetation, site grading, construction, and concentrated discharge of collected runoff could result in erosion and increased sedimentation, if not properly controlled. This effect will be even more severe than at most other sites due to the steep slope of the west bank of Soquel Creek on the project site. *This is a potentially significant impact that can be reduced to a less-than-significant level by implementing the following mitigation.*

Mitigation

R-2 The Contractor shall implement the following measures, at a minimum:

- Install and maintain silt basins and fences or straw bales along drainage paths during construction to contain on-site soils until bare slopes are vegetated. Carefully stockpile graded soils away from drainages.

- Restrict grading and earthwork during the rainy season (October 15 through April 15) and stabilize all exposed soils and graded areas prior to onset of the rainy season through mulching and reseeding. Temporary mulching and reseeding (using a biologist/botanist approved native seed mix) will reduce erosion by establishing quick growing plants to stabilize disturbed areas which will not have permanent landscaping installed for a period of time or which may be redistributed at a later date. Permit grading after April 15 and before October 15 only with installation of adequate sediment and erosion control measures.

- Revegetate graded slopes with appropriate native plant species (as determined by a qualified botanist) immediately upon completion of grading.
- Comply with all applicable City of Capitola ordinances including landscaping compatibility for erosion control.

CUMULATIVE GEOLOGY AND SOILS IMPACTS

See **5.0 CEQA Considerations**.

4.3 HYDROLOGY AND WATER QUALITY

♦ ♦ ♦

INTRODUCTION

This section describes the existing hydrological and water quality information about the project site, the proposed new or altered drainage characteristics, and evaluates water quality impacts due to the project based on existing information contained in the 1991 Rispin Project EIR and the project site plans. Drainage calculations by the project engineer, Akers & Associates, are included in **Appendix B**. Drainage plans are attached to this document.

SETTING

The project site is located within an area that is considered to have a marine, "Mediterranean" type climate. Warm, dry summers, and cool, sometimes wet winters are typical for this area. The Soquel Creek watershed consists of 42.8 square miles within Santa Cruz County. It stretches from the crest of the Santa Cruz Mountains where the land is relatively undeveloped to the urbanized marine terraces near the ocean. Mean annual precipitation in the watershed area is approximately 40 inches, and higher precipitation occurs along the west and central portions of the watershed. Water levels in the lower watershed (i.e., Soquel Creek and Soquel Lagoon) provide habitat for various aquatic species (EIP Associates, 1998).

Conversion of pervious surfaces to impervious surfaces can change existing patterns of surface runoff and soil infiltration. Rainfall can soak into vegetated ground surfaces at a much greater rate than if the ground is paved. More runoff will therefore occur with developed use than with open space use. Such changes in land use will also affect the time it takes for runoff to peak or crest. In general, runoff peaks will occur sooner under a developed condition compared with undeveloped fields.

The Rispin Mansion project site is located on the west bank of Soquel Creek. From the creekbed, the bank rises steeply at a maximum slope of approximately 2:1 to an elevation of approximately 80-90 feet at Wharf Road. The soils on the site are characterized as well-drained alluvial soils with low permeability. Surface runoff is slow and erosion hazard is slight to nonexistent with vegetation coverage (U.S. Soil Conservation Service, 1980).

Flooding

The City of Capitola has been mapped by the Federal Emergency Management Agency (FEMA) as part of the National Flood Insurance Program. A review of the flood map near the project site indicates that the areas to be developed are well above the 100-year flood levels of Soquel Creek. The FEMA map shows that the 100-year flood level along the eastern side of the Rispin Mansion site is between 20 and 25 feet mean sea level (MSL). The Rispin Mansion project is proposed to be built on areas as low as 50 feet MSL in elevation and as high as 85

feet MSL. Therefore, the area proposed for development is outside the 100-year floodplain and complies with the City's General Plan, LCP, and federal policies on flood protection.

Site Drainage

The Rispin Mansion site currently contains some development that has been abandoned and has decayed. On and near these areas, water tends to pool on impervious patios, walkways and on the foundations of the buildings that have been partially or fully deconstructed. Much of the site has remained undeveloped and, therefore, most surface drainage infiltrates into the ground or flows east as sheet flow directly to Soquel Creek. The runoff from Wharf Road and other upstream areas is collected in street drain inlets, flows through an existing drainage pipe under the Rispin site (shown as "D" on the drainage plans attached to this document), and is discharged unfiltered into Soquel Creek through a storm drain outfall (shown as "B" on the drainage plans).

Water Quality

Soquel Creek and the Monterey Bay are the receiving waterbodies for runoff from the site. According to the 1994 Water Quality Assessment by the State Water Resources Control Board, Soquel Creek is in "intermediate" water quality condition. Intermediate water bodies are waters that support beneficial uses, but occasionally degrade. Problems with the Soquel Creek are primarily due to non-point source water pollution, and they include sedimentation, threat of drinking water impairment, and threat to spawning habitat for anadromous fisheries. Diffuse sources that cause non-point source water pollution include storm water runoff, construction activities, and activities such as mining, agriculture, and timber harvesting. Urban runoff pollutants include oil, grease, heavy metals, pesticides and coliform bacteria.

Applicable State Regulations and Policies

Construction activities can cause significant water quality degradation. To reduce this and other water quality problems, the federal Clean Water Act and 1987 amendments require those that discharge into U.S. waters to obtain a National Pollutant Discharge Elimination System (NPDES) permit. The State Water Resources Control Board and Regional Water Quality Control Board (RWQCB) administers the storm water management aspect of this program through the use of a statewide General Industrial or Construction Storm Water Permit. To comply with this permit, any project over one acre (including the Rispin Mansion project) must file a "Notice of Intent" to discharge storm water with the RWQCB, and must prepare and submit a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP identifies "Best Management Practices" (BMPs) that will be implemented to prevent water quality degradation. BMPs include mechanical measures such as oil/water separators and hay bales, and maintenance measures such as driveway/parking lot sweeping. The permit prohibits discharges of material other than storm water into waters of the U.S., and requires that discharges shall not cause, or threaten to cause, pollution, contamination, or nuisance, and not contain hazardous substances. The permit also requires that BMPs be implemented to achieve compliance with water quality standards.

Applicable Local Regulations and Policies

The proposed Rispin Mansion project is subject to requirements contained in the following City ordinances: Chapter 15.28 (Excavation and Grading) and Chapter 17.95 (Environmentally Sensitive Habitats).

Chapter 15.28 (Excavation and Grading) contains guidelines, rules and regulations, and minimum standards for excavation, grading, clearing, erosion control, and maintenance, including cut and fill embankments. The chapter requires control of all existing and potential conditions of accelerated erosion, establishes administrative procedures for issuance of permits, and provides for approval of plans and inspections during construction and maintenance.

Chapter 17.95 (Environmentally Sensitive Habitats) describes the regulations that apply to environmentally sensitive habitats. To protect the habitats, new development must conform to Chapter 15.28 and must install sand and grease traps and other measures suitable to reduce erosion from the site and maintain water quality in receiving waters. This ordinance is also discussed in **4.4 Biological Resources**.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

In accordance with the State CEQA Guidelines, and agency and professional standards, a project impact may be considered significant if:

- increased runoff volumes exceed capacity of storm drain facilities, cause downstream or offsite drainage problems, or substantially increase the risk or severity of flooding in downstream areas;
- project facilities are located in flood-prone areas;
- the project substantially degrades water quality; or
- the project substantially degrades or depletes groundwater resources or substantially interferes with groundwater recharge.

The MSL elevation of the lowest point of new construction (the North End Guest Rooms) proposed in the Rispin Mansion project is at approximately 50 feet MSL. This is more than 25 feet above the 100-year flood plain line that is at approximately 23 feet MSL at this location. For this reason, the Rispin Mansion project site is not considered to be located within flood-prone areas.

According to the Soquel Creek Water District NOP response letter (see **Appendix A**), the project appears to be located within the County's groundwater recharge area. The Rispin Mansion project is not expected to substantially interfere with groundwater recharge. This conclusion is based on the following considerations:

- Currently, less than 10% of the Rispin site (.62 acres) is covered with impervious surfaces. The project will result in a modest net increase in impervious surfaces on the site of approximately 6,025 square feet due to the construction of buildings, pathways, and parking, taking into account the existing impervious areas to be removed (see the drainage calculations by Akers & Associates in **Appendix B)**.
- On-site retention for increased flow impacts identified in mitigation measure R-3 will allow recharge of groundwater.
- The hydrological interactions between the creek and the local groundwater conditions are not expected to change significantly.[1]

In addition, no uses or activities are proposed on the site that may substantially contribute to contamination of groundwater resources.

Drainage

Akers & Associates calculated the pre-development storm water runoff as 5.57 cfs, and a post-development runoff rate of 5.76 cfs under the current project plans (see **Appendix B**). Therefore, the project would increase storm water runoff during the 25-year storm by less than 0.2 cfs over existing conditions.

The proposed project includes a network of drain inlets and pipes that will collect runoff from existing and proposed impervious surfaces on the site. This collected runoff, along with the offsite drainage from Wharf Road and Clares Street, will be directed to a silt and grease filter system (shown as "A" on the drainage plans attached to this document) before flowing into Soquel Creek. Detention systems are proposed at the Rispin Conservatory and the South End Building.

Impact: Development of the proposed Rispin Mansion project will result in increased runoff and alteration of existing on-site drainage patterns by increasing storm water flows to the existing Soquel Creek drainage. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation (in addition to mitigation measures R-29 through R-33 in **4.4 Biological Resources**).*

Mitigation

R-3 The Rispin Mansion project drainage system shall be designed to control the release of storm water flows to pre-development levels using on-site detention, percolation and proper system capacities. The design of the drainage system shall be prepared and submitted to the City to demonstrate that the project complies with this measure and other applicable City standards.

[1] This conclusion is based on the fact that the majority of the site is steeply sloped and the existing impervious surfaces (i.e., buildings and driveways) that do not allow recharge are located on the flatter areas. Most storm water that flows onto or falls on the site is more likely to run off the site in the existing condition than pool and percolate into the subsurface.

Construction Water Quality Impacts

The project involves approximately 1,423 cy of cut during grading and site preparation. In addition, the project involves removal of three oaks and four acacia clumps.

Impact: Construction activities including clearing vegetation, grading, and/or excavation of land would have the potential for causing siltation and sedimentation of Soquel Creek or other downstream water bodies. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-4 The project applicant shall prevent sediments or other pollutants resulting from construction activities from entering storm water discharge. During construction, the following measures shall be implemented by the construction contractor:

- Only clear land that will be actively under construction within 6 to 12 months;
- Stabilize disturbed areas except where active construction is taking place. Provide permanent stabilization during finish grade and landscape the site;
- Dispose of all construction waste in designated area, and keep storm water from flowing on or off of these areas;
- Divert or intercept storm water before it reaches Soquel Creek, using temporary dikes, swales, or pipe slope drains; and
- Perimeter controls shall be placed where runoff enters or leaves the site prior to clearing, grubbing, and rough grading. Perimeter controls may include dikes, swales, temporary storm drains, sand bags or hay bales. Secured maintenance contracts shall be established to keep these systems operating.

R-5 The project applicant shall submit a Notice of Intent to the Regional Water Quality Control Board to obtain a State Water Resources Control Board General Construction Storm Water Permit. This shall include preparation and approval of a Storm Water Pollution Prevention Plan (SWPPP) and implementation of Best Management Practices to reduce water quality impacts as required by the Regional Water Quality Control Board. At a minimum, the measures in mitigation R-2 through R-9 shall be included in the SWPPP and implemented.

Operational Water Quality Impacts

Impact: Surface runoff from the parking area within the project site would contain elevated levels of contaminants compared with existing conditions. If allowed to enter Soquel Creek, these contaminants would eventually enter downstream drainage areas and potentially lead to degradation of aquatic and upland habitat and impacts on associated flora and fauna. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation (in addition to mitigation measures under Impacts on Steelhead Habitat and Other Riparian and/or Aquatic Species in **4.4 Biological Resources**).*

Mitigation

R-6 The Rispin Mansion project parking area shall be swept on a regular basis (four times per year). Vacuum or regenerative air sweepers are effective at removing the finer sediments that often bind a higher proportion of heavy metals. The sweeping frequency shall be increased just before the wet season (to once per month in September and October of each year) to remove sediments accumulated during the summer.

R-7 Install energy dissipators, sand traps and grease/sediment traps in storm drain outfalls that serve the Rispin site. All catch basins/traps that receive runoff from any areas subject to vehicular use shall be designed for both active filtration and active treatment of runoff.

R-8 The Rispin Mansion project shall maintain catch basins and storm water inlets on a regular basis to remove pollutants, reduce high pollutant concentrations, prevent clogging of the downstream conveyance system, and maintain the catch basins' sediment trapping capacity. Inspection of the drainage system shall be performed annually and repairs and/or cleaning shall be completed prior to November 15.

R-9 Minimize the amount of fertilizers and herbicides applied to the Rispin Gardens. Utilize slow-release chemical fertilizers and herbicides and avoid application prior to scheduled irrigation. The use of fertilizers and herbicides on-site must not conflict with the relevant mitigation intended to protect monarch butterflies (see mitigation R-25 in **4.4 Biological Resources**).

CUMULATIVE IMPACT - SEDIMENT LOADING TO SOQUEL CREEK

Development in the Soquel Creek watershed over the past 40 years has tended to occur in the lower reaches of the watershed on the floodplain terrace of the main stem of the creek, along Old San Jose Road north of Soquel, in the upper portions of the watershed along the Santa Cruz County border with Santa Clara County, and on Skyland Ridge. The location and extent of development is apparent from comparison of historic and current United States Geological Survey topographic maps of the watershed. During the construction period of each development, soils at the development site are exposed to the erosive forces of wind and storm runoff. When de-vegetated and excavated, they are subject to gullying under the influence of moderate to heavy rains if preventive action is not taken. Grading for foundations, structures and parking lots can reduce water quality downstream through erosion and transport of sediments entering receiving waters (Soquel Creek and the Pacific Ocean) by increasing turbidity. During the post-construction period, inadequate drainage control can create erosion that causes similar sedimentation and turbidity conditions. In addition, outfall discharge may contain large amounts of debris and sediment washed from upstream impervious areas. The concentrated discharges into the creek may cause local scour and erosion that increase downstream sediment loads.

The Rispin Mansion project site contains about 6.5 acres of the 27,392-acre Soquel Creek watershed. The project site is located in the lower reaches of the watershed, and is one of the few parcels with development potential remaining along the creek in this vicinity. Recently,

Santa Cruz County assessed the Soquel Creek watershed to quantify cumulative impacts along the creek. It is recognized that any single project within the watershed may contribute a relatively small quantity of sediment to the creek, but each project's contribution adds incrementally to the sediment load, and is therefore potentially significant.

Implementation of the erosion control ordinance (Chapter 15.28) would reduce erosion and sedimentation impacts during the construction period, and the proposed mitigation measures in this EIR would reduce effects during the post-construction period. Nevertheless, Soquel Creek, adjacent to the project site, and Soquel Lagoon downstream, are such important natural resources to the community that any proposed development with potential to affect them needs to be monitored for sediment output.

The Soquel Creek Lagoon Enhancement project being implemented by the City of Capitola and Santa Cruz County identified measures to control pollutant loading to the creek from storm drainage outfalls. The City and the County, in combination with a grant awarded in May of 2000, will be funding the implementation of erosion control and riparian enhancement measures, and the construction of new storm drain interceptors to reduce watershed pollutant sources and capture sediment and other pollutants prior to release to the Soquel Creek. These new facilities are to be located at:

- Stockton Avenue and Esplanade;
- Grace and Wharf Road;
- Capitola Avenue and Riverview near the railroad tracks; and
- Prospect Avenue or near the Capitola Venetians.

Cumulative Impact: Cumulative development in the Soquel Creek watershed could increase sediment loading in the creek. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Cumulative Mitigation

C-1 The City of Capitola shall continue its efforts to implement the Soquel Creek Lagoon Enhancement project, and work with the County to ensure that other storm drain and water quality improvements are implemented to reduce cumulative watershed impacts.

This page intentionally left blank.

4.4 BIOLOGICAL RESOURCES

♦ ♦ ♦

INTRODUCTION

This section is based on a summary and review of biological resources information found in the 2000 Recirculated Draft EIR for the Rispin Mansion and Mini-Park Projects, and the results of subsequent biological analysis and additional site investigation. Additional biological field surveys of the Rispin Mansion Project site were conducted by Ecosystems West (August 2001), Denise Duffy & Associates, Inc. (DD&A; April 5, 2002, June, 21, 2002, July 15, 2002), and Entomological Consulting Services, Ltd. (April 5, 2002, June 18, 2002, September 15, 2002). The results of the Ecosystems West survey are found in **Appendix C** (letter dated September 17, 2001). The results of the Entomological Consulting Services, Ltd. Surveys can be found in **Appendix C** (letter dated April 17, 2003). Information and analysis regarding monarch butterfly overwintering habitat on the Rispin Mansion property presented within the previous RDEIR was reviewed, elucidated, and revised by Entomological Consulting Services. An evaluation of impacts to trees, and recommended mitigation for these impacts, is based on work performed by Allen & Associates, Jan Peters Babcock (tree count volunteer), Lewis Tree Service, Inc. (**Appendix C**, tree report), additional field work conducted by Ecosystems West, and conceptual landscaping designs produced by Barbara Bernie.

SETTING

In the biological survey by Jones & Stokes Associates, as part of the 1991 Rispin Project Draft EIR, and in a subsequent surveys performed by Ecosystems West (August 2001) and DD&A (April-July, 2002), no special-status plant species were observed on the parcel. However, the monarch butterfly *(Danaus plexippus)* has been documented to roost during some months in the blue gum (eucalyptus) trees immediately south of the Mansion. In addition, steelhead *(Oncorhynchus mykiss)* are known to occur within Soquel Creek (and the downstream Soquel Lagoon), which is the eastern boundary of the Rispin property. Southwestern pond turtles *(Clemmys marmorata pallida)* are also known to occur within Soquel Creek and Soquel Lagoon.

As the Rispin Mansion has been abandoned for many years, and biologists have not surveyed the interior of the Mansion, it is possible that any of a number of special-status bat species (e.g., Pallid bat *[Antrozous pallidus]*, Townsend's western big-eared bat *[Corynorhinus townsendii townsendii]*, etc.) have established roosts within the Mansion. Finally, on-site trees including coast live oak *(Quercus agrifolia)*, bluegum *(Eucalyptus globulus)*, and coast redwood *(Sequoia sempervirens)* represent suitable nesting habitat for several raptor species, which are afforded protection by the Migratory Bird Treaty Act of 1918 (as amended) and CEQA.

Vegetation Characterization

The Rispin Mansion site is characterized by a staircase of terraces interspersed with steep slopes. The parcel is heavily wooded with the exception of the flat, open pad

above the Mansion to the west (the former Rispin Garden area). This former garden area is characterized by bare, compacted ground with a fringe of coast live oaks. The habitats on the Mansion parcel are best characterized as blue gum grove, redwood stands, coast live oak woodland, central coast cottonwood-sycamore forest, and horticultural/ruderal. Due to the long history of disturbance and landscaping around the Mansion, the habitats do not form distinctive boundaries, but rather are an overlapping mosaic of vegetative communities. Physiographically, slope position and exposure best characterize the vegetation structure. Habitats observed on the parcel include the following (see **Figures 4-3** through **4-5**):

Slope north of Mansion, west of Soquel Creek. North of the Rispin-Peery Trail, the parcel is characterized by a steep slope with a dense stand of coast live oak on the upper half and mixed woodland on the lower half. The site north of the Rispin-Peery trail was previously proposed for new buildings and this plan was evaluated in the 1998 DEIR. No units in this area are proposed in the project evaluated in this EIR. The vegetation of this area is diverse, and includes native species, weedy non-natives, and escaped horticultural species. There is an open tree canopy comprised of a variety of both native species, including coast live oak, bigleaf maple *(Acer macrophyllum)*, coast redwood, California buckeye *(Aesculus californica)*, and California bay *(Umbellularia californica)*, and non-native species, including pittosporum *(Pittosporum* sp.*)* and plum *(Prunus* sp.*)*. Shrubs are abundant but unevenly distributed in this habitat. The understory in this portion of the slope includes English ivy *(Hedera helix)*, German ivy (*Senecio milkanoides*), California blackberry (*Rubus ursinus*), poison oak *(Toxicodendron diversilobum)*, and French broom (*Cytisus monspessulanus*). Weedy, non-native grasses and herbs present in the understory include hare barley *(Hordeum murinum* ssp. *leporinum)*, rattlesnake grass *(Briza maxima)*, dogtrail grass *(Cynosurus echinatus)*, prickly lettuce *(Lactuca serriola)*, hairy cat's ear *(Hypocharis radicata)*, and sheep sorrel *(Rumex acetosella)*. Most of the other shrubs present are horticultural escapees.

Slope south of Mansion, west of Soquel Creek. This area is largely dominated by the non-native tree blue gum. As the eucalyptus stand transitions to the southwestern end of the Mansion parcel where the South End Building is proposed, blue gum is replaced by a stand of silver wattle *(Acacia dealbata)* with an understory of introduced grasses and herbs, including ripgut brome (*Bromus diandrus*), slender wild oat (*Avena barbata*), English plantain (*Plantago lanceolata*), Bermuda buttercup (*Oxalis pre-capre*), cut-leaved geranium (*Geranium dissectum*), and miner's lettuce (*Claytonia perfoliata*). In general, species diversity is low in the understory of this portion of the Rispin property. A small stand of blue gum occurs on both sides of the existing well-house with an understory consisting almost exclusively of periwinkle *(Vinca major)*.

Floodplain terrace southeast of Mansion, west of Soquel Creek. On the terrace immediately below the Mansion above Soquel Creek, the habitat transitions from blue gum dominated habitat to a few isolated groves of coast redwood with a few individuals of California sycamore (*Platanus racemosa*) and coast live oak in between. The understory here is dominated by horticultural landscape species, especially adjacent to the Mansion. A native stand of California bee flower (*Scrophularia californica*) was observed just east of the Rispin-Peery Trail.

Rispin Mansion

Side view of Mansion
(creek down to left)

Eucalyptus with Mansion on right

	Representative Site Photos	Figure 4-3

Monarch roosting area

Monarch roosting area

View towards Soquel Creek

	Representative Site Photos	Figure 4-4

Acacias to be removed

Area of asphalt "dump" to the south

Area of future south-end building

	Representative Site Photos	Figure 4-5

This area is characterized by a moderately dense tree canopy primarily consisting of the native riparian species red alder *(Alnus rubra)*, box elder *(Acer negundo* var. *californicum)*, California sycamore, shining willow *(Salix lucida* var. *lasiandra)* and the non-native species blue gum, silver wattle, and pittosporum. The understory is largely dominated by a dense cover of California blackberry, periwinkle, English ivy, and scattered poison-oak. Bracken fern *(Pteridium aquilinum)* is moderately abundant, and a considerable amount of the native, moisture-intensive fern ally giant horsetail *(Equisetum telmateia* ssp. *braunii)* is also found there. A few black cottonwoods (*Populus trichocarpa*) occur at the stream edge below the blue gum grove, representing a narrow segment of central coast cottonwood-sycamore habitat that is well developed on the east side of Soquel Creek opposite the Mansion. No stands of cottonwood-willow riparian forest are present along the stream corridor on the Rispin site.

The concrete driveway leading into the northern end of the Mansion from Wharf Road is bordered by a dense pruned hedge of planted tarata (*Pittosporum eugeniodes*). Coast live oak occurs in scattered numbers along the fence bordering Wharf Road and on the west side of the Mansion. Also occurring in this area are California coffeeberry (*Rhamnus californicus*), cotoneaster (*cotoneaster pannosa*), blue elderberry (*Sambucus mexicana*), and ruderal grasses and herbs.

A list of trees on the Rispin Mansion project site was provided by the applicant and can be found in **Appendix C** (tree report). The south end of the site is forested with acacia and eucalyptus trees. The mature eucalyptus grove in this area has been identified as a monarch butterfly overwintering habitat. Some individual mature acacia trees between the driveway on the site, Wharf Road, and the garden and Mansion screen the habitat from the street and provide a wind block, a crucial aspect of preserving habitat for the butterflies. The monarch butterfly habitat is further described in **Appendix C** (Elizabeth Bell and Dick Arnold reports).

Riparian Delineation

Portions of the Rispin Mansion parcel have been classified as riparian vegetation by Ecosystems West, and as required in the City's Zoning Ordinance, Chapter 17.95.030.B, "A minimum thirty-five foot setback from the outer edge of riparian vegetation shall be required for all new development." Based on the analysis by Ecosystems West (see **Appendix C**), it is maintained that the FEMA Floodplain and Floodway Boundary depicted on the site plan map (1997) approximates the upper edge of riparian vegetation on the Rispin Mansion parcel. The rationale for this riparian boundary is that species observed below this boundary line are riparian-dependent species including red alder, shining willow, California sycamore and California box elder. All of these species were rooted below the 20-foot contour. Species above the 20-foot contour line are not riparian dependent (additional discussion follows). Based on the location of these species, Ecosystems West conservatively delineated the edge of the riparian vegetation at approximately the 20-foot contour on project plans included within the envelope at the end of this document.[1]

The slopes above the 20-foot contour line are steep and hardened material comprised of siltstone and sandstone. Marine terrace deposits underlie the majority of the property,

[1] On a related note, Haro, Kasunich and Associates assessed whether mass grading was historically done at the Rispin site, which would have caused the riparian zone boundaries to be altered. Their conclusion is that no such grading has taken place (see letter dated May 2, 2003 in **Appendix G**).

with the exception of the edge of the creek, and are estimated to be up to 40 feet thick (DD&A 1998). The habitats above the flood plain boundary support species and structure typical of canyon slopes above large stream courses. The habitat above the floodplain transitions from a narrow riparian dependent plant community to a mixed canyon woodland community, primarily consisting of bay, buckeye, and coast redwood. This mixed woodland transitions into coast live oak woodland and ultimately remnant coast live oak savanna habitat on the old coastal marine terraces, typical of the live oak area.

Coast live oak riparian habitat is typically a narrow, homogenous structured community comprised of a dense band of coast live oak along intermittent stream corridors. Tree density and corridor width are a reflection of stream ground water availability and the shallow nature of the slope and banks. Coast live oaks above the 20-foot contour line on the Rispin site are not directly supported by stream flow or stream ground water associated with Soquel Creek, and are therefore not within the riparian dependent habitat.

As presently proposed, the development would be outside the City of Capitola's 35-foot setback from the outer edge of riparian vegetation. Although no direct impacts to riparian vegetation are proposed (except removal of non-native/invasive species and replacement with appropriate native riparian vegetation as mitigation for drainage improvements), there is potential for indirect impacts from erosion or slope slippage from development on the steep slopes above the creek. This possibility is further discussed in the steelhead analysis below, and can be mitigated to a less-than-significant level (also see the **Geology and Soils** and **Hydrology and Water Quality** sections). All Ordinance conditions will be followed, including landscaping compatibility, erosion control, and development setbacks. Retention of the existing mature tree vegetation will continue to provide buffered protection of the riparian vegetation along Soquel Creek near the Rispin Mansion parcel. Mitigation presented within this EIR will result in habitat enhancement along Soquel Creek, and habitat enhancement for special-status species known to occur within or adjacent to the project site.

Potential Wildlife and Environmentally Sensitive Habitat Areas

This section describes the potential wildlife and environmentally sensitive habitat areas that support wildlife in the vicinity of the project site.

Riparian Habitat

"Riparian habitat" has been defined by the Federal Geographic Data Committee as:

> "Riparian areas are plant communities contiguous to and affected by surface and subsurface hydrologic features of perennial or intermittent lotic and lentic water bodies (rivers, streams, lakes, or drainage way). Riparian areas have one or both of the following characteristics: 1) distinctively different vegetative species that adjacent areas, and 2) species similar to adjacent areas but exhibiting more vigorous or robust growth forms. Riparian areas are usually transitional between wetland and upland."

The riparian habitat along Soquel Creek provides a high-quality foraging, breeding and roosting habitat for many wildlife species. The open water in the main area of Soquel

Creek provides foraging habitat for several species of water-dependent birds like the mallard *(Anas platyrhynchos)*, wood duck *(Aix sponsa)*, belted kingfisher *(Ceryle alcyon)*, and black phoebe. California newt *(Taricha torosa)*, California slender salamander *(Batrachoseps attenuatus)*, western toad *(Bufo boreas)*, and Pacific treefrog *(Hyla regilla)* also breed and forage along the creek.

The presence of many different kinds of plant species and growth forms in this riparian habitat provides a variety of food and environmental conditions for the wildlife. Specifically, riparian plants provide foods like fruits, nuts and seeds for the wildlife. In addition, cavity-nesting birds nest in cottonwoods, sycamores, and snags (standing dead trees) that are found in the riparian habitat.

Wildlife species present in the riparian habitat east of the project site include the red-shouldered hawk *(Buteo jamaicensis)*, northern flicker *(Colaptes auratus)*, red-breasted sapsucker *(Sphyrapicus ruber)*, Anna's hummingbird *(Calypte anna)*, ruby-crowned kinglet *(Regulus calendula)*, golden-crowned kinglet *(Regulus satrapa)*, yellow-rumped warbler *(Dendroica coronata)*, house finch *(Carpodacus mexicanus)*, dark-eyed junco *(Junco hyemalis)*, raccoon *(Procyon lotor)*, striped skunk *(Mephitis mephitis)*, western fence lizard *(Sceloporus occidentalis)*, and the western terrestrial garter snake *(Thamnophis elegans)*.

California Coastal Act Environmentally Sensitive Habitat Policies (Riparian Habitat). Riparian habitat is defined as "environmentally sensitive" under Section 30240 of the California Coastal Act, and these areas "are to be protected against significant disruption of habitat values and only uses dependent on the resources are allowed within these areas." Further, "development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade such areas, and shall be compatible with the continuance of such habitat areas" (Coastal Act policy 30240 (b)). The Impacts and Mitigation Measures section and **Table 1** in **4.1 Land Use and Planning** describes the project's consistency with the Coastal Act.

City of Capitola Environmentally Sensitive Habitat Ordinance (Riparian Habitat). The City of Capitola has adopted its own Environmentally Sensitive Habitat District (ESH),), and Environmentally Sensitive Habitat ordinance that implements the Coastal Act and protects environmentally sensitive habitats, including riparian habitat (Municipal Code Section 17.95). The following general regulations apply to all ESH areas (Section 17.95.010).

- Siting, design, and other development conditions should be utilized to achieve long-term protection of the environmentally sensitive habitats.
- New development shall not be sited within the root zone of riparian or butterfly host-trees, or require the removal of the trees.
- For the development, the city shall maintain maximum setbacks from natural areas.
- In limited circumstances, where a vacant parcel lacking structure-siting flexibility exists, a reduction of the standard setback may be permitted in order to allow for a minimum level of development, providing that it can be ensured that encroachment into the setback area will not have a significant effect on the natural area.

- In order to provide technical expertise concerning specific habitat protection issues, the city shall require the services of a biologist, botanist, forester, or other qualified professionals to assist in determining such questions as the precise location or boundary of a designated natural area, or the effect of the proposed development project on the immediate and long-term health and viability of the natural area. This may be required throughout the environmental impact review process. Mitigation measures as contained in the professional evaluations shall be made conditions of approval where needed to minimize impact.
- If necessary and appropriate to protect natural areas, consideration should be given to requesting or requiring permanent conservation easements over portions of property containing designated natural areas. All environmentally sensitive habitat areas and their buffer zones shall be protected by conservation easements or deed restrictions.

In addition to the requirements discussed applicable to all ESH, requirements from the ESH ordinance specific to Soquel Creek and Lagoon are found in Section 17.95.020, and Soquel Creek riparian habitat in Section 17.95.030. The project does not propose any activity within 35 feet of the western shoreline or bank of Soquel Creek or Lagoon; therefore, Section 17.95.020 does not apply to this project. Section 17.95.030 applies to all areas adjacent to the Soquel Creek riparian habitat. The following is required in Section 17.95.030:

Development in areas adjacent to the Soquel Creek riparian habitat shall be sited and designed to prevent impacts that would substantially degrade the area.

A minimum 35-foot setback from the outer edge of riparian vegetation shall be required for all new development. On the heavily developed east side of the lagoon and creek (from Stockton Avenue to Center Street) the setback requirement shall be measured from the bank of Soquel Creek.

The applicant shall retain a qualified professional to determine the location of the outer edge of riparian vegetation on the site and to evaluate the potential impact of development on riparian vegetation. [This riparian delineation work was performed by Bill Davilla and Roy Buck of Ecosystems West, as detailed in a letter to the City of Capitola dated September 17, 2001.]

Removal of native riparian trees within the Soquel Creek riparian habitat shall be prohibited unless it is determined by the planning director that such removal is in the public interest by reason of good forestry practice; disease of the tree; or safety considerations.

Snags, or standing dead trees have high value as nesting sites and shall not be removed unless in imminent danger of falling. Removal shall be consistent with all applicable provisions of the Capitola tree-cutting ordinance. Any such tree removal shall require replacement with a healthy young tree of an appropriate native riparian species.

Coastal development permit applications within or adjacent to the Soquel Creek riparian habitat shall contain a landscaping plan that sets forth the location and extent of any proposed modification to existing vegetation and the locations, kinds, and extent of new landscaping. The emphasis of such plans shall be on the maintenance and enhancement of native riparian species and the removal of existing invasive species. New invasive plant or tree species shall not be permitted, except as deemed necessary for monarch roosting areas and as requested by the monarch butterfly specialist.

Conformance to the Capitola erosion control ordinance (Chapter 15.28) shall be required. A drainage plan shall be provided for all projects adjacent to or in the riparian habitat. Grading shall be minimized within the riparian setback area. Grading shall not be permitted to damage the roots of riparian trees. Grading shall only take place during the dry season. (Ord. 677 Section 7(D), 1989; Ord. 634 Section 1(part), 1987).

This section requires that all new development shall be set back from the outer edge of riparian vegetation by a minimum of 35 feet. In the 1998 DEIR, Ecosystems West found that the project included a building on the far northern portion of the site (north of the Rispin-Peery Trail) that was found to be within 35 feet of the outer edge of riparian vegetation (see **Butterfly Habitat Enhancement Study**). The revised site plans for the Rispin Mansion project that are evaluated in this Revised Draft EIR do not include these "North End Units." No other structures proposed were found to be within the 35-foot setback from the outer edge of riparian vegetation. A full discussion of the project's relationship to and impacts on the Soquel Creek riparian habitat is provided in the Impacts and Mitigation Measures section.

Eucalyptus Grove

The monarch butterfly is the primary wildlife of concern in this area. The eucalyptus trees provide roosting and foraging habitat for the butterflies, while the eucalyptus flowers provide nectar for the butterflies, as well as for hummingbirds. These flowers also attract insects. In turn, insectivorous birds, including bushtits *(Psaltriparus minimus)*, chestnut-backed chickadees *(Parus rufescens)*, ruby-crowned kinglets, golden-crowned kinglets, and yellow-rumped warblers prey upon the insects.

Monarch Butterfly Environmentally Sensitive Habitat Areas

Due to the amount of information presented regarding this species, and to avoid redundancy, please refer to the Monarch butterfly section beginning on page 4.4-15 for this discussion.

Redwood Groves

The redwood grove provides foraging habitat, nesting habitat, and cover for very few wildlife species. Although the riparian habitat downslope from the project provides vegetation for riparian birds, the scattered amount of vegetation in the understory in this area does not provide a suitable habitat for these birds. Thus, the redwood groves have fewer types of wildlife than the surrounding riparian habitat environment.

However, the redwood groves do provide a good habitat for arboreal insectivorous birds, such as downy woodpecker *(Picoides pubescens)*, pygmy nuthatch *(Sitta pygmaea)*, northern flicker, chestnut-backed chickadee, golden-crowned kinglet, ruby-crowned kinglet, and yellow-rumped warbler.

The dense leaf litter of the redwood groves also provides a foraging habitat and cover for a few amphibian species, including the California slender salamander, California newt, and the western toad. There are also several small mammal species that may forage in the leaf litter, such as the striped skunk, broad-footed mole *(Scapanus latimanus)*, Trowbridge's shrew *(Sorex trowbridii)*, and deer mouse *(Peromyscus* sp.*)*.

Regulatory Background

Special-Status Species

The term special-status is applied to those plant and animal species that have legal protection afforded by state or federal Endangered Species Acts or as defined by CEQA. The federal Endangered Species Act (ESA) of 1973 (16 USC 1532 et seq., as amended) prohibits federal agencies from authorizing, permitting, or funding any action that would result in biological jeopardy to a species Listed as Threatened or Endangered under the Act.

Federal Laws and Regulations

The federal Endangered Species Act (ESA) of 1973 (16 USC 1532 et seq., as amended) prohibits federal agencies from authorizing, permitting, or funding any action that would result in biological jeopardy to a species listed as Threatened or Endangered under the Act. Listed species are taxa for which proposed and final rules have been published in the Federal Register (U.S. Fish and Wildlife Service (USFWS) 2003). If a proposed project may jeopardize Listed species, Section 7 of the ESA requires consideration of those species through formal consultation with the USFWS. Federally Proposed species (USFWS 2003) are species for which a proposed listing as Threatened or Endangered under ESA has been published in the Federal Register. If a proposed project may jeopardize Proposed species, Section 7 of the ESA affords consideration of those species through informal conferences with USFWS. Federal Candidate species are "taxa for which (USFWS) has on file sufficient information on biological vulnerability and threats to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded" (USFWS 2003). Federal Candidate species are not afforded formal protection, although USFWS encourages other federal agencies to give consideration to Candidate species in environmental planning. Federal species of concern do not have federal status, but are afforded protection under CEQA and are of interest to regional USFWS offices.

State Laws and Regulations

Project permitting and approval requires compliance with the 1970 California Environmental Quality Act (CEQA), the 1984 California Endangered Species Act (CESA), and the 1977 Native Plant Protection Act (NPPA). The CESA and NPPA authorized the California Fish and Game Commission to designate Endangered, Threatened and Rare species and to regulate the taking of these species (Section 2050-2098, Fish and Game Code). The California Code of Regulations (Title 14, Section 670.5) lists animal species considered Endangered or Threatened by the state.

The Natural Heritage Division of the California Department of Fish and Game (CDFG) administers the state Rare Species Program. The CDFG maintains lists of designated Endangered, Threatened, and Rare plant and animal species (CDFG 2000). Listed species either were designated under the NPPA or designated by the Fish and Game Commission. In addition to recognizing three levels of endangerment, the CDFG can afford interim protection to Candidate species while they are being reviewed by the Commission.

The CDFG also maintains a list of animal "species of special concern" (SSC), most of which are species whose breeding populations in California may face extirpation. Although these species have no legal status, the CDFG recommends considering these species during analysis of proposed project impacts to protect declining populations and avoid the need to list them as Endangered in the future.

Under provisions of Section 15380(d) of CEQA, the project lead agency and CDFG, in making a determination of significance, must treat non-Listed plant and animal species as equivalent to Listed species if such species satisfy the minimum biological criteria for listing. In general, the CDFG considers plant species on List 1 or 2 of the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994) as qualifying for legal protection under this CEQA provision. Species on CNPS List 3 or 4 may, but generally do not, qualify for protection under this provision.

During field surveys in March and April of 1998, and subsequent field surveys from April-July of 2002, no special-status species were observed on the project site. No potential habitat is present on the project site that would support special-status plant species known to occur within the vicinity of the site (City of Capitola, 1991). Due to the steep and abrupt incline of the slopes above Soquel Creek, potential habitat for special-status reptiles and amphibians is considered low. No stands of cottonwood-willow riparian forest, which is preferred yellow warbler nesting habitat, is present along the stream habitat border of the Rispin Mansion site. No studies in the adjacent areas have revealed the presence of any other special-status species in the Soquel Creek area with the exception of migrating steelhead salmon in Soquel Creek. General discussions of roosting bats and nesting raptors are provided below, as these species may be found on-site, or in adjacent areas. Focused discussions of the monarch butterfly and steelhead are provided below, as monarchs are documented to roost in the blue gum trees south of the Mansion during some months of the year, and steelhead are known to occur within Soquel Creek (and the downstream Soquel Lagoon). The following monarch discussion is based on findings by biologist Elizabeth Bell (1998 and 2000) and a third party review/revision by lepidopterist Dick Arnold (Ph.D.) (April 2003).

Sensitive and/or Special-status Wildlife Species

Nesting Raptors

All of the following avian species are "raptors" (birds of prey including hawks, falcons, eagles, and owls). Each of these species are provided an independent natural history narrative; their potential for presence within the Rispin project site is addressed concurrently following the individual narratives.

Raptors and their nests are protected under the Migratory Bird Treaty Act (1918, as amended). Raptor species most likely to occur at the study site include red-tailed hawk *(Buteo jamaicensis)*, sharp-shinned hawk *(Accipiter striatus)*, and red-shouldered hawk *(Buteo lineatus)*. While the life histories of these species vary, overlapping nesting similarities (approximately mid-March to early August) allows their concurrent discussion.

Red-tailed hawk
The red-tailed hawk is a state species of concern. This species occurs in a wide variety of habitats from lowest to highest elevations with the exception of areas with heavy snow cover. Prey items of this species include small mammals up to hares in size, small birds, reptiles, amphibians, and some carrion. In winter, they are largely dependent upon mice, but also take medium to fairly large birds on the ground. The red-tailed hawk forages by soaring; also perches and pounces, or pounces on prey from low, quartering flights, sometimes hovering on wind or air currents. Roosts in trees; sometimes in dense conifer stands. The red-tailed hawk nests in large trees near openings, in older, mature forests, especially riparian deciduous habitats and sometimes on cliffs or low ledges.

Sharp-skinned hawk
The sharp-skinned hawk is a California species of concern. This species occurs in a variety of habitats including ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffery pine habitats. The sharp-skinned hawk prefers, but is not restricted to, riparian habitats. North facing slopes with plucking perches are critical requirements. All habitats except alpine, open prairie, and bare desert are used in winter. Prey items of this species include mostly small birds (usually no larger than jays) as well as small mammals, insects, reptiles, and amphibians. Foraging takes place in openings at edges of woodlands, hedgerows, brushy pastures, and shorelines, especially where migrating birds are found. Roosts of this species include intermediate to high-canopy forest. The sharp-skinned hawk nests in dense, even-aged, single-layered forest canopy and winters in woodlands.

Red-shouldered hawk
The red-shouldered hawk occurs along the coast, in the Central Valley, and rarely in the western Sierra Nevada foothills. This species of raptor is a California species of concern. Prey items of this species include small mammals, snakes, lizards, amphibians, small or young birds, and large insects. Forages mostly along edges of wet meadows, swamps, and emergent wetlands. Searches for prey from perches on trees, snags, and posts. Primarily uses tree foliage in riparian deciduous habitats for cover. The red-shouldered hawk nests near permanent water in dense riparian habitats.

Species Presence Within the Project Vicinity:

Potential nesting trees occur within the study area. While no nesting raptors were observed during the site assessment, species-specific surveys (including the 300-foot offset from project boundaries) were not conducted. Pre-construction nesting surveys are required to eliminate the potential presence of nesting raptors within, or within 300 feet of, project boundaries. If any raptor nests are identified during pre-construction surveys, the implementation of avoidance measures provided within the mitigation section of this document will minimize or avoid impacts to these species.

Roosting Bats

All of the following bat species are provided an independent natural history narrative (as all are known to occur within Santa Cruz County); their potential presence within the Rispin project site is addressed concurrently following the individual narratives.

Special-status bat species with the potential to utilize buildings as either maternity roost, migratory roost, or foraging roost, include the pallid bat, Townsend's big-eared bat, and

small-footed myotis *(Myotis ciliolabrum)* (this list is by no means exhaustive, but is intended to be representative of species which may occur in the area). Abandoned buildings provide protective locations for bats, as they are not often disturbed, and they often provide a more stable microclimate. Abandoned buildings have become increasingly important for these species as natural habitat has declined.

Pallid bat

The pallid bat is a state species of special concern. This bat species occurs in a wide variety of habitats including grasslands, shrublands, woodlands, and forests ranging from sea level up through mixed conifer forests. Pallid bats are most common in open, dry habitats with rocky areas for roosting. Prey items of this species include a wide variety of insects and arachnids including beetles, moths, spiders, scorpions, and Jerusalem crickets. Foraging takes place over open ground, at heights generally not greater than 7.5 feet. Gleaning is the most common method of foraging, with some prey taken on the wing. Day roosts of this species includes caves, crevices, mines, and occasionally in hollow trees and buildings. This species seems to prefer rocky outcrops, cliffs, and crevices with access to open habitats for foraging.

Townsend's big-eared bat

The Townsend's big-eared bat is a California species of concern. This species is a year round resident in California, occurring from low desert to mid-elevation montane habitats. It is found primarily in rural settings from inland deserts to coastal redwoods, oak woodland of the inner Coast Ranges and Sierra foothills, and low to mid-elevation mixed coniferous-deciduous forests.

Townsend's big-eared bats typically roost during the day in caves and mines, but can roost in buildings that offer suitable conditions. Night roosts are in more open settings and include bridges, rock crevices, and trees. It hibernates in mixed sex aggregations of a few to several hundred individuals. Hibernation is more prolonged in colder areas. This species arouses periodically and moves to alternative roosts, and actively forages and drinks throughout the winter.

A single young is born per year between May and July. Females form maternity colonies of 35 to 200 individuals, while males roost individually. Townsend's big-eared bats feed primarily on small moths that are gleaned from vegetation.

Small-footed myotis

Small-footed myotis are found over most of western North America from Mexico to southern Canada. Maternity colonies are usually small (less than 10 individuals). Day roosts are in rock crevices, peeling bark, tree hollows, and on buildings. These bats are very flexible in their choice of night roosts and will use any natural or man made shelter. This bat is non-migratory and undergoes extended torpor during the winter months in most of it's California range. It will arouse from torpor to forage during winter months.

Small-footed myotis usually produces one young per year. Breeding takes place in late autumn over most of it's range or early spring in California. Young are born in late May and early June. The small-footed myotis feed mainly on moths, flies, and beetles. Hunting takes place along edges of vegetation and canopy, around rock formations and seldom over water. These bats emerge early in the evening and alternate between foraging and roosting throughout the night.

Species Presence Within the Project Vicinity:

Suitable habitat for pallid bats, Townsend's big-eared bats, and small-footed myotis occurs within the project area, especially within the abandoned Rispin Mansion itself. Pre-construction surveys for these species are required. If any maternity roosts are identified during pre-construction surveys, the implementation of avoidance measures provided within the mitigation section of this document will minimize or avoid impacts to these species.

Monarch Butterfly

The monarch butterfly (*Danaus plexippus*) is well known for its long-distance annual migration and spectacular overwintering aggregations (Brower, 1985). During the spring and summer of each year, several generations of monarch butterflies spread progressively northward across North America (Brower and Malcolm, 1989). In the fall, adult monarchs migrate from these summer breeding grounds to a small number of overwintering habitats in California and Mexico, where they congregate for five to six months in a state of relative inactivity and reproductive dormancy. In early spring, as temperature and day length increase, overwintering monarchs mate and migrate inland to lay eggs on milkweed (*Asclepias* sp.) host plants.

As a species, the monarch butterfly is not listed as threatened or endangered. However, monarch butterfly overwintering habitats are generally recognized as biotic resources that warrant protection and their habitat is considered to be "environmentally sensitive," as demonstrated in the following discussion.

At the international level, conservation of overwintering sites of the Monarch has become a top priority for the International Union for the Conservation of Nature and Natural Resources (IUCN). In 1983, the IUCN recognized the annual migration and overwintering cycle of the Monarch butterfly as a threatened phenomenon (Wells, Pyle, and Collins 1983).

In California, the legislature acknowledged the need to protect the Monarch's overwintering sites with the passage in 1987 of Assembly Bill #1671. The butterfly's overwintering habitats are protected under two statutes dealing with natural resources and the environment, the Public Resources Code and the Fish and Game Code. The primary agency responsible for administering and enforcing the former statute is the California Coastal Commission, while the California Department of Fish & Game (CDFG) is responsible for the latter. CDFG tracks the locations of Monarch overwintering sites through the California Natural Diversity Data Base (CNDDB), which includes an entry for the Rispin Mansion site (occurrence #59), and considers the Monarch to be a CDFG California species of concern.

Overwintering habitats of the Monarch that are located within the state's coastal zone are often considered to be "environmentally sensitive habitat areas" (ESHA), which are afforded protection under Sections 30240 (a) and (b) of the California Coastal Act. The City of Capitola has an environmentally sensitive habitat (ESH) ordinance, municipal code #17.95, which is intended to protect Monarch habitat from impacts due to development in or adjacent to the habitat. In preparing this document, DD&A relied heavily on the expert opinion of Ph.D. lepidopterist Dr. Dick Arnold **(Appendix C)**.

Definition of ESHA

In order to identify ESHA within the coastal zone of Capitola, one must look at both the Coastal Act and the Capitola Municipal Code.

For areas within the coastal zone, the definition of ESHA is found in §30107.5 of the Public Resources Code. That section contains two criteria for ESHA:

(a) It must be an area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem; and
(b) It must be an area which could be easily disturbed or degraded by human activities and developments.

Both criteria must be present in order to have ESHA as defined in the Coastal Act. (Sierra Club v. California Coastal Commission (County of Mendocino) [January 15, 1993] 12 CA4th 602, 611 *["Pygmy Forest"]*, describing the process as a "two-part test for ESHA status."). Although both criteria are necessary to have an ESHA, it is not permissible to use the second criterion to override the first. In the Pygmy Forest case, the County of Mendocino argued that development as regulated by the policies of the LUP, the planned development permit process and other controls could not easily degrade the pygmy forest, and therefore the pygmy forest could not be ESHA. However, the court held that habitat which is both i) rare or especially valuable and ii) easily disturbed or degraded by human activities and developments is ESHA, regardless of how vigorously it may be protected by regulations.

The Coastal Act (§30240) protects ESHA's from degradation by development. Sub-section a) strictly proscribes development within ESHA's as follows:

> "(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas."

Sub-section (b) of §30240 states the policy for areas adjacent to ESHA's:

> "(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of the habitat area."

In addition to the protection afforded by State law, the City of Capitola has an Environmentally Sensitive Habitat (ESH) Ordinance (Chapter 17.95, Capitola Municipal Code, Environmentally Sensitive Habitats). The chapter does not contain a definition of ESHA, and generally uses the term "environmentally sensitive habitats" rather than "environmentally sensitive habitat areas." Section 17.95.05 of Chapter 17.95 states that the regulations contained in the chapter apply "...to the environmentally sensitive habitat district as shown on the habitat maps and in all other areas identified by qualified professionals as sensitive habitat."

The Environmentally Sensitive Habitat Map was created to acknowledge that the mapped area may contain environmentally sensitive habitats. The mapped area would

be analyzed at the time the City received a development proposal. Chapter 17.95.010 describes the process for approving projects within the City's Environmentally Sensitive Habitat District. More specifically, Chapter 17.95.010[E] states, "In order to provide technical expertise concerning specific habitat protection issues, the city shall require the services of a biologist, botanist, forester, or other qualified professional to assist in determining such questions as the precise location or boundary of a designated natural area, or the effect of the proposed development project on the immediate and long-term health and viability of the natural area."

Chapter 17.95 contains a section (§17.95.060) specifically dealing with the Soquel Creek-Escalona Gulch Monarch butterfly habitat. That specific habitat is defined as follows:

> "The Soquel Creek grove is located east of the intersection of Wharf Road and Clares Street, on the west side of the creek. The wintering site is part of the former Rispin Mansion property."

This rather broad definition would appear to require the utilization of a qualified professional to identify "the precise location or boundary of [the] designated natural area" pursuant to §17.95.010[E].

In addition to the requirements discussed above for all ESH, the ESH ordinance regulates activities in or near monarch butterfly habitat at the Rispin site with the following (§17.95.060):

- Siting, design, and other development conditions should be utilized to achieve long-term protection of the ESH.
- New development shall not be sited within the root zone of riparian or butterfly host trees, or require removal of the trees.
- Development in areas adjacent to the butterfly groves shall be sited and designed to prevent impacts, which would significantly degrade the areas.
- Removal of trees within the perimeter of the habitat areas shall be prohibited unless it is determined by reason of good forestry practice, disease of the tree, or safety considerations.
- Construction within or on properties contiguous to the designated butterfly groves shall be prohibited during fall and winter months when the monarch butterflies are present.
- The applicant shall be required to retain a qualified professional to determine the location of the outer edge of the monarch habitat and to report to the city potential impacts and mitigation measure for proposed development. (See discussion below and Dr. Richard Arnold's report in Appendix C)

The Rispin Mansion property straddles the coastal zone boundary. The northern approximate one-half of the Rispin site is outside the coastal zone, while the southern approximate one-half is within the coastal zone. The law in such cases is clear: when a project straddles the coastal zone boundary, the Coastal Commission does not have jurisdiction to evaluate impacts emanating from the portion of the project outside the coastal zone; and the Coastal Commission may not consider the impacts that development within the coastal zone may have outside the coastal zone. (Sierra Club v.

California Coastal Commission (Catellus Residential Group) [April 11, 2003] 2003 WL 1861 [Cal.App. 1 Dist.] ["*Catellus*"].)

Importance of overwintering habitats. The breeding grounds, autumnal sites, and wintering habitats of the monarch butterfly are crucial to maintain viable populations. Autumnal sites are important because they are often used by monarchs between breeding and overwintering and have the potential to become suitable for overwintering. The availability of overwintering habitats is particularly important for monarchs, since they cannot survive prolonged periods of freezing temperatures. Thus, in order to exploit the large North American milkweed flora during the summer, monarchs must migrate to warmer climates to spend the winter (Brower, 1985). Their survival during the winter depends on availability of habitats that provide protection from physical damage from weather and predators, and that optimize use of their limited fat reserves. Loss of these habitats could result in complete loss of the annual migration cycle and would reduce the numbers of monarchs in North America (Brower and Malcolm, 1989). Overwintering habitat degradation and destruction is increasing and is, thus, a cumulative impact (see Cumulative discussion at the end of this section); therefore, any action that has an adverse impact on monarchs' annual migration in North America is considered to be a significant impact.

Overwintering habitats in California The following comes directly from Dick Arnold's report (**Appendix C**). Monarchs cannot survive the colder winter months of most parts of North America. For this reason, monarch butterflies travel to their overwintering areas during the fall months of each year. Monarchs that live west of the Rocky Mountains migrate to coastal areas of California, while those that live east of the Rockies travel to a few sites in the mountains of Central Mexico. In coastal California, winter roosting sites range from northern Baja California to southern Mendocino County. Although most winter roosting sites in California are usually located within 0.5 to 1 mile (Weiss et al. 1991, Nagano and Lane 1985), roosts have been found as far inland as Bakersfield in Kern County (Davenport 1983), Saline Valley in Inyo County (Nagano and Lane 1985), and Fairfield in Solano County (Fadem and Shapiro 1979). Along the Santa Cruz coastline, there are several locations of monarch winter roosts between Moore Creek just north of the City of Santa Cruz and Watsonville (California Natural Diversity Data Base 2003).

In California, clustering behavior begins once migrating monarchs reach their overwintering sites in the fall. The terminology used to describe wintering habitats used by the monarch has been variously described in the entomological literature; however, the duration of the residence is often used to differentiate the types of monarch wintering habitats (Dick Arnold, Ph.D.):

A) sites that support clusters of wintering monarchs for a few days to a month or two are referred to as temporary habitats; and

B) sites that host clusters of wintering monarchs for two to six months are referred to as overwintering habitat, and can be further subdivided into two subcategories, namely:

   1) Part-term overwintering sites, which generally support wintering monarch populations from October into December; and

2) Full-term overwintering sites, which support wintering monarch populations for the entire season from October through February (in most years).

Additionally, four types of roost areas and temporary habitats are generally recognized, including:

A) refuge areas, which provide temporary protection from inclement weather and/or convenient areas to roost overnight while migrating;
B) bivouac areas, which host populations of migrating monarchs for a few days to several weeks;
C) autumnal roost areas, which generally host monarchs throughout the month of October and often into November, and are usually associated with fall-blooming composites, English Ivy, and other sources of fall nectar favored by the monarch; and
D) mid-winter roost areas, which host monarchs from about mid-December through February in habitats with a series of sequentially occupied roost areas.

In the fall months, typically in September and October, numerous, generally small temporary aggregations are formed, especially in areas where nectar plants are plentiful near the coast. Monarchs at many of these sites disperse to part-term or full-term overwintering sites as nectar sources, air temperature, and day length decrease. Some sites may serve as overwintering sites one year and temporary sites another year, or a mixture of the two. Occasionally, previously utilized overwintering sites and/or temporary sites are abandoned for one or more seasons.

Overwintering sites are characterized by groves of trees of mixed height and diameter, and frequently with an understory of brush. Often there is a small clearing within a stand of trees, or formed by a combination of the trees and surrounding topography, to provide shelter for the butterfly. These overwintering sites protect the butterfly from prevailing on-shore winds and freezing temperatures, plus exposure to the sun (as further described below). The vegetation serves as a thermal "blanket" which moderates extreme weather conditions (Calvert and Brower 1982). At some locations, nearby buildings or other man-made structures may provide some protection as well (Dick Arnold, Ph.D.).

Recent research has demonstrated that forest canopy structure is a primary determinant of microclimatic conditions in forest stands, and is undoubtedly an important factor in the monarch's selection of particular locations as overwintering roosts (Bell 1997; Leong 1990; Sakai et al. 1989; Weiss et al. 1991). Many of the best overwintering sites provide a heterogeneous mixture of habitat conditions and resultant microclimatic conditions that assist the monarchs to survive seasonal changes in climatic conditions during the winter. For example, overwintering habitats must provide wind protected roost locations (usually tree branches that are 15-50 feet above the ground), with buffered temperatures, relatively high humidity, and filtered sunlight throughout the fall and winter months. As weather conditions and exposure to sunlight vary over the winter months, high habitat heterogeneity at an overwintering site permits the monarch roosts to satisfy their thermoregulatory needs by moving from tree to tree in response to changes in weather conditions. Thus during the early part of the overwintering period (October-November), when daily temperature maxima are relatively high, monarchs tend to cluster in locations that provide brief morning insulation, with mid-day and afternoon shade. Later in the

season (December-February), when temperature maxima are lower, they tend to roost in trees that receive afternoon sunlight. Trees surrounding roost locations, known as windbreak or buffer trees, provide both wind protection and ameliorate microclimatic conditions near the roost trees (Dick Arnold, Ph.D.).

A number of cluster or roosting sites in coastal California are located in groves of introduced trees. Favored trees for monarch roosts include, blue gum, river gum *(Eucalyptus camaldulensis)*, Monterey pine *(Pinus radiata)*, and Monterey Cypress *(Cupressus macrocarpa)*, although a number of other native and introduced species of trees are also utilized (Lane 1993). Clusters typically form between about 15 and 50 feet above ground, but have been observed as low as six feet and as high as 75 feet.

As described by The Monarch Project (1993) and the previously cited researchers, several characteristics of an overwintering habitat site are important to the Monarch butterfly, namely:

a) trees that provide suitable roost, wind protection, and shade;
b) on-site or nearby plants that flower and produce nectar to sustain adult Monarchs during their overwintering period; and
c) suitable sources of water.

At some overwintering habitat sites, topography can also provide wind protection. Gullies, canyons, creek drainages, and the lee sides of hills are the types of areas in which Monarchs will roost, if the appropriate tree cover is present. For this reason, the roost area includes not only the trees on which the Monarchs cluster, but also any surrounding trees, topographic features, and other features (including man-made) in a full 360° around the roost trees, that act as windbreaks as well as provide dappled sunlight and shading for the limbs and trees on which the Monarchs roost. Although the butterflies are inactive on colder, rainy, or foggy days, they will fly from the roost trees on warmer, sunny days to obtain the water and nectar that is needed to sustain them through the winter. Thus, an on-site or a nearby source of water and an abundance of fall and winter-blooming nectar plants are also important factors in determining where the butterflies will roost. Monarchs can obtain water from natural or man-made bodies of water, runoff from sprinklers, and dew on vegetation (Nagano and Lane 1985). Important nectar plants at many overwintering sites include eucalyptus trees, coyote bush *(Baccharis)*, wild mustard *(Brassica)*, and bottlebrush *(Callistemon)*, although other native and introduced species are utilized when available.

Although a number of basic features are important determinants in the suitability of a particular location to serve as an overwinter roosting site by the monarch butterfly, there is also an interaction of these and other factors that is only beginning to be understood by researchers (Dick Arnold, Ph.D.). Also, because features of a site can change due to the growth of trees and understory vegetation, thinning or removal of trees, removal of brush, changes in nectar plant abundance, etc., monarch usage of a particular site may vary from year-to-year and for longer durations. Indeed, new roosting sites continue to be discovered in California as conditions become favorable, even in areas where roosts were not previously observed. Similarly, when habitat quality deteriorates at locations that previously supported winter roosts, monarch numbers decline and butterfly utilization may even cease. For example, at Natural Bridges State Beach, downed trees that previously provided windscreen protection have likely contributed to the reduced numbers of monarchs observed there in recent years. Clearing of brush and thinning of trees are common vegetation management practices that have adversely impacted

monarch roosting sites, even on public lands (Nagano and Lane 1985; Weiss et al. 1991). Conversely, adaptive management at historic roosting sites, such as planting of windscreen and roost trees, planting of nectar sources, selective limb pruning, and control of invasive plants, can assist in the maintenance of these sites as viable overwintering habitat.

Background information on the Rispin Mansion overwintering habitat. The monarch butterfly's use of the Rispin Mansion site has previously been studied by several biologists during the past 25 years. Christopher Nagano and John Lane (1985) documented monarchs at the Mansion in 1982-1983 and 1985 and referred to the site as a permanent roost (i.e., overwintering habitat as identified above) because butterflies were observed at the site in January, after the winter solstice (the date used by some biologists to distinguish the monarch's overwintering habitat from its temporary habitat).

As previously stated, the Rispin Mansion overwintering site is listed as Occurrence #59 in the California Natural Diversity Database. Information in the Database indicates that monarch overwintering and breeding occurred at this site prior to the clearing of tree and understory vegetation around 1985. Paul Cherubini (1984) characterized the Rispin Mansion as an autumnal roost site based on his observations of the butterfly there in 1977-78, 1978-79, 1979-80, and 1982-83. Elizabeth Bell and John Dayton (1991) observed monarchs at the Rispin Mansion during October and November. Additional surveys were conducted by Bell at Rispin Mansion, plus nearby overwintering habitats at Escalona Gulch and Natural Bridges State Park during the fall/winters of 1996-1997, 1997-1998, and 1999-2000 to provide observations throughout the full roosting period and to compare results obtained between different sites and years. Results of these surveys were summarized by Denise Duffy & Associates, Inc. (2000) and Bell (2000), and indicated that the Monarch used the site primarily between late September and mid-December. In 1997, butterflies remained as late as December 29th, which is after the winter solstice. During 1999, the site was used as an autumnal roost site.

The findings of these prior surveys indicate that during most of the past 25 years, Monarchs have used the Rispin Mansion property primarily as an autumnal roost site. The numbers of Monarchs observed at the Rispin Mansion generally ranged from a few hundred to a few thousand in those years when the butterfly utilized the site. Only three butterflies were observed there during the overwintering period of November 1996 through February 1997, and these were seen flying through the site, not roosting. Thus, in some years the Monarch may not overwinter at the Rispin Mansion property.

As illustrated in figures attached to some of the aforementioned documents (as referenced within Section 4-4 of the RDEIR, Denise Duffy & Associates, Inc. 2000), the roosting Monarchs have been observed at two locations on the property, referred to as Areas A and B. Area A is the primary roosting location at the site, while Area B is a secondary roosting location that also supports most of the on-site English Ivy, a fall nectar plant of the Monarch. The aforementioned figures illustrate primarily the roost trees utilized by the Monarch at Areas A and B, but not all of the surrounding windbreak trees that also comprise both of these roost areas. However, the recent loss of several acacia trees has altered the amount of wind protection and dappled light, as well as the boundaries of these roost areas since they were previously identified (see Interim Management Plan for Preservation of Rispin Mansion Butterfly Habitat and Screening of Rispin-Peery Bridge Connection, Lewis Tree Service, April 2003 [**Appendix C**]).

According to Bell (1998), the observed variability in the pattern of roosting usage of the Rispin Mansion site by the Monarch butterfly may be due to annual changes in reproductive success of Monarchs during the summer (which occurs at other locations in the western U.S.), as well as biological and/or physical changes in habitat conditions at the Rispin Mansion site. Since fast-growing, unstable, non-native trees such as eucalyptus and acacia dominate the roosting habitat there, fallen trees and dropped limbs can result in quick and dramatic changes in the tree canopy structure of the wintering habitat area at the Rispin Mansion site. For these reasons, the observed year-to-year variation in Monarch usage of the Rispin Mansion site is not surprising, and may also explain why the Monarchs have been observed using different portions of the site in different years.

Methods. On-site surveys were conducted at the Rispin Mansion, Escalona Gulch and Natural Bridges overwintering habitats during the fall/winters of 1996/1997 through 1999/2000 (see **Tables 3, 4** and **5** below), to allow comparison of use of several overwintering sites and multiple seasons. The following describes the results of each year of survey. Methodology for these site surveys is found in **Appendix C** of the EIR.

1996-97 Overwintering season. During the 1996-97 overwintering season, monarchs were not observed clustering at the Rispin site from November through February (**Table 3**); however, since observations were not made during September and October, there is no information on habitat utilization during the fall of that year. In late November, three butterflies were seen flying through the Rispin habitat, but none were observed roosting. Monarchs occupied Escalona Gulch during early November 1996, but had abandoned that site by mid-December. Visual estimates of the monarch population at Natural Bridges during the 1996-97 season ranged from 30,000-45,000 during the period of peak occupancy (November - December). Thus the 1996-97 overwintering population at Natural Bridges was approximately 50% below average; however, monarchs occupied the site for their normal duration of residency (October - February).

Table 3
Numbers of Monarch Butterfly Overwintering in Capitola 1996 - 97 Winter

		Number of Butterflies Observed		
Visit	**Date**	**Rispin Mansion**	**Escalona Gulch**	**Natural Bridges**
1	Nov. 8, 1996	0	2,000	30,000
2	Nov. 13, 1996	0	200	30,000
3	Nov. 20, 1996	0	<10	30,000
4	Nov. 27, 1996	3	<20	35,000
5	Dec. 4, 1996	0	25	40,000
6	Dec. 13, 1996	0	20	40,000
7	Dec. 20, 1996	0	0	45,000
8	Dec. 27, 1996	0	0	40,000
9	Jan. 9, 1997	0	0	30,000
10	Jan. 30, 1997	0	0	20,000
11	Feb. 14, 1997	0	2	15,000
12	Feb. 28, 1997	0	5	1,000

Note: Surveys were not conducted during September and October.

1997-98 Overwintering season. During the 1997-98 overwintering season, monarch butterflies were present in the Rispin habitat from September through December (**Table 4**). Roosting butterflies were found in two main areas on the property as shown in the **Butterfly Habitat Preservation Study**: (A) in the area adjacent to the south access road (primarily near the point where it enters the Mansion grounds at the fence), and (B) in the eucalyptus trees on the hillside adjacent to Soquel Creek.

In the early fall, clusters of roosting monarchs were observed in Area A primarily on the lower eucalyptus branches overhanging the roadway access to the Mansion. During October, roosting activity shifted eastward toward Soquel Creek (Area B) where the butterflies roosted in the interior of the grove on or near eucalyptus with blooming English Ivy growing on the trunks. In early November the colony returned to Area A, over the southern access road, where they remained until they left the habitat in early January. During November and December, clusters formed primarily on the acacia trees in the crosshatched portion of Area A on the **Butterfly Habitat Preservation Plan**. The highest concentrations were found in the canopy of the acacia that is located in the central grassy area on the western side of the roadway approximately 30 feet southeast of the well-house.

Although monarchs occupied the Escalona Gulch site during the fall immigration phase (September - October 1997), they abandoned that site by early November (**Table 4**). The monarch population size at Natural Bridges State Beach was somewhat above average during the 1997-98 overwintering season.

Table 4
Numbers of Monarch Butterfly Overwintering in Capitola 1997 – 98 Winter

		Number of Butterflies Observed	
Visit	**Date**	**Rispin Mansion**	**Escalona Gulch**
1	Sept. 22, 1997	350	34
2	Oct. 2, 1997	400	800
3	Oct. 8, 1997	2,000	5,000
4	Oct. 16, 1997	1,500	1,400
5	Oct. 26, 1997	2,600	1,000
6	Nov. 12, 1997	1,000	20
7	Nov. 17, 1997	1,000	0
8	Nov. 22, 1997	1,000	4
9	Nov. 27, 1997	1,000	0
10	Dec. 12, 1997	500	NS
11	Dec. 29, 1997	200	NS
12	Jan. 8, 1998	0	NS

NS = no survey
Colony size at Natural Bridges ranged from 80,000 – 100,000 during the winter of 1997 - 98.

1998–99 Overwintering season. There are no known surveys available for the 1998-1999 overwintering season at Rispin Mansion.

1999-2000 Overwintering season. During the 1999-2000 overwintering season, monarch butterflies occupied the grove at Rispin Mansion in the fall months, mainly during October and into early November (**Table 5**). There were relatively few butterflies at Rispin in the 1999-2000 season compared to past years; however, as indicated by colony sizes at Natural Bridges and other coastal habitats, this was an extremely low population year overall for monarchs in California. That monarchs used the Rispin habitat at all during that winter is significant, since some overwintering habitats are not utilized during winters with small population sizes. Thus, the habitat at Rispin remains viable for monarch overwintering use.

Table 5
Numbers of Monarch Butterfly Overwintering in Capitola 1999 – 2000 Winter

Visit	Date	Number of Butterflies Observed	
		Rispin Mansion	Natural Bridges
1	October 06, 1999	6	1,000
2	October 14, 1999	13	4,500
3	October 21, 1999	120	6,500
4	October 28, 1999	0	8,000
5	November 05, 1999	11	10,000
6	November 13, 1999	5	10,000
7	November 21, 1999	0	13,000
8	November 27, 1999	0	13,500
9	December 05, 1999	6	14,500
10	December 11, 1999	1	14,000
11	December 21, 1999	0	9,000
12	December 27, 1999	0	14,000
13	January 03, 2000	0	9,000
14	January 16, 2000	0	8,000
15	January 29, 2000	0	4,000
16	February 19, 2000	0	500

Roost locations within the monarch overwintering habitat were documented and are collectively shown in the **Butterfly Habitat Preservation Study**. Butterflies mainly roosted in trees located within the same general region in which they have roosted during past years (**Area A** on the **Butterfly Habitat Preservation Study**). However, roost locations were restricted to the eastern side of the roadway that winter, in the mature blue gum trees with large horizontal branches hanging over the paved access road and on a few smaller saplings adjacent to these larger trees. The butterflies did not utilize the roost area in the center of the grove in 1999-2000.

In addition to use of the traditional roosting "Area A", monarchs also roosted in the mature blue gums located immediately adjacent to the Mansion driveway/garage area. Although no monarchs were observed in this roost location during the surveys conducted in the winters of 1996-97 and 1997-98, this area was documented by Mr. John Lane as one of the traditional roost areas at the Rispin Mansion site during the

1970s and possibly during the early 1980s (CA Fish & Game Natural Heritage Database).

Discussion of surveys. Based on population size estimates at the Natural Bridges site, 1996-97 was a relatively good year for the monarchs. Furthermore, in the fall of 1997, substantial populations were observed at several of the local autumnal roost sites that were not utilized in 1996 when the population at Natural Bridges was relatively small. Thus the presence of monarchs at the Rispin Mansion site during the 1997-98 overwintering season, and their absence in November and December of the previous winter, appears to be due to a normal fluctuation in population, in addition to an abundance of on-site nectar in 1997-98. During the 1999–2000 season, the Rispin site was used as an autumnal roost site, and there were relatively few butterflies because this year was an extremely low population year overall for monarchs in California.

The Rispin habitat functions as an autumnal roost site in most years (such as in 1999–2000), but it may also serve as an overwintering site in other years (1997-98); and in other years the monarchs may not cluster on the site at all (1996-97). These differences often reflect physical changes in the site that alter its suitability, differences in the reproductive success of the monarchs during the summer, and/or changes in the biotic components of the habitat (such as increased nectar availability or disturbance from increased predator activity). When the regional metapopulation is small, transient roost sites and autumnal roost habitats are often not utilized and clusters subjected to frequent disturbance typically do not persist for long. Thus, the relative biological importance of a monarch winter habitat may appear to change from one year to the next. Therefore, all types of winter habitats warrant the same level of conservation efforts. According to Elizabeth Bell, removal of mature trees and other alterations associated with development at Escalona Gulch have resulted in a reduction in colony size, as well as in the duration of occupancy, making the Rispin site a more suitable overwintering habitat during the 1997-98 season. The sensitivity of overwintering monarchs to changes in their roosting habitats underscores the necessity of mature tree preservation within these habitats. See **Appendix C** for more information regarding this issue (Elizabeth Bell 1998).

Overwintering Habitat at the Rispin Mansion

The following is based on the Dick Arnold (Ph.D.) report in **Appendix C**. As previously discussed, at any particular overwintering habitat site, the Monarch's overwintering habitat consists of one or more roost areas, plus sources of nectar and water. Every roost area includes not only the roost trees, but all surrounding windbreak trees, protective topography and even buildings that afford wind protection.

At the Rispin Mansion site, two "roost areas" for the Monarch, A and B, were previously identified by other biologists. Dr. Arnold concludes that these "roost areas" primarily represent the roost trees, because they do not include all of the surrounding windbreak trees that would comprise the entire roost area. In addition, they do not include all of the nectar and water sources available at the site, which constitute overwintering habitat for the Monarch at the Rispin Mansion site. As previously stated, the recent loss of several acacia trees due to winter storms has altered the wind protection since these original "roost areas" were identified. As noted by The Monarch Project (1993) in its description of Monarch overwintering habitats in California, "it is a common mistake, and one that

has led to the destruction of many Monarch habitats, to assume that Monarch overwintering habitat includes only the trees on which the butterflies aggregate".

For these reasons, Dr. Arnold concludes that the entire Rispin Mansion property provides overwintering habitat for the Monarch butterfly. The portion of the site that lies within the coastal zone (i.e., the southern approximate one-half of the site) supports the roost trees, the primary windbreak trees, some of the secondary windbreak trees, as well as some sources of nectar and water. The portion of the site that lies outside of the coastal zone (i.e., the northern approximate one-half of the site) supports primarily *additional* sources of nectar and water. It should be noted that this area is not part of the roast area

It should be noted that in Dr. Arnold's opinion the overwintering habitat probably extends beyond the southern and western boundaries of the site. For example, the off-site residential building immediately south of the southern property boundary probably provides some wind protection for the nearby, on-site roost areas. Similarly, the recent loss of several acacia trees close to Wharf Road during the winter storms of 2002-2003 has decreased the wind protection along the western border of the site. Also, Monarch butterflies probably obtain some nectar from fall and winter blooming plants growing on other properties in the surrounding neighborhood, as well as water. As noted by The Monarch Project (1993), "the total Monarch habitat at any one site thus may not correspond to the land ownership or political boundaries, and protection of any one site may require the cooperation of several property owners". The Interim Management Plan (Lewis Tree Service 2003) addresses the recent loss of acacia trees that provided wind protection and dappled light. However, Dr. Arnold recommends delaying any tree removal and pruning of the remaining acacias, as detailed in the Interim Management Plan **(Appendix C)**, until replacement wind protection trees are of a suitable size to provide substitute wind protection.

Based on the definition(s) of ESHA provided by the Coastal Act, Dr. Arnold's assertion that all components of overwintering habitat are essential to monarch survival and/or utilization of a site, and that the proposed project represents a potential impact to this overwintering habitat, it is apparent that all portions of the Rispin site within the coastal zone constitute ESHA. [Note that the California Coastal Commission is responsible for making the final determination of ESHA at the Rispin Mansion site.] All portions of the Rispin site outside of the coastal zone are non-ESHA but are included on the City's Environmentally Sensitive Habitat District map. However, this area does not support any identified or mapped monarch roosting areas, and development as proposed in this area would not adversely impact the monarch roosting habitat.

Steelhead

Steelhead, the anadromous form of rainbow trout, are a federally Threatened species (August 18, 1997). In North America, steelhead are found in Pacific Ocean drainages from southern California to Alaska. In California, known spawning populations are found in coastal streams from Malibu Creek in Los Angeles County to the Smith River near the Oregon border, and also in the Sacramento and San Joaquin River systems. The present distribution and abundance of steelhead in California has been greatly reduced. During the last century, over 23 indigenous, naturally reproducing stocks of steelhead are believed to have been extirpated and many more are in decline (Federal Register, June 2000).

Steelhead are born in freshwater, migrate to the ocean where most growth occurs, and return to freshwater to spawn. Unlike Pacific salmon, steelhead do not necessarily die after spawning. However, repeat spawning rates are generally low, and vary considerably among populations. Peak spawning occurs from December through April in small streams and tributaries. Steelhead migrate as juveniles from fresh water to the ocean and then return to spawn in fresh water. They typically migrate to marine waters after two years, where they reside for another two or three years prior to returning to their natal stream to breed as four- or five-year olds. Steelhead have traditionally been grouped into seasonal runs according to their peak migration period; in California there are well-defined winter, spring, and fall runs.

Because of their complex life-cycle and its multiple stages, steelhead can be found in a variety of habitats and in different life stages throughout the entire year. Steelhead in Soquel Creek and Soquel Lagoon fall within the Central California Coast Evolutionary Significant Unit (ESU); an "ESU" is a distinctive group of Pacific salmon, steelhead, or sea-run cutthroat trout. This ESU includes all naturally spawned populations of steelhead (and their progeny) in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin. Critical habitat is designated to include all river reaches and estuarine areas accessible to listed steelhead in coastal river basins. Negative factors affecting the Central California Coast ESU include, but are not limited to: water diversion/extraction; habitat blockages; agriculture; logging; historic flooding; hatchery introgression; poaching; mining; urban development; and harvest.

Streams and stream functioning are inextricably linked to adjacent riparian and upland (or upslope) areas. Streams regularly submerge portions of the riparian zone via floods and channel migration, and portions of the riparian zone may contain off-channel rearing habitats used by juvenile steelhead, especially during periods of high flow. The riparian zone also provides an array of important watershed functions that directly benefit steelhead and other fish. Vegetation within the riparian zone shades the stream, stabilizes banks, and provides organic litter and large woody debris. The riparian zone stores sediment, recycles nutrients and chemicals, mediates stream hydraulics, and controls microclimate. Healthy riparian zones help ensure water quality essential to steelhead as well as the forage species they depend on (Federal Register, February 2000).

Those portions of the Soquel Creek associated with the Rispin Mansion property are located in close proximity to the Soquel Lagoon (<¼ mile). The lagoon is known to provide nursery habitat for juvenile steelhead, which are spawned in the lower portions of Soquel Creek. Management of the lagoon and of any activities that may potentially effect the lagoon are important considerations for the health of the steelhead population in Soquel Creek. The stream channel adjacent to the Rispin property likely functions as an important passageway for steelhead during their spawning migration.

The exact boundary of riparian vegetation associated with Soquel Creek on the Rispin property has been delineated by biologists with Ecosystems West. In addition to the mitigation measures identified below, concurrent mitigation within the **Geology and Soils** and **Hydrology and Water Quality** sections will also be applicable.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

In accordance with the State CEQA Guidelines, and agency and professional standards, a project impact may be considered significant if the project would:

- substantially affect a rare or endangered plant or animal species, or the habitat of the species;
- substantially interfere with the movement of any resident or migratory fish or wildlife species;
- substantially diminish habitat for fish, wildlife or plants;
- adversely affect significant riparian, wetland, or other sensitive habitat; or
- result in substantial disturbance to wildlife resulting from construction or human activities.

Impacts on Riparian Habitat

As designated, development in the riparian habitat on the portion of Soquel Creek between Highway 1 and the lagoon in Capitola Village must adhere to the City of Capitola's Environmentally Sensitive Habitat Ordinance (No. 677), Section 17.95.030, Subsection B., C., and G. In particular, project development must allow for a minimum 35-foot setback from the outer edge of riparian vegetation. Based on the Ecosystems West site assessment, the outer edge of the riparian vegetation along Soquel Creek on the project site is approximately demarcated by the flood plain and flood way boundary as shown on the project site plans included in the envelope at the end of this document. The slopes above this line are steep and hardened with little or no seasonal flood plain present along the Mansion parcel portion of Soquel Creek. The habitats above the flood plain boundary support species and structure typical of canyon slopes above large stream courses. In this area, the habitats transition from a narrow riparian dependent plant community to a mixed canyon woodland community of bay, buckeye, and coast redwoods; into a coast live oak woodland; and ultimately a coast live oak savanna habitat remnant of the old coastal marine terraces typical of the Live Oak area.

Coast live oak *riparian* habitat is typically a narrowly, homogenous structured community comprised of a dense band of coast live oak along intermittent stream corridors. Tree density and the narrow corridor is a reflection of stream ground water availability and a shallow slope and banks. The coast live oak on the portion of the site proposed for development is not directly supported by stream flow or stream ground water associated with Soquel Creek; therefore it is considered to be coast live oak woodland and coast live oak savanna habitat, not coast live oak riparian habitat.

As presently proposed, new structures and grading would all occur outside the 35-foot riparian vegetation setback area. The plans do not include the previously proposed "North End Units" that were located within 35 feet of the outer edge of riparian vegetation as identified in the Ecosystems West site evaluation. However, there exists the potential for direct and indirect impacts to the riparian habitat, vegetation, and the creek (and

wildlife within the creek) due to erosion or slope slippage from development on steep slopes above the creek.

- When raindrops strike bare soil, the soil is broken down, inhibiting water infiltration and plant establishment, thereby increasing runoff volume and future erosion potential.
- Eroded soil contains nitrogen, phosphorous and other nutrients. When carried into water bodies in storm water runoff, these nutrients trigger algae growth with the effect of reducing water clarity, creating odors, depleting oxygen and leading to fish kills.
- Excessive deposition of sediments in streams "paves" stream bottoms, blankets the bottom fauna, and destroys fish habitat and spawning areas.
- Turbidity (cloudiness) from sediment reduces in-stream photosynthesis, leading to reduced food supply and habitat, and upsetting the food chain.

Impact: Erosion or slope slippage from development on the steep slopes above Soquel Creek could harm the riparian vegetation and decrease the habitat values of the riparian habitat or the creek itself.

This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of mitigation measures R-1 and R-2 (Geology and Soils) and R-4 and R-5 (Hydrology and Water Quality). In addition, steelhead mitigation measures R-27 through R-42 within this section are also applicable.

Impacts on Nesting Raptors

Nesting raptors are adversely impacted if any action has the potential to increase physiological stress, increase brood mortality, and/or cause nest abandonment. This can occur due to reduced habitat suitability or quality (physical or biological changes in the area), increased frequency of disturbance (i.e., noise, dust, vibration, etc.), and increased accidental death (direct mortality). In the broadest sense, the available nesting raptor habitat at Rispin includes all trees in the southern region of the project site, as well as the adjacent areas surrounding the eucalyptus grove and acacia trees, and the eastern side of Soquel Creek.

Impact: Potential nesting trees occur within the study area. While no nesting raptors were observed during the site assessment, species-specific surveys (including the 300-foot offset from project boundaries) were not conducted. Pre-construction nesting surveys are required to eliminate the potential presence of nesting raptors within, or within 300 feet of, project boundaries. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-10 Pre-construction surveys for nesting raptors shall be performed by a qualified biologist to be retained by the applicant. If raptor nests are located during pre-construction surveys, a 300-foot buffer shall be established around each nest for the duration of the breeding season (August 1st, or until such time as the young

are fully fledged as determined by a qualified biologist in coordination with the California Department of Fish and Game) to prevent nest harassment and brood mortality. Every effort shall be made to avoid removal of, or impact to, known raptor nests within project boundaries. If trees known to support raptor nests cannot be avoided, limbing or removal of these trees may only occur during the non-breeding season.

Impacts on Roosting Bats

Roosting bats are adversely impacted if any action has the potential to increase physiological stress, increase brood mortality, and/or cause maternity roost abandonment. This can occur due to reduced habitat suitability or quality (physical or biological changes in the area), increased frequency of disturbance (i.e., noise, dust, vibration, etc.), increased accidental death (direct mortality), or a shift in microclimate. In the broadest sense, the available roosting habitat at Rispin includes all suitable trees in the southern region of the project site, the adjacent areas surrounding the eucalyptus grove and acacia trees, the eastern side of Soquel Creek, and the abandoned Rispin Mansion itself.

Impact: Suitable habitat for pallid bats, Townsend's big-eared bats, and small-footed myotis occurs within the project area, especially within the abandoned Rispin Mansion itself. Pre-construction surveys for these species are required. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-11 Pre-construction surveys for roosting bats must be performed 30 days prior to construction by a qualified biologist to be retained by the applicant. If roosts are found, a Memorandum of Understanding (MOU) with the CDFG shall be obtained by the contractor in order to remove bat species, or the construction schedule shall be modified to initiate construction after August 1, when young are assumed to have fledged. Alternative habitat will need to be provided if bats are to be excluded from maternity roosts. If this is the case, a species-specific roost with comparable spatial and thermal characteristics shall be constructed and provided. CDFG and species-specific bat experts shall be consulted regarding specific designs if roost removal becomes necessary.

Impacts on Monarch Butterfly Habitat

This impact assessment is based on the 1998 DEIR, the revised monarch butterfly evaluation in the 2000 RDEIR (wherein the April 1999 plans were evaluated for their impacts [Elizabeth Bell, Ph.D., April 17, 2000]), and a third party review and supplemental report prepared by Dick Arnold, Ph.D. (April 17, 2003). This evaluation is included in **Appendix C** (butterfly reports). In addition, this evaluation includes a general delineation of the butterfly habitat boundaries to determine the projects' consistency with the California Coastal Act and the City of Capitola Environmentally Sensitive Habitat Ordinance by Elizabeth Bell (2000) and by Dick Arnold (2003).

The City of Capitola has established an "Environmentally Sensitive Habitat District," which includes all of the Rispin property. It was the City's intent when it established the

district to further define habitat areas within the district that needed to be protected from future development at the time there is a development application. In the coastal zone, these subsequent delineations would constitute Environmentally Sensitive Habitat Areas "ESHA's" as that term is defined at Section 30107.5 of the Coastal Act. The City of Capitola memorialized the process for achieving this goal when the City adopted Section 17.95 Environmentally Sensitive Habitats of the Zoning Ordinance, which is included in the City's Local Coastal Plan. Chapter 17.95.010 describes the process for approving projects within the City's Environmentally Sensitive Habitat District. More specifically, Chapter 17.95.010[E] states, "In order to provide technical expertise concerning specific habitat protection issues, the city shall require the services of a biologist, botanist, forester, or other qualified professional to assist in determining such questions as the precise location or boundary of a designated natural area, or the effect of the proposed development project on the immediate and long-term health and viability of the natural area."

Overwintering habitat for the monarch butterfly, located on the southern portion of the property, within the Coastal Zone boundary, likely will be interpreted as an environmentally sensitive habitat area (ESHA) by the Coastal Commission based on ESHA definitions provided within the California Coastal Act and the expert opinion of Dr. Arnold. At any particular overwintering site, the roost area includes the roost trees, surrounding windbreak trees, protective topography and even buildings. At the Mansion site, this includes the roost trees, surrounding windbreak trees, the Mansion itself, and the off-site, residential building immediately south of the southern property boundary. Thus, proposed new development of the South End Building and other elements of the project plans within the coastal zone would occur within the ESHA of overwintering monarch habitat, *constituting a significant and unavoidable impact* (assuming that the Coastal Commission concurs with the ESHA interpretation presented within this EIR). Section 30240 of the Coastal Act always prohibits development within an ESHA, except when the use is dependent on the resource. While portions of the project may not be considered a resource-dependent use (i.e. educational facility), it will result in various protective measures and improvements in site conditions to permanently benefit the monarch and its overwintering habitat at the Mansion property (Dick Arnold, Ph.D.). As a result of project review by Dick Arnold (Ph.D.), several aspects of the originally proposed project have been revised.

Dr. Arnold characterized all of the Rispin site as monarch butterfly overwintering habitat. As stated above, it is apparent that all portions of the Rispin site within the coastal zone may represent ESHA. However, prior to Dr. Arnold's analysis, all of the site had been included within the City's Environmentally Sensitive Habitat District, and Chapter 17.95 requires the service of a professional to assist the City in defining the precise location or boundary of a designated natural area, and the effect of the proposed development project on the immediate and long-term health and viability of the natural area. Dr. Arnold verified that the overwintering habitat for the monarch butterfly extends across the entire project site, but he concurs that the roosting area is located only on that portion of the site within the Coastal Zone. Based on his interpretation of overwintering habitat and our review of the ESHA statute and case law, it is apparent that the proposed South End Building would be located within the ESHA delineation (ultimately to be defined by the Coastal Commission). However, and more importantly, Dr. Arnold conclusively states, "The proposed renovation of the Rispin Mansion and development for the South End Units provides a mechanism to not only protect the monarch's overwintering habitat, but to also continuously monitor it and manage it in a manner to

benefit the redevelopment project through numerous revisions to the original site plan. The mitigations identified in this report should minimize anticipated impacts of the project on the monarch and improve the quality of overwintering habitat for the monarch at the Rispin Mansion site."

The Coastal Commissions interpretation of the Coastal Act does not sanction non-resource dependent development within ESHA in exchange for mitigation. Therefore, all subsequent mitigation contained within this document may not mitigate impacts to ESHA to a less-than-significant level. However, in as much as the project has been substantially revised to include habitat restoration and improvement, and adaptive management strategies for aquatic resources, riparian habitat, and special-status wildlife species, all subsequent mitigation measures shall be implemented to avoid significant ESHA degradation and allow development in a fashion that is compatible with ESHA. The proposed project may represent the best opportunity to privately finance adaptive management for the continued utilization of on-site resources by monarchs (Dick Arnold, Ph.D.), as opposed to "No Project", and improvements to on-site riparian and adjacent steelhead habitat.

Monarch butterfly overwintering habitats are adversely impacted if an action has the potential to substantially reduce the number of butterflies using the habitat (colony size) and/or the length of time that a colony persists in the habitat (duration of occupancy). This can occur due to reduced habitat suitability or quality (physical or biological changes in the area), increased frequency of disturbance (i.e., reducing wind protection, increased interactions with people/vehicles), and increased accidental death (direct mortality). In addition, other forms of disturbance during the roosting season can be considered detrimental to the viability of the habitat (such as use of pesticides, smoke from chimneys, use of leaf blowers, and excess vibration).

Because viable monarch habitat requires trees for roosting and wind protection, tree locations (and the ground areas within the dripline of the canopy) are generally used to delineate the extent of monarch habitat boundaries. Therefore, for the purposes of this analysis, the core monarch overwintering habitat includes all mature trees to the south of the Mansion, as well as the grassy open space area located between the acacia along Wharf Road and the eucalyptus grove that is bisected by the access road (as identified in the Elizabeth Bell report). The results of the 1999 - 2000 survey confirmed the determination in the 1998 DEIR that the monarch overwintering habitat on the project site includes all mature trees (eucalyptus and acacia) to the south of the Mansion and the ground area within the dripline. It should be reiterated, however, that all portions of the project site that may provide for continued utilization of the site by monarchs are within the southern portion of the property that is located within the Coastal zone boundary, and in all likelihood will be considered ESHA by the Coastal Commission.

The **Butterfly Habitat Preservation Study** shows the locations of the monarch roosting areas in the southern portion of the project site. The following discussion outlines how the current Rispin Mansion plans could impact mature trees within the habitat and, therefore, the viability of the monarch butterfly overwintering habitat.

Rispin Conservatory. This area contains 11 coast live oak trees, which may function as peripheral wind screens for monarch roost trees (Dick Arnold, Ph.D.). These trees run in a north/south direction between the proposed conservatory and the masonry wall. Three of these oak trees will be removed for construction of the conservatory. Due to the close

proximity of building construction to critical root zones, indirect impacts to other trees may also occur.

South End Building. Based on an on-site survey and staking that delineated acceptable building envelopes for the southwestern corner of the project site, the South End Building shown in the current plans has been sited to be outside of the monarch butterfly roosting areas and associated root zones. The original site plan illustrated two, detached buildings situated at the south end of the site between Wharf Road and monarch roost Area A (see **Butterfly Habitat Preservation Study**). These buildings were originally proposed to be tall enough that they would have shaded some of the roost limbs used by the monarch in Area A or resulted in the need to prune overhanging limbs that are used by roosting monarchs. As originally designed, several acacias, providing windbreak protection and dappled lighting for the monarch roost Area A, would also have been removed to accommodate the new units.

The revised site plan illustrates a single, smaller new building. The project's architect, Mr. Paul Davis, completed a shadow study to insure that the new building would not shade the monarch's roost (shown on the **Butterfly Habitat Preservation Study**). As a result, several changes to the South End Building have been incorporated in the revised site plan, as elucidated by Dick Arnold, including:

- only a single building is now proposed, which has been set back farther from the roost trees and with a reduced footprint (30 x 61 feet) that should minimize the need for safety limb pruning and avoid disturbance to roots of the nearby roost trees;
- the maximum building height will be no more than 17 feet above the existing grade, and slants to only 11 feet above existing grade at its eastern edge to avoid any shadows being cast onto roost Area A;
- the building's roof has been redesigned to accommodate plantings to provide additional windscreen protection, dappled lighting, and nectar for the monarchs, and the height of these plantings will be monitored by the monarch biologist in future years to insure that they do not become tall enough to shade the ground beneath the roost trees in Area A;
- the building has been redesigned to have a glass enclosed patio or deck on its east side, which can be sealed off, including the roof, during the monarch's overwintering period without blocking the sunlight that would transmit through the glass enclosure;
- windows that face the roost trees may require special tinting, curtains, or blinds to limit the spread of interior lighting to these trees during the overwintering period of the monarch when butterflies are present;
- exterior lighting for the South End Unit will utilize low wattage bulbs designed to not attract insects;
- lattice will be part of the exterior walls of the building to support ivy or other nectar sources that will be planted;
- the originally proposed wall along the south end of Wharf Street will be replaced by plantings for windscreening and an open style of fencing to allow dappled light to reach the ground near the roost trees;
- post and rail fencing (or a similar open style fence) may be used along walkways at the site to protect roost trees; and
- only a few existing acacia trees, which currently provide both windscreening and dappled light, will need to be removed, but they will be replaced by the new building and new plantings.

Rapid regrowth of acacia saplings in the southwest corner of the project site during the past few years has resulted in canopy development in this formerly bare area (i.e., grassy open space). Some of these young trees have reached heights of nearly 20 feet now, and they have begun to function as a wind barrier in the habitat. While the loss of these small acacia trees to accommodate a new building may represent a significant and unavoidable impact to the monarch habitat (ESHA), this impact would be reduced by the presence of the building itself in conjunction with the planting of appropriate trees as required in the mitigation measures in this EIR. Please refer to the Interim Management Plan for Preservation of Rispin Mansion Butterfly Habitat and Screening of Rispin-Peery Bridge Connection (April 2003, Lewis Tree Service [**Appendix C**]).

Rispin Driveway/Parking/Well-House Area. The trees in this area are critical to the protection of the monarch butterfly overwintering habitat and therefore any damage to these trees is considered significant. Changes in grade in the critical root zones of these trees are detrimental. Lowering the grade (through "cut") around trees has immediate and long-term effects including damage to roots and reduced soil moisture resulting in lack of sufficient water uptake. In addition, altered drainage patterns due to site grading and construction may cause root rot and/or uplift leading to potential tree loss.

Other Improvements. The applicant proposes to have a pathway, which would be comprised of brick with a permeable substrate, meandering between the existing road into the Mansion and the South End Building. This pathway will meander in order to avoid having to trim too drastically the existing acacia trees, and will have a small fence along its sides to prevent walking into the butterfly areas. Signage will also encourage people to stay out of these sensitive areas.

The applicant proposes a six-foot high wall along the entire south end of the Rispin site from the well-house to the south end property line. This wall, which will be constructed using cantilevered supports, will provide a windblock and prevent people from coming into the butterfly areas.

Mode A/B Site Operation Program. The applicant proposes to operate the Rispin Mansion in two modes to protect the monarch overwintering habitat at the site. The Mansion would operate in Mode A during the spring and summer, which is when the monarchs are not present and do not have the potential for coming to the site. Mode A would allow for:

- vehicles to travel on the driveway at the site;
- removal of the slanted windows from the South End Building;
- the patios and decks on the South End Building to be open; and
- use of the two wood-burning fireplaces (one in the living room of the Mansion, one in the Rispin Conservatory) and the gas burning fireplaces in the South End Building and Rispin Pavilion.

The applicant proposes to operate the Mansion in Mode B during the fall and winter when the monarch expert determines that the butterflies could be present. Under Mode B the following shall be required:

- all cars and trucks, with the exception of zero emission vehicles (ZEVs) and the small fire engine required as a mitigation in the **Public Services** section, would be prevented from accessing the site. Disabled visitors would gain access to the Mansion by utilizing the ZEVs (vehicles without emissions that are virtually noiseless and engine-vibration free), which will pick up visitors and supplies in the parking lot across the street and transport them to the Rispin Mansion. These ZEVs will be properly licensed so that they can drive on the road to the Mansion from the parking lot;
- the slanted windows on the east side of the South End Building will be closed, thus closing off all human activity from the side of the building adjacent to the monarch habitat;
- there will be no wood burning fireplaces used; gas fireplaces will only be used if the ambient air temperature does not disturb the butterfly population, at the discretion of the contracted monarch expert;
- vents for heating systems will be directed away from the roost areas; and
- guests and visitors will be restricted to well-marked paths to avoid disturbances to any roosting monarchs.

Impact: South of the Rispin Mansion, construction of the South End Building, parking spaces, pathway, cantilevered wall, and security guard quarters/ZEV garage in and below the well-house would constitute non-resource dependent uses within monarch overwintering habitat and may result in loss of and damage to mature trees in the monarch overwintering habitat and one cypress and one redwood tree just south of the site. *This is in violation of the Coastal Act (Section 30240) and therefore constitutes a significant and unavoidable impact. Implementation of the following mitigation, in addition to the Mode A/B Site Operation Program requirements, will not reduce this impact to a less-than-significant level, but will avoid significant ESHA degradation and will allow development in a fashion that is compatible with ESHA.*

Mitigation

R-12 The monarch's overwintering habitat at the Rispin Mansion site shall be permanently managed by an independent monarch biologist, who is hired by the owners/operators of the Rispin Mansion and who will periodically report to the City Council. Please note that the judgment of the monarch specialist overrides the opinions of the applicant, landscape architect, arborist, and work crews that may be involved in the decision making process. At a minimum, the monarch biologist will have the following duties:

a) advise the owners/operators of the Rispin Mansion when monarch butterflies begin to use the overwintering habitat in the fall so the Mansion can shift to fall/winter operational mode, and similarly, advise the owners/operators when the monarchs have left the Rispin Mansion site in the spring so the Mansion can shift to spring/summer operational mode;
b) work with the arborist to determine how to best prune the trees at the Rispin Mansion to enhance overwintering habitat values for achieving wind protection, dappled light, roost limbs, etc.;
c) work with the landscape architect to insure that appropriate plant taxa are used to enhance overwintering habitat values for the monarch, and that the selected plant materials are placed at the most appropriate locations on the site;

d) monitor and manage the gradual removal of invasive/non-native ivy from the site as it is replaced by alternative, more desirable (native) nectaring sources;
e) routinely work with the landscaping crew to insure that maintenance practices are compatible with protection and enhancement of the monarch's overwintering habitat;
f) periodically re-evaluate overwintering habitat conditions for the monarch and provide recommendations for corrective actions and improvements;
g) prepare a monarch overwintering habitat monitoring and management plan for the Rispin Mansion site, which will identify methods for annual monitoring of the butterfly and its habitat, plus identify specific management practices for all parts of the roost areas; and
h) advise the owners/operators about methods for raising butterflies in the restored Rispin aviary and propagating the milkweed food plant of monarch larvae in non-roosting portions of the site.
i) ensure that tree pruning and removal is done in accordance with the Interim Management Plan for Preservation of Rispin Mansion Butterfly Habitat and Screening of Rispin-Peery Bridge Connection (April 2003, Lewis Tree Service).

R-13 The applicant shall take proper measures to avoid damage to the remaining oaks, cypress and redwood in these areas. Specifically, grading or construction shall not occur within 15 feet of the base of all oak, cypress and redwood trees unless performed under the supervision of a qualified on-site arborist.

R-14 A final landscaping and tree mitigation plan shall be implemented that contains the following measures for tree preservation during construction. This plan shall be reviewed and approved by the City of Capitola prior to construction.

- Provide for an on-site consulting arborist during preliminary grading.
- Establishment of a tree preservation zone (TPZ) by installing fencing, with stakes embedded in the ground, no less than 48 inches in height, at the dripline (the perimeter of the foliar canopy) of the tree, or at the critical root radius, as defined by the consulting arborist. This installation will be done prior to any construction activities.
- Within the dripline of existing trees (the TPZ), no storage of construction materials, debris, or excess soil will be allowed. Parking of vehicles or construction equipment in this area is prohibited. Any solvents or liquids shall be properly disposed or recycled.
- Minimize soil compaction on the construction site. Protect the soil surface with a deep layer of mulch (tree chips). The addition of mulch will reduce compaction, retain moisture, and stabilize soil temperature.
- Maintain the natural grade around trees that are not removed. No additional fill or excavation will be permitted within areas of tree root development. If tree roots are unearthed during the construction process, the consulting arborist will be notified immediately. Exposed roots will be covered with moistened burlap until a determination is made by the on site arborist.
- Any areas of proposed trenching will be evaluated with the consulting arborist and the contractor prior to construction. All trenching on this site will be

approved by the on-site arborist. Trenching within a tree dripline will be performed by hand. Tree roots encountered will be avoided or properly pruned under the guidance of the consulting arborist.

- Unauthorized pruning or canopy alterations of any tree on this site will not be allowed. If any tree canopy encroaches on the building site the required pruning will be done on the authority of the consulting arborist and monarch expert and to ISA pruning guidelines and ANSI A300 pruning standards. Education of landscaping and maintenance personnel shall be required prior to commencement of construction.

R-15 The final landscaping and tree replacement/mitigation plan shall include the following components:

- For every mature tree (of any species) that is removed, four (4) 24-inch box trees or twelve (12) 15-gallon trees shall be planted. For every sapling tree that is removed, one (1) 24-inch box tree or three (3) 15-gallon trees shall be planted. Loss of acacia clumps must be replaced at a 1-to-1 ratio (i.e., one 24-inch box or three 15-inch box) based on the number of trunks in the group. The on-site arborist shall determine the type of tree (i.e., mature, sapling, clump) that is being removed or permanently damaged prior to its removal. The following species may be used for replacing the acacia that are removed, based on their size and foliage, as recommended by the butterfly expert (Dick Arnold, Ph.D.):
  - Red ironbark *(Eucalyptus sideroxylon)*, recommended by both Elizabeth Bell and Dick Arnold as a roosting tree
  - Holly-leaf cherry *(Prunus ilicifolia)*, recommended by Dick Arnold as a windscreen
  - Monterey cypress *(Cupressus macrocarpa)*, windscreen
  - Sydney blue-gum *(Eucalyptus saligna)*, windscreen
  - Swamp mahogany *(Eucalyptus robusta)*, windscreen
  - Coast redwood (*Sequoia sempervirens*), windscreen
  - California bay *(Umbellularia californica)*, windscreen
  - Red alder *(Alnus rubra)*, windscreen
  - Cooibah *(Eucalyptus microtheca)*, roost tree
  - Hinds willow *(Salix hindsiana)*, winter nectar source
  - Western black willow *(Salix lucida)*, windscreen/nectar source
  - Arroyo willow *(Salix lasiolepis)*, windscreen/nectar source
- The locations on the project site for replacement trees shall be in conformance with guidance from the qualified monarch expert to eventually compensate for limbs and trees lost due to project construction. As part of the landscaping and tree replacement/mitigation plan, implement the following:

- Acacia limbing or removal will be confirmed by consultation with the monarch biologist to be retained by the applicant and shall be done in accordance with the Interim Management Plan for Preservation of Rispin Mansion Butterfly Habitat and Screening of Rispin-Peery Bridge Connection (April 3, 2003, Lewis Tree Service).
- Replacement planting shall be done in consultation with the retained monarch biologist.
- As replacement plantings reach a sufficient size and stature to replace the remaining existing acacias (as determined by the consulting monarch biologist), these acacias will be permanently removed.
- Replacement plant taxa to be used for windscreening, dappled light, and nectar shall be the same as those listed above in the approved planting list, and those recommended in the landscape plans by Dick Arnold (also those recommended by The Monarch Project 1993).
- Trees must be planted between any parking or unloading/loading spaces near the Mansion and Area A to buffer the direct impacts to butterflies (see approved planting list above).
- Adequate setbacks to building walls shall be provided from tree trunks (15-foot minimum) to create "tree protection zones". Trees shall be protected with fencing during construction.
- A temporary fence, as approved by the on-site arborist, shall be placed around the entire roosting area bounded by Wharf Road, the south-gate access road and the Mansion fence that extends from the well-house to the south gate. This area shall not be used for parking or equipment and materials storage during the construction phase.

R-16 Widening of the existing driveway on the south side of the site shall not be allowed.

R-17 During reconstruction/resurfacing of the driveway, the applicant shall adhere to specific guidelines for roadbed design, construction materials and procedures provided by the consulting arborist in order to avoid above and below ground damage to the trees near the driveway. These construction guidelines shall include the following:

- hand grading or use of mini-excavator;
- road bed fill not to exceed four inches in the acacia area;
- use of light-colored, water permeable substrate for the road and parking lot surface;
- establishment of tree protection zones;
- limit use of driveway during construction to vehicles that clear the tree canopy; and
- prohibit use of this driveway for construction vehicles and equipment between October 1 and February 28.

R-18 The final placement of the cantilevered wall along the Wharf Road site boundary shall be determined through on-site consultation with the monarch butterfly specialist or arborist to minimize damage to acacias that are important to the monarch habitat. The final design of the cantilevered wall shall provide for proper drainage and avoidance of root damage to preserve the trees in the habitat. The design specifications of the wall shall be reviewed and approved by the arborist.

R-19 Avoid removal of lower eucalyptus or acacia limbs for creation of the pathway, unless recommended by the arborist to address safety concerns, to minimize potential canopy loss within the monarch habitat. Vegetation pruning and clearing shall be minimized and barriers shall be installed along the pathway to keep visitors off of undisturbed areas. The final design of the pathway shall be completed in coordination with the monarch butterfly expert. All acacia pruning and/or removal shall be done in accordance with the Interim Management Plan for Preservation of Rispin Mansion Butterfly Habitat and Screening of Rispin-Peery Bridge Connection (April 3, 2003, Lewis Tree Service).

R-20 Buildings shall not be placed beneath canopy driplines except as authorized by the monarch butterfly expert. Boardwalks and viewing platforms or patios may be placed beneath driplines if the existing eucalyptus canopy is maintained. Only limited limb removal for view enhancement and safety concerns may occur, but it must be consistent with health of trees and performed under the guidance of the consulting arborist and monarch butterfly specialist.

Impact: The existing driveway is located within the main roosting area of the butterfly habitat. When butterflies are roosting at the site, vehicle and pedestrian use of the driveway has the potential to disturb the monarch butterfly habitat due to vibration, changes in air temperature, and air pollutants in engine exhaust. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-21 During facility operation between October 1 and February 28 (or as determined by the monarch biologist) of each year, the driveway shall only be accessed by zero emission vehicles for guest drop-off and deliveries, as outlined in the Mode A/B Site Operation Program discussed above. Between March 1 and September 30, use of the site for guest drop-off and valet service in standard vehicles, in addition to the above, will be acceptable. Vehicles taller than the lowest tree canopies shall be restricted from entering the site.

Impact: Use of blowers may be incompatible with the use of the habitat by butterflies. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-22 Landscape and ground maintenance workers must be informed of conservation issues regarding overwintering monarch habitat through a training seminar conducted by the monarch expert. Use of blowers shall be prohibited between October 1 and February 28.

Impact: Emissions from fireplace chimneys (smoke, heat and carbon dioxide) in the vicinity of roost areas can cause disturbance of roosting monarchs; this may lead to increased flight activity, emigration, mortality and reduced colony stability. *This is in violation of the Coastal Act (Section 30240) and therefore constitutes a significant and unavoidable impact. Implementation of the following mitigation, in addition to the Mode A/B Site Operation Program requirements, will not reduce this impact to a less-than-significant level, but will avoid significant ESHA degradation and will allow development in a fashion that is compatible with ESHA.*

Mitigation

R-23 Any new buildings south of the Mansion on the project site must be designed and built without wood-burning fireplaces or stoves (gas-burning fireplaces are acceptable). Operation of wood-burning fireplaces in the Mansion and the Rispin Conservatory shall be prohibited if it has the potential to create adverse conditions during the time when monarchs are potentially present in the habitat (October 1 through February 28, or as determined by the monarch biologist). A fireplace plan shall be developed, subject to review by the butterfly expert and approval by the City of Capitola. The fireplace plan shall include at a minimum:

- a description of the locations and design of exhaust system features, and
- an operational program that specifies the methods (such as warning signs and lockable ignition switches or gas valves) proposed to ensure that fireplaces do not create adverse conditions, including restrictions on operations proposed in the Mode A/B Site Operation Program detailed above, for times when butterflies are potentially present in the Rispin habitat.

Impact: Exhaust and low frequency vibrations, inherent to the operation of heavy equipment, as well as activities involved with the trimming/removal of trees on the project site, may disturb and/or dislodge roosting monarchs during the overwintering season. This will increase colony disturbance and butterfly mortality. The severity of this impact will depend on the distance of roosting butterflies from the area where the equipment is being operated. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-24 Site preparation (e.g., tree trimming, tree removal, grading, excavation, and roadbed construction) on the project site shall ***not*** occur when monarchs are potentially present (October 1 through February 28).

Impact: If insecticides are used on the Rispin Mansion site, butterflies ingesting nectar or dew may ingest toxic residues in the process of feeding. The use of biological insecticides (including bacteria, viruses, protozoans and nematodes used in the control of undesirable insects) can result in long-term contamination of the habitat. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-25 Use of biological insecticides (including bacteria, viruses, protozoans and nematodes) that are effective in the control of all lepidoptera shall be prohibited throughout the habitat. Chemical insecticides shall not be applied during the overwintering season (October 1 through February 28). Use of chemical insecticide agents during the non-roosting season may be done only if approved by the consulting butterfly expert. Grounds maintenance workers shall be made aware of monarch habitat conservation requirements as they pertain to grounds management (see mitigation R-22 above).

Impact: Outdoor guest/visitor activities during the roosting season may disturb the roost area (e.g., dust, vibration, and night-lighting). [Noise from operation of the Rispin Mansion and associated visitor serving uses is not expected to adversely affect the monarch. Overwintering habitat for this butterfly is often located in noisy locations. The vast majority of butterflies that have been studied to date have been found to be deaf, so noisy locations do not bother them. Indeed, uses similar to those proposed at the Rispin Mansion now occur at motels in Pacific Grove (Butterfly Town, USA) where Monarch overwintering habitat is located among and adjacent to motels that exercise fewer restrictions in their guest and visitor-serving activities than are proposed for the Rispin Mansion (Dick Arnold, Ph.D.).] *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-26 The following measures, at a minimum, shall be implemented during the time when monarchs are potentially present in the habitat (October 1 through February 28, or as determined by the monarch biologist):

- All pedestrians/visitors/guests shall be kept outside of the monarch roosting area by monarch biologist approved fencing.
- Outdoor activities, such as weddings, will be limited to designated portions of the Mansion property to avoid roosting area disruption.
- Outside night-lighting along the paths, and at the Mansion and South End Building shall utilize low wattage bulbs and fixtures that are mounted close to ground level and directed away from the roosts. In addition, lighting shall not be directed toward Soquel Creek or on-site riparian vegetation.

Additional Monarch Discussion and Recommendations from Dr. Arnold's Report

Conservation Easement. Dick Arnold recommends that a conservation easement be placed on at least that portion of the Rispin Mansion site that supports the primary overwintering habitat for the monarch butterfly (see attached site plan showing monarch butterfly and historical conservation easements). The purpose of the conservation easement would be to provide permanent protection of the monarch's overwintering habitat at the Rispin Mansion. The Land Trust of Santa Cruz County, or a similar entity, may be willing to serve as the easement holder. The specific easement area and responsibilities of the operator, City, and easement holder will need to be described in the easement document.

Habitat Protection and Enhancement. At many sites in California, overwintering habitats have been protected, but in time they decline or even fail to support overwintering monarchs due to lack of monitoring and habitat management. Local and state agencies do not have the funds or expertise to manage overwintering sites of the monarch in perpetuity. The proposed renovation of the Rispin Mansion and development of the South End Building provide a mechanism to not only protect the monarch's overwintering habitat, but to also continuously monitor it and manage it in a manner to benefit the monarch butterfly in perpetuity. The applicant has addressed anticipated impacts of the proposed redevelopment project through numerous revisions to the original site plan. The avoidance and minimization measures identified in this EIR should minimize anticipated impacts of the project on the monarch and improve the quality of overwintering habitat for the monarch at the Rispin Mansion site.

Public Education.
With all of the efforts that are directed at maintaining and enhancing the Monarch's overwintering habitat at the Rispin Mansion site, opportunities for public education are plentiful. This may be as simple as providing a few information signs and a viewing area for observing the roosting Monarchs. Since the applicant is considering raising butterflies in the reconstructed Rispin aviary and plans to restore the well house to include an interpretive center, the educational program could be expanded to include tours (i.e., small groups of people supervised by an interpretive tour guide) of the aviary and overwintering habitat, as well as programs about the Monarch butterfly and its annual migration, butterfly gardening, and selection of landscaping plants to benefit the Monarch and other butterflies. These activities and programs should be offered not only to guests at the Rispin Mansion, but also to the general public. Since the public will enter the site through the restored well house/interpretive center, controlled access of the general public will provide additional protection for the Monarch's primary overwintering area (i.e., from fire, vandalism, etc.) and avoid disruption of any roosting butterflies. The applicant should check with appropriate local, state, and federal authorities about permits required for raising butterflies.

Results of November 2002 Storm. A few of the acacia trees which grow along Wharf Road at the Rispin Mansion site were recently trimmed, perhaps as a result of damage incurred by a November 2002 winter storm. Dr. Arnold presumes that work crews from the City of Capitola performed the trimming of these trees for safety reasons. Although he has only seen photographs of the situation, he suspects it has created a gap in the windscreen that these mature acacia trees had previously afforded Roost Areas A and B. It will be interesting to see if the overwintering monarchs leave the Rispin Mansion site earlier than normal this year. While this incident may have a detrimental effect on the overwintering monarchs, it underscores the need for a long-term monitoring and maintenance plan at the Rispin Mansion to properly protect and enhance the butterfly's overwintering habitat there.

Impacts on Steelhead Habitat (and Other Riparian and/or Aquatic Species)

Streams and stream functioning are inextricably linked to adjacent riparian and upland (or upslope) areas. The riparian habitat provides an array of important watershed functions that directly benefit steelhead and aquatic species. Vegetation within the riparian habitat shades the stream, stabilizes the banks, and provides organic litter and large woody debris that are components of quality steelhead habitat. On-site trees at the Rispin Mansion site provide important shading to the Soquel Creek (which aid in

maintaining a tolerable water temperature for steelhead). Accordingly, the tallest trees on-site (blue-gum eucalyptus, including those that support monarch butterfly overwintering habitat) provide the greatest amount of shade. Riparian habitat also stores sediment, recycle nutrients and chemicals, mediate stream hydraulics, and control microclimate. Healthy riparian zones help ensure water quality essential to steelhead as well as the forage species they depend on.

Impact: The proposed redevelopment of the Rispin Mansion property may impact the Soquel Creek and associated riparian vegetation through erosion, vegetation removal, and increased stormwater runoff, which in turn could adversely impact steelhead. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation (also see riparian mitigation above).*

Mitigation

R-27 The removal of any riparian or upland trees on the Rispin site that provide shade to the Soquel Creek shall not be allowed unless immediately replaced. The amount of shading within the creek currently supplied by Rispin property trees shall be established as a base-line, and any actions reducing this percentage shall require management to improve stream shading by a City approved forester/botanist. Such management shall include planting of native riparian tree species along the creek (i.e. big-leaf maple, sycamore, alder, cottonwood, box-elder, willow), to provide shade and aid in cooling of the creek, and to enhance habitat.

R-28 Protect the eucalyptus grove and patches of redwood trees as valuable sources of shade to the stream, erosion prevention on the steep slope, and as monarch butterfly habitat.

R-29 Consult with a qualified engineer (as determined by the City) to see if runoff from the library parking lot could be detained to reduce the peak discharge level to the pre-development rate. If feasible (to be decided with contracted engineer), install a buried stormwater detention facility near the driveway that would feed into the existing drainage system.

R-30 Retrofit the storm drain pipe buried across the Rispin bench with a detention tank that can meter out water at a slower rate, with an overflow in the event that the tank becomes overwhelmed. This shall be done in consultation with a qualified engineer.

R-31 Stabilize the drainage channel leading from the energy dissipater to the creek (located in the south-central portion of the site). This shall be done in coordination with a qualified engineer.

R-32 The addition of impermeable surfaces at the Rispin Mansion site shall be accompanied with an effective drainage plan. This drainage plan shall ensure the capture of any increase in runoff on the bench (as much as is feasible), without additional overland movement of water down the steep slope toward the creek (to minimize erosion and sedimentation, and the introduction of pollutants).

R-33 Improve the existing driveway on the south end of the site to facilitate rain percolation. Re-surface the driveway with porous pavement blocks or comparable material.

R-34 Extend the drainpipe from the walkway grate leading to the Rispin-Peery Bridge to Soquel Creek.

R-35 Investigate the hydrologic source of water flowing under the west footing of the Peery Park walk/bicycle bridge and re-route it away from the footing to a stable release point. This shall be done in coordination with a qualified engineer.

R-36 Remove non-native/invasive species in work areas within the riparian habitat (i.e. drainage improvements) as much as is feasible, and re-plant with appropriate native riparian species. A qualified botanist shall determine an appropriate native species palette in coordination with the monarch biologist.

R-37 As much as is feasible, and in coordination with the monarch specialist, remove non-native/invasive species (especially pampas grass) in the vicinity of the Peery Park walk/bicycle bridge.

R-38 Repair or replace the retaining wall along the eastern edge of the Rispin Mansion. The replacement of this wall will require erosion/sedimentation control techniques recommended by a qualified engineer.

R-39 Replace the fence above the retaining wall of the Rispin Mansion to exclude people from accessing the creek through created footpaths.

R-40 Construct a meandering footpath from the Rispin site to Soquel Creek that is less erosive than the existing trail paralleling the storm drain down to the energy dissipater. No trees shall be removed or substantially limbed during construction of this trail. The trail shall be covered with base rock and designed to avoid the concentration of storm runoff. Although this trail will be preferable to the existing one, do not clearly mark the trail or encourage its utilization.

R-41 Revegetate the existing shortcut path on the west side of the Rispin property (adjacent to the walkway) with native vegetation. Plant native thorny shrubs or undesirable species, such as blackberry or poison oak, adjacent to the walkway to discourage further use of the existing path.

R-42 To avoid disturbance to steelhead (and other aquatic or semi-aquatic wildlife), nighttime lighting of the riparian habitat and/or Soquel Creek shall not be allowed. On-site lighting required for Mansion grounds shall not be oriented towards the creek.

CUMULATIVE RIPARIAN HABITAT IMPACTS

This project has been determined to be outside of the required setback from this habitat area and, therefore, will not directly impact riparian habitat. Cumulative indirect impacts such as erosion or slope slippage (due to development on steep slopes above the creek)

may occur due to this project and other cumulative projects. With the implementation of relevant mitigation measures in this EIR that aim to prevent erosion and slope slippage, the project's contribution to this cumulative impact would be less-than-cumulatively considerable and, therefore, less-than-significant, pursuant to CEQA Guidelines section 15130 (a)(3).

CUMULATIVE MONARCH BUTTERFLY IMPACTS

Long-term impacts on monarch butterfly habitat were identified above due to construction and general use of areas under and near the roost locations. In addition, the monarch butterfly survey in **Appendix C** (Elizabeth Bell report) identifies the fact that the Escalona Gulch has been adversely impacted. The following cumulative impacts may result with implementation of cumulative projects:

- Post-construction habitat modifications including limb and/or tree removal for safety purposes (perceived hazard reduction). Adequate building setbacks from the canopies can prevent or limit the pressure for this type of activity. The amount of post-construction tree and limb removal at Escalona Gulch (and other locations in Santa Cruz & Monterey Counties) has continued to degrade monarch habitats in areas where development has occurred.

- Habitat degradation has occurred in most monarch overwintering habitats countywide (and statewide) over the past 15 years and this appears to be a continuing trend. Degradation of habitat at Natural Bridges State Park has been caused by the death of Monterey Pines that provide wind protection on the east and west sides of the overwintering grove. Habitat quality on other sites has been caused by tree loss during development or tree removal and canopy reductions for safety purposes after development has occurred (Escalona Gulch site, Moran Lake site, Meder Street Site, Oxford & Almar site, Highlands Avenue site).

Based on the above, cumulative development in and near areas used as overwintering habitat for monarch butterflies can significantly impact availability and suitability of habitat areas. This would represent a significant and unavoidable cumulative impact. However, implementation of relevant mitigation measures in this EIR identified for project-specific impacts on monarch butterfly habitat will avoid significant ESHA degradation and will allow development in a fashion that is compatible with ESHA. In addition, long-term avoidance of physical changes to monarch habitats (including tree removal, damage, or substantial limbing), adaptive management for continued habitat suitability, and implementation of similar mitigation measures for cumulative projects near all monarch butterfly habitats could effectively avoid or reduce impacts on these sensitive habitats.

Cumulative Impact: Cumulative development has the potential to significantly impact the availability and suitability of monarch butterfly overwintering habitats in the region due to general degradation of and disturbance to those habitats. *Implementation of the following mitigation will avoid significant ESHA degradation.*

Cumulative Mitigation

C-2 Cumulative projects shall be properly sited with adequate buffers from monarch butterfly habitats to avoid physical degradation to the habitat. Removal or substantial limbing of significant trees or other permanent changes to monarch butterfly habitats (including changes to the wind protection, shading, amount or accessibility of roost sites and nectar sources) shall be prohibited, except as approved by a qualified butterfly expert.

CUMULATIVE STEELHEAD IMPACTS

Long-term impacts on steelhead habitat were identified above due to the potential reduction of shade trees and the potential for on-site erosion and sedimentation (leading to a reduction of habitat quality and/or availability within Soquel Creek and the Soquel Lagoon). The following cumulative impacts may result with implementation of cumulative projects:

- Post-construction habitat modifications including the loss of shade trees, and a reduction in habitat quality due to erosion and sedimentation resulting from development along watercourses in the region.

- Impacts due to dams, reduction in stream flow, etc., in the region.

Based on the above, cumulative development in and near areas used by steelhead can significantly impact availability and suitability of habitat areas. This is a potentially significant cumulative impact. The Rispin project's contribution to this cumulative impact may be considered to be less-than-cumulatively considerable and, therefore, less-than-significant, pursuant to CEQA Guidelines section 15130 (a)(3), if relevant mitigation measures in this EIR identified for project-specific impacts on steelhead habitat are implemented. In addition, long-term avoidance of physical changes to steelhead habitats and implementation of similar mitigation measures for cumulative projects near all watercourses utilized by steelhead could effectively avoid or reduce impacts on these habitats.

4.5 CULTURAL RESOURCES

♦ ♦ ♦

INTRODUCTION

This section addresses cultural resources based upon previous site studies. In addition, a project-specific historical study was completed by Historic Preservation Associates, Enid T. Sales, principal, in conjunction with Glory Anne Laffey, principal. The report is hereby incorporated by reference and is available for review at the City of Capitola City Hall. Bruce Judd of Architectural Resources Group performed a preliminary review of the April 1999 site plans for historical impacts. A letter documenting his comments, which are still somewhat relevant to the currently proposed project, is included in **Appendix D.**

SETTING

Ethnographic Background

The Capitola area was occupied during precontact times by Native Americans called the Costanoan. Their name is derived from a Spanish term meaning "people of the coast." This term is used to describe a number of linguistically close Indian groups who lived in the area between San Francisco Bay and Monterey Bay (Levy, 1978).

Like many native Californian groups, the Costanoan sociopolitical organization was based on the tribelet: a small, loose-knit group of individuals who held specific lands and spoke a related, but distinct, language. Tribelets usually had one or more permanent villages and a number of temporary camps located near seasonally available resources (Levy, 1978). A large village known as Sokel is plotted in the general vicinity of the project area (Krocker, 1976).

The Costanoan diet derived from the collection and processing of acorns. This staple was supplemented by hunting, fishing, and the procurement of inland and shoreline food resources.

The Spanish entered Costanoan territory in the late 1700s, which had a profoundly negative effect on the native population. The use of the Indians as laborers for the missions, the introduction of disease, and the intentional eradication of the native Californian way of life resulted in the near destruction of the Costanoan people. By 1935, no speakers of the language could be located, and only a few hundred descendants of the group resided in their former territory.

Previous Archaeological Surveys

Archaeological evaluations, surveys or investigations have been prepared for projects in the vicinity as part of the following reports:

- Draft EIR for a 14-Residential Lot Subdivision at Rispin Mansion (Integrated Land Services, November 1984);

- Draft and Final EIR for the restoration of the Mansion for community use and preserving the environmentally sensitive property as natural open space (City of Capitola, 1991);
- EIR Addendum prepared in November 1995 for the Rispin-Peery Pedestrian and Bicycle Bridge and Pathway, which was subsequently constructed (City of Capitola, 1995); and
- Supplemental Archaeological Investigation that addressed housing on the Clares/Wharf site (Pacific Legacy, letter to Augie Dent, May 23, 1995). Housing was subsequently constructed over four of the five acres. The remaining city-owned acre is the site of the parking lot and existing modular library.

In addition, an archaeological reconnaissance was performed at the 15.5 acres of land on the west side of Bay Avenue, south of and adjacent to Highway 1, bounded on the west by Soquel Creek, and bordered on the south by Center Street. This site is northeast of the Rispin Mansion project site. This reconnaissance found that based on their investigations, no potentially significant cultural resources were known to exist (Pacific Legacy, letter to Ms. Stephanie Strelow, March 6, 1996).

Based on the results of these surveys, there is no record or evidence of significant or unique cultural resources (per CEQA Guidelines or Public Resources Code Section 21083.2(g)) present on the proposed project site. Thus, no further archaeological surveys were conducted as part of this Revised Draft EIR.

The History of Capitola, California

The following information was provided by the City of Capitola Architectural Survey (Rowe & Associates, 1986) and supplemented by information from Carolyn Swift of the Capitola Museum, unless otherwise indicated.

In 1769, the Spanish explorer Gaspar de Portola headed an expedition that took him to the Santa Cruz area in search of a suitable site for a mission, and in 1791 the Santa Cruz Mission was established. In 1833, secularization freed the Mission's former landholdings, and several large tracts of land were granted to private persons. These large "ranchos" were used primarily to raise cattle. After 1848, when California became part of the United States, these large tracts of land were divided into smaller parcels that eventually provided land for of newcomers entering the state.

During Mexican tenure, the Capitola beach area was called la Playa de Soquel. It was a small part of the Rancho Soquel land grant which had been given to Martina Castro in 1834. For the following 30 years la Playa de Soquel, or Soquel Landing, remained virtually undeveloped. The exception was the wharf, which provided the nearby and newly established village of Soquel with a vital link to coastal shipping and San Francisco markets. This link sustained the community during its early years.

Capitola's development is directly associated with Frederick A. Hihn, an energetic entrepreneur born in Germany who owned la Playa de Soquel property on which the Capitola area is located. The new name meant capitol in Spanish because Hihn was suggesting Camp Capitola as the state capitol. Hihn contracted with Sedgwick Lynch to build the first Capitola wharf in October 1857 and the wharf is thought to have been completed in 1858. Hihn owned the land, but

leased it in 1869 to S.A. Hall of Soquel. Hall used the land for agriculture until his daughter, Lulu Hall Green (Wolbach) suggested to her father that he set up a tent campground in 1874 that was subsequently referred to as "Camp Capitola". Hall continued to farm the land except for the weeks that "Camp Capitola" returned in the following summers. In 1876, Hihn funded passenger narrow gauge railroad service, the Santa Cruz-Watsonville Railroad to Camp Capitola, and the resort grew and became a leading summer vacation spot for central California. In 1877, there was a drought and Hall could not obtain enough feed to sustain his livery stable and at the campground. Hihn, seeing the potential of Capitola, then raised the rent so high that Hall was forced out in 1879. He then founded Camp Alhambra near Seabright in Santa Cruz. Hihn leased Soquel Landing to R.D. Berry; who was similarly forced to give up the campground after Hihn increased the rent again in 1882. It was not until 1882 that Hihn would take an active role in the development of Capitola. That year, he created the first subdivision map and authorized construction of a hotel and other permanent buildings.

In 1883, Hihn built Hotel Capitola (a 160-room, two-story hotel on the beach), a skating rink, and other tourist amenities and including subdividing and selling lots for summer cottages. Hihn continued to acquire holdings and guide the development of Capitola until his death in 1913. His holdings were eventually sold in 1919 through his daughter, Katherine Cope Henderson, to Henry Allen Rispin, a Canadian oil millionaire residing in San Francisco.

Rispin dreamed of transforming Capitola into the "Riviera of the New World" and promptly renamed the town "Capitola-by-the-Sea". By 1920, he was the owner of the entire waterfront; Hotel Capitola; cottage and bathhouse buildings; resort concessions; and 30 acres along Soquel Creek, where he built an 8-acre estate that included Rispin Mansion.

Rispin made many public improvements and began to subdivide and sell residential lots, which led to the development of many new cottages, a deeper community interest, and the foundation for an eventual city. Capitola-by-the-Sea became a thriving resort community, attracting thousands of summer visitors. However, because of the seasonal nature of the tourist trade, Capitola developed its physical character and popular image before it became a settled community. In 1927, the year-round population was reported at only 500.

In December 1929, Hotel Capitola burned to the ground, symbolically ending the success of the 1920s and introducing the depression of the 1930s. Rispin went bankrupt in the stock market crash, and his holdings were auctioned. It is reported that he died penniless in a county hospital. Capitola, as did much of the nation, languished through the Great Depression and the war years.

In 1949, the residents of Capitola were successful in their campaign to incorporate, with a population of less than 2,000. During the following two decades, Capitola's growth and development remained slow despite rapid change elsewhere in the county and state.

In the 1970s, Capitola began to urbanize by accelerating residential growth and annexing the 41st Avenue area, which was to become the county's regional shopping center. Despite development beyond the original Camp Capitola area, the village area and beach continue to thrive and attract tourists as they did when Hihn and Rispin controlled the beachfront land and recreational activities.

Historical Resources of the Rispin Mansion Project Site

Previous historical evaluations of the subject area include the National Register Nomination (Rivers, 1991) and Rispin Project EIR (City of Capitola, 1991). The Rispin Mansion was listed on the National Register on March 14, 1991, as a historic district. The listing was based upon the Mansion's association with Henry Allen Rispin.

Historic Background

The property was originally developed by wealthy San Franciscan Henry Allen Rispin in 1922. He had purchased much of Capitola with the intent of creating a year-round resort town. The Mansion and its grounds were a dominant part of this plan. The Mansion was not only to be the residence for Rispin and his family, but also a showplace to entertain his friends and celebrities in the tradition of the times, as evidenced by Hearst Castle in San Simeon, George Gordon Moore's Rancho San Carlos in Carmel Valley, Senator James Phelan's Montalvo in Saratoga and Rivercastle in Ben Lomond.

After his purchase of Capitola, Rispin began to plan the construction of his new home on the site where the Ocean Shore Railroad planned to locate the station. Plans that began as a modest $20,000 home evolved into a home costing $250,000, surrounded by 50 acres of beautiful gardens. Based on information provided by Carolyn Swift, a Capitola historian, a poster produced by Rispin in 1926 also states that the Mansion cost $250,000. Rispin hired San Francisco architect George E. McCrae to design the Mediterranean-style house. George McCrae was a noted San Francisco architect who specialized in designing churches. Most of his buildings were constructed of reinforced concrete, probably as a result of the devastation caused by the San Francisco earthquake in 1906. In 1919, he was designing Rispin's home in Capitola.

Rispin's success in promoting Capitola peaked about 1926 and then began a downward spiral. High tides in February 1926 destroyed newly built concessions on the Esplanade, causing great financial loss to Rispin and other property owners. To finance property development activities, Rispin borrowed heavily against his Capitola properties. In 1930, the Blanchard Company, the mortgage holders, foreclosed on Rispin's Mansion, other Capitola property, and a golf course. There followed several years of foreclosure sales, law suits, and counter suits as all parties tried to untangle the situation. Rispin dropped out of sight in the following years and little is known of his later life. Rispin died a destitute and broken man in San Francisco in 1947 (Swift, 1994).

In October 1931, the newspapers announced that Mr. and Mrs. E. E. Nicol of San Francisco and their four children had moved into the former Rispin Mansion. In 1932, Nicol Smith took out a mortgage for $19,800 on the Mansion property. By 1936, a notice of default on the mortgage was filed and in 1940, the Rispin Mansion and nine acres of grounds were purchased by the Order of Poor Clares for $90,000. The contemplative and cloistered order consisted of about 30 sisters who had taken vows of poverty. The bedrooms of the Mansion were divided into small cubicles and the wine cellars were converted into storage rooms for fruits, vegetables and tools. A chapel and novitiate were added to the north end of the Mansion.

Vacated by the Poor Clares in 1957, the Mansion has since remained unoccupied except by transients. By the mid-1970s, the Mansion had fallen into a state of extreme disrepair. The

additions added by the Poor Clares had burned, leaving only the concrete foundations. In the 1970's local law enforcement officers used the deteriorated Mansion as a site for training. In the ensuing years, numerous plans have been put forth for the property's reuse, but none have been carried out. In 1986, the City of Capitola purchased the property for $1.35 million after turning down owner Howard Dysle's requests to pursue a 15-unit subdivision or a retirement center on the property (Bryant, 1991).

Description of District

The Rispin Mansion is a 22-room, 10,000 square-foot house, located on 6.5 acres on the west bank of Soquel Creek in the City of Capitola. The property is bounded on the west by Wharf Road. A high concrete wall screens the house from the road. At the southern end of the wall is a wood-frame tank house fronting Wharf Road, near the southwest corner of the property. Remnants of the original landscaping features include a large round concrete reflecting pond, the pedestal of a sundial, and a level lawn area with remnants of a fountain and concrete balustrades. Stairs from the garden area descend to the house and the main portico, or porch entrance. At the northern end of the lawn are the remnants of a colonnaded rose arbor. Near the arbor are concrete foundations of buildings constructed by the Order of Poor Clares in the 1940s. Site plans attached to this document show the locations of these site features. **Figure 3-2** of **3.0 Project Description** shows the existing floor plans of each level of the Mansion.

The house was constructed in about 1921 for Henry Allen Rispin. The house was designed by San Francisco architect George E. McCrae, whose career spanned from 1901 to his death in 1943. The house's simple Italian Renaissance style features a red tile hipped roof, an arched portico, and balustraded balconies and terraces. Clinging to the riverbank, the four-level house is an unusually asymmetrical example of the Italian Renaissance style. Constructed of reinforced concrete, it has two wings and a large seven-sided bay that extends from basement to the fourth floor, overlooking the creek.

The entry portico is surmounted by a balustraded balcony located on the third, or main, level of the house. Near the main entrance is a patio that wraps around the library and joins the living room. Stairs from the portico descend to the garage on the lower, or second, level. Fenestration consisted of simple double-hung sashes without sills or casings. Most of the windows are now missing or covered with boards. There is a mixture of window shapes: rectangular, arched, and round. One window near the entrance was designed with an elaborate terra cotta border.

A driveway passes adjacent to the house on the west. Opening onto the driveway is a door to a small balcony. The balcony is now missing; however, scars on the wall indicate it had similar balusters as those on the other balconies and terraces. North of the house are the ruins of the detached laundry room, which is now missing its roof. It has arched window openings.

The main entrance from the arcaded portico leads to an entry hall. From the entry hall there is a door to the library and to an interior balcony from which there are stairs down into the living room. The living room features a large fireplace, exposed beam ceiling, and a view of the creek from the large bay window. The floor of the room consists of oak planks laid in a herringbone pattern which has suffered considerable water and fire damage. The fireplace has a five-foot high opening, which is decorated with a cast plaster coat of arms. On the north wall, double French doors open onto a sheltered terrace.

The hallway from the entry hall leads past the living room to the dining room. Off this hallway, there are stairs down to the wine cellar and a secret room behind a hinged wall. According to local folklore, the secret room, which has plumbing and an opening into the garage, is evidence that Rispin may have had a still and been involved in bootlegging activities.

The dining room had a paneled wainscot, now almost totally destroyed. There is a fireplace on the north wall that was designed with blue glazed ceramic tile. This room also has double French doors on the south wall that open onto the sheltered outdoor terrace. This terrace has an arched fountain alcove against the central wall which is flanked by small windows that give light to the hallway between the living and dining rooms. A large round planter is located in the center of the terrace. The balustrade has concrete balusters similar to those seen on other terraces and balconies. Stairs from the terrace descend to a narrow walkway around the lower perimeter of the house providing access to the servants' quarters on the second, or lower, level.

A kitchen is located adjacent to the dining room. Stairs also lead from this room to the lower level servants' quarters. Two small bedrooms, a bathroom and various small storage rooms are located on the second level. A long hallway accesses the game room or billiard room, which has a large bay window and a fireplace. From the game room, there is a short flight of stairs that leads to the garage also on this level. The garage had a large turntable that was used for turning the automobile so that it could drive forward out of the narrow garage door. There are also several storerooms in the garage.

The lowest, or first, level consists of a basement in the seven-sided bay section and a small room that houses mechanical equipment. The upper level, or fourth floor, consists of two wings. The main section consists of three bedrooms. The master bedroom has a large bay window and a fireplace. A bathroom is located off this room. One of the two smaller bedrooms also has its own bathroom. The third bedroom opens onto the balcony over the portico. There is a third bathroom off the upper hallway. A short flight of stairs leads to a lower hallway that accesses the smaller wing on the north end of the house. This wing has two bedrooms, a bathroom, and a screened porch with iron balustrades. Each of the wings has a stairway down to the third level.

As previously described, the Rispin Mansion and its grounds, comprising 6.5 acres of terraced land down to Soquel Creek, were conceived by Henry Allen Rispin as a showplace, home for his family, and the signature property for his planned upscale development of Capitola. The Mansion designed by George McCrae, a San Francisco Bay Area architect, was intended to represent the grand style being established by men of wealth throughout California in the 1920's. Its size and scale were monumental and its setting was designed to reflect a combination of elegant formality on the top terraces and preservation of native trees and plants on the lower and creekside levels.

Its present condition reflects over 40 years of neglect and vandalism. The rose arbor is destroyed, the formal balustrades and fountain are damaged and displaced, the landscaping and ground cover are overgrown and their original intention lost. The large grassy area fronting the Mansion in historic photos has died leaving only ruderal grasses and exposed soil.

The Mansion itself has been reduced to a shell. Although its basic structural elements remain sound and intact, all interior wall cladding, floors, hardware, windows, and doors are missing or in need of extensive repair. The roof cladding is also severely damaged and must be replaced.

All of the other functions and services, i.e., plumbing and fixtures, wiring and light fixtures, and the heating plant are inoperable and must be replaced.

Regulatory Guidelines

The Rispin property area was evaluated according to the standards for the National Register of Historic Places and the California Register of Historical Resources. National Register standards include buildings at least 50 years of age, that maintain architectural and historical integrity, and meet at least one of the following criteria:

A. are associated with events that have made a significant contribution to the broad patterns of our history; or

B. are associated with the lives of persons significant in our past; or

C. embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. have yielded, or may be likely to yield, information important in prehistory or history.

The definition of a historic resource for CEQA compliance includes the following:

1. A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources.
2. A resource included in a local register of historical resources, as defined in Section 5020.1 (k) of the Public Resources Code or identified as significant in a historical resource survey meeting the requirements of Section 5024.1 (g) of the Public Resources Code.
3. Any resource which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California if supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4852) including the following:

   (a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

   (b) Is associated with the lives of persons important in our past;

   (c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

   (d) Has yielded, or may be likely to yield, information important in prehistory or history.

4. The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical

resources, or identified in an historical resources survey does not preclude a lead agency from determining the resource may be an historical resource.

The Rispin Mansion was listed as a district on the National Register of Historic Places in 1991 according to Criterion B, based upon its association with Henry Allen Rispin, the promoter and developer of Capitola-by-the-Sea from 1919 through 1929. The Rispins occupied the house between 1921 and 1928. Although many of the interior features such as the wood wall panels, chandeliers, and carved banisters are missing, and floors, walls, and fireplaces have been damaged through the years, the house retains its architectural integrity and is structurally sound. It is possible that the property could also have been eligible for the National Register under Criterion C, as an example of architect George E. McCrae's work, but the identity of the Mansion architect was only recently determined.

Because the property is listed on the National Register, it automatically qualifies for listing on the California Register of Historical Resources. Within the context of Capitola development, the Rispin Mansion represents an important phase of Capitola's development during the 1920s. This property is the only resource in Capitola that is associated with Henry Allen Rispin.

Federal Policies and Regulations Governing Alterations and Additions to Historic Sites

The Secretary of Interior's Standards for Treatment of Historic Properties (hereafter referred to as "Standards") and Guidelines for Treatment (hereafter referred to as "Guidelines") have been developed to guide work undertaken on historic buildings, either listed on or eligible for listing on, the National Register of Historic Places (U.S. Department of the Interior, National Park Service, 1990). The Standards are the overall preservation standards that address the recommended treatment for projects. Rehabilitation is defined by the Standards as "the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values."

The intent of the Standards is to assist the long-term preservation of a property's significance through the preservation of historic materials and features. The Standards address historic buildings of all types and occupancies, and encompass the exterior and interior as well as landscape features, the building's site and environment and, where applicable, the district in which it is located.

Under the Criteria of Effect (Federal Register IV, Vol. 44, No. 21, p. 6074), any undertaking shall be considered to have an effect whenever any condition of the undertaking causes any change, beneficial or adverse, in the quality of the historical, architectural, or cultural characteristics that qualify the property to meet the criteria of the National Register. An effect occurs when an undertaking changes the integrity of location, design, setting, materials, workmanship, feeling or association of the property and its significance.

The primary assumption in assessing the project's effects on cultural resources is that, whenever possible, impacts on cultural resources and their sites will be avoided, particularly, as in the case of the Rispin District, because it has already been listed on the National Register of Historic Places. It is necessary, then, to consider the site and buildings as being impacted by any part of a project that will significantly alter or have an adverse effect on any resource within the district or on the site itself.

In considering this project the levels of importance are: 1) the appropriate rehabilitation of the Mansion, 2) the relationship of the new construction to the Mansion, and 3) the effects these activities have on the District as a whole. If the project would substantially alter the historic characteristics or values of the District, the impact is considered significant.

Relevant Project Characteristics

The proposed project site is the Mansion site, located along the eastern side of Wharf Road. The Mansion site is bounded on the east by Soquel Creek, on the north by open land, and on the south by multiple and single-family residences.

The Rispin Mansion project proposes visitor-serving accommodations and a wedding/conference facility at the site including restoration of the Mansion itself and the formal gardens, the fountain, the balustraded walkway, the belvedere (or overlook), the rose garden, and the well house at Wharf Road. Pathways and buildings will be added to the site to accommodate additional uses as described in **3.0 Project Description.**

The Mansion will contain 13 guest rooms on three levels and the basement, a living room, a dining room, a concierge area, a small service kitchen, a storage room, balconies on the west side, and a handicapped entrance on the west side. In addition, historic and educational displays are proposed in the hallways, and two existing open terraces will be improved. The building is to be completely rehabilitated and distinctive elements of the building are to be restored.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

In accordance with the State CEQA Guidelines, and agency and professional standards, a project impact would normally be considered significant if development would result in disruption of, or a substantial adverse effect to, the following:

- a prehistoric or historic archaeological resource or burial ground;
- a property of historic or cultural significance to a community, ethnic or social group;
- a local landmark of cultural importance; or
- a significant paleontological resource.

Section 15064.5 (c through f) of the CEQA Guidelines provides additional guidance with respect to determining the significance of archaeological resources, limitations on mitigation, and actions to be taken in the event that human remains are discovered.

A project with an effect that may cause substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. A "substantial adverse change in the significance of a historical resource" includes the following:

"Physical demolition, deconstruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired, including if the project would demolish or materially alter in an adverse manner those physical characteristics that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources or in a local register of historical resources or historical resources survey."

Generally, a project that follows the Secretary of the Interior's Standards for the Treatment of Historical Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historical Buildings and the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitation of Historical Buildings (Weeks and Grimmer, 1995) shall be considered as mitigated to a level of less-than-significant (CEQA, 15064.5 (b)(3)).

Archaeological and Paleontological Resources

Although prior research and field investigation of the Rispin and Peery Park project sites did not reveal archaeological or paleontological resources, there may still be significant archaeological and paleontological resources present. These resources may be uncovered during grading or construction. Mitigation is provided below to assure that in the event that any archaeological or paleontological resources are discovered on the site, they are appropriately documented prior to disturbance, in accordance with CEQA requirements.

Impact: Project development may result in disturbance of unknown archaeological resources. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-43 In the event that any archaeological or paleontological resources or human remains are discovered during grading or construction anywhere on the site, work shall be ceased within 150 feet of the find until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, appropriate mitigation measures shall be formulated and implemented in accordance with CEQA Section 15064.5. All identified archaeological sites should be evaluated using the California Register of Historical Resources criteria, established by the State Office of Historic Preservation. Any discoveries shall be reported to the City Planning Director.

R-44 In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the following steps shall be taken:

1) There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

   A. The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and
   B. If the coroner determines the remains to be Native American:

1. The coroner shall contact the Native American Heritage Commission within 24 hours.
2. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descendent from the deceased Native American.
3. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or

2) Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance.

A. The Native American Heritage Commission is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the Commission.
B. The descendent identified fails to make a recommendation; or
C. The landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

Historic Resources

If an historic resource (either a district or a structure) is known to be located on a project site, any project proposed on that site should, whenever possible, avoid impacting that resource. This is particularly true when the resource has been placed on the National Register of Historic Places and thus qualifies for the California State Register and for protection under CEQA and/or NEPA (State of California Office of Planning and Research, April 1994).

The Federal Register #IV "Protection of Historic and Cultural Properties" under the Criteria of Adverse Effect states that adverse effects on National Register or eligible properties may occur under conditions which include, but are not limited to:

a) Destruction or alteration of all or part of a property;

b) Isolation from or alteration of the property's surrounding environment;

c) Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;

d) Neglect of a property resulting in its deterioration or destruction; or

e) Transfer, or sale, of a property without adequate conditions or restrictions regarding preservation, maintenance, or use.

The entire Rispin Mansion site is listed on the National Register of Historic Places as a Historic District. It is necessary, then, to evaluate the entire site (or District) under the Criteria of Effect of the Federal Register as they apply to a site which is a National Register resource.

In considering the historical impacts of this project, this EIR considers two issues: 1) rehabilitation of and changes to the Mansion, and 2) the relationship of the proposed construction to the Mansion and the District. The Secretary of Interior's Standards for Treatment of Historical Properties will apply to both the methods and the materials employed for each of these issues as follows:

1) The property shall be used for its historic uses or be put into a new use that requires minimal change to its original characteristics.
2) The historic character of a property shall be retained and preserved.
3) Each property shall be recognized as a physical record of its time and place. Changes that create a false sense of historical development shall not be undertaken.
4) Historic changes, over time, that in themselves have gained significance shall be retained.
5) Distinctive features, finishes, and construction techniques shall be preserved.
6) Where the severity of deterioration requires replacement of distinctive features, the new feature shall match the old in design, texture, and other visual qualities and where feasible, materials. Replacement of missing features shall be substantiated by documentary or pictorial evidence.
7) Chemical or physical treatments that may cause damage to surfaces shall not be used.
8) Preserve archaeological resources if discovered during construction.
9) New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old but be compatible with the massing, scale, and architectural features to protect historic integrity.
10) New additions and adjacent or related new construction shall be visually compatible and not destroy historic relationships within the district.

This section evaluates the impacts on the Rispin Mansion District due to the Rispin Mansion project as currently proposed, in comparison with the April 1999 project evaluated in the 2000 Recirculated Draft EIR, based on the prescriptive guidelines of the Federal Register, the Secretary of Interior's Standards for Preservation Projects and for Rehabilitation (Standards). Historic Preservation Associates (Enid Sales) based the 1998 DEIR evaluation on plans prepared by The Paul Davis Partnership, dated 3/18/98, and review of these plans.

The Rispin Mansion was listed on the National Register on March 14, 1991, as a Historic District. The listing was based upon the Mansion's association with Henry Allen Rispin who was responsible for transforming Capitola from a summer campground to a year-round seaside tourist attraction. The Rispin Mansion District has many features and characteristics which make it unique and valuable as a historic resource. Designing a project which accomplishes

the desired objectives of the Rispin Mansion project without adversely impacting the historic values of the site is admittedly a difficult and sensitive effort.[1]

The state of disrepair of the Rispin Mansion building and gardens, and the extensive requirements of creating a usable site, also combine to complicate the rehabilitation of the Mansion for re-use as a public serving facility. Historically, the Mansion contained five (5) bedrooms, two (2) servants quarters, a library, a dining room, a living room, a game room, a garage, a secret store room, and a kitchen. The proposed project would use the structure for 13 guest rooms, a living room, a dining room, a concierge area, a small service kitchen, and a storage room.

Historic Impacts Due to New Construction

The 1998 DEIR evaluated a project that include six new buildings, and 0.3 acres of hardscape (i.e., pavement, brick or turf-block) added to the site for parking and driveways. The 1998 DEIR found that the project proposed had the following impact:

> "The amount, scale, massing and architectural features of new construction including buildings, garden features and hardscape: 1) would not be visually compatible with the Mansion and would potentially harm the historic relationships within the District (Standard #9, 10); 2) would potentially create a false sense of historical development (Standard #3); and 3) would change the historic character of the property (Standards #1, 2)."

Specifically, the following issues were identified:

- *Scale and massing:* The new buildings and hardscape proposed in the 1998 plans would have caused significant change to the characteristics of the District (Standard #1, 2, 9, and 10). The new buildings would potentially "create a false sense of historical development" (Standard #3) and would not be compatible with the massing and scale to protect historic relationships (Standard #10).
- *Architectural design of the new buildings:* The new buildings, as shown in the site plans in the 1998 DEIR, were not considered to be visually compatible with or complement the architectural design of the Mansion by George McCrae and the intent of Rispin (Standards for Rehabilitation Items #2, 3, 9, and 10). Specifically, the roof pitch, fenestration (window treatment) and wall cladding (or cover) of the new buildings were found to not be appropriate in a Historic District characterized by the style/appearance of the Mansion. The proposed designs for meeting rooms 1, 2 and 3 (that were eliminated in the April 1999 plans) and the Garden/Wedding Pavilion would have an inappropriate design. For example, the use of clear material for entire walls would not visually complement the solid-wall style of the Mansion.
- *Building layout, connectivity, garden features and landscaping.* A potential impact would have existed due to the building location/layout and walkway design that was considered a potentially adverse impact on the historic relationships on the site (based on Standard #10). In addition, the materials of construction used for walkways, stairs, garden

[1] At least one commentor has requested that the Rispin Mansion site be left untouched as a "venerated ruin."

features, and types of plants could be incompatible with the historic character of the Mansion and District.

The project in the 1998 Draft EIR differed significantly from the projects evaluated in the 2000 Recirculated Draft EIR and in this Revised Draft EIR. With the April 1999 plans and the current refinements/revisions to those plans, the applicants for the Rispin Mansion project have attempted, and in most cases, succeeded in implementing mitigation measures recommended in the 1998 DEIR for the historic impacts described above. Specifically, the following measures from the 1998 DEIR were implemented in developing the April 1999 site plans, which carry over to the current site plans with minor refinements and revisions.

Former mitigation measure R-26 in the 1998 DEIR. The amount, scale and massing of new construction, including new buildings and hardscape, on the site was reduced in the April 1999 and current plans, compared with the plans evaluated in the 1998 DEIR, as follows:

- Only five parking spaces are proposed adjacent to the well house and north of the proposed South End Building. In addition, the grading proposed in the parking/driveway area adjacent to the well house (approximately 640 cubic yards) has been designed to minimize disturbance to the historic landscape features; most of this is for the small subterranean garage to be constructed below the well-house for trash collection, bike parking, and ZEV parking/charging/maintenance. On-site access is proposed only for Americans with Disabilities Act (ADA) compliance, emergency vehicles, deliveries, and short-term guest check-in and drop-off, which will minimize accidental and indirect impacts to the historic features.
- The total amount of new construction has been reduced. The smaller, single South End Building is a better complement and is subordinate to the Mansion building. The large building called the "North End Building" in the 1998 DEIR at the far north end of the site, as well as the Garage Units, have been eliminated from the plans.

Former R-27. The plans for the small, single South End Building show lower roof pitches, elimination of the massive bay windows, and simplification of the fenestration (or window features/treatment). The current plans include lattice for growth of ivy or similar plant on three of the elevations, and seem to include more appropriate exterior finishes and materials for walls, windows and doors to better complement the design of the Mansion. The proposed paint color (light tan or off-white) will serve to distinguish the building from the Mansion, which is proposed to be white as it has been historically.

Former R-28. The Garage Units have been eliminated from the current plans.

Former R-29. The Rispin Conservatory is now centered axially along the grass/lawn area of the garden, providing for improved visual consistency with the garden, and improved access to other existing site walkways. The proposed architectural design of the pavilion and its walkways appear to be consistent with other buildings and walkways in the use of materials and design in the April 1999 and current plans.

Former R-30. The applicant has provided detailed plans for landscaping and site design (see the plans attached to this document), which graphically depict the proposed restoration of the Rispin Gardens and grounds based on photo-documentation and other historic information.

The landscaping plan is consistent with the requirements set in former mitigation measure R-30.

The April 1999 plans (the subject of the 2000 Recirculated DEIR) were preliminarily reviewed by Bruce Judd, AIA, of Architectural Resources Group; a letter documenting his review is included in **Appendix D**. Mr. Judd's letter states that the architectural modifications shown in the April 1999 plans were an improvement in terms of sensitivity to the historic characteristics of the Rispin site compared to the previous plans. Mr. Judd stated that the plans were difficult to read and he expressed concern regarding the appropriateness of the glass entry facility near Wharf Road. The glass entry facility of concern was a guest registration building at the Wharf Road valet/drop-off pullout, which has been eliminated from the current plans.

Comments received on the April 1999 plans from Enid Sales, historical consultant, Steade Craigo, State Office of Historic Preservation, and members of the Planning Commission during public hearings indicated that sod or planted roofs may not be appropriate or compatible with the historical context of the Rispin Mansion site. As outlined in **3.0 Project Description**, some new construction is still proposed to have sod or planted roofs, though the reasoning behind this is substantial.[2] In addition, the project currently proposes a small glass-enclosed pavilion on the roof of three of the North End Guest Rooms and placement of a tent structure adjacent to the North End Guest Rooms, which may not be appropriate or compatible with the historical context of the Rispin Mansion site.

Impact: Some architectural features of new construction including roof coverings, paint colors, the glass-enclosed Rispin Pavilion and the adjacent tent structure: 1) may not be visually compatible with the Mansion and would potentially harm the historic relationships within the District (Standard #9, 10); 2) may potentially create a false sense of historical development (Standard #3); and 3) may change the historic character of the property (Standards #1, 2). *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-45 The design of all new structures and materials of construction shall be compatible with and complement the Rispin Mansion's style as designed by George McCrae for Henry Allen Rispin. This design concept should be reviewed and approved by the City of Capitola prior to beginning final design or construction to ensure that the project meets the Secretary of Interior's Standards for Treatment of Historical Properties. In particular, State and local decision-makers shall consider the following recommendations:

- The final design of the Rispin Pavilion shall be based on review and approval by the State Historic Preservation Officer such that material of construction, colors, and architectural style are appropriately compatible with and complement the historic features of the site. The use of walls and roofs of glass is discouraged.

[2] The applicant has proposed planting the flat roofs of the Poor Clares units (three of the North End Guest Rooms) with sod or use of other natural material to keep them out of view from the historic lawn area, especially the overlook balustrade. The roof of the South End Building has been redesigned to accommodate plantings to provide additional windscreen protection, dappled lighting, and nectar for the monarchs.

- The final design of building roof covering shall be based on review and approval by the State Historic Preservation Officer such that the covering and other changes near the Mansion are in compliance with the Secretary of the Interior's Standards and Guidelines. Consideration should be given to using terraces with planting in containers, as an alternative to sod roofs over new structures.
- The color scheme of new buildings shall be based on review and approval by the State Historic Preservation Officer such that the colors contrast with the Mansion's white paint to differentiate the old buildings from the new, and are compatible with and compliment the Mansion (i.e., light tan or off-white).

Impacts Due to Rehabilitation of the Rispin Mansion and Well-house

The Secretary of Interior's Guidelines for Historic Properties provide detailed examples of recommended and not recommended actions for rehabilitation of historic structures. Based on the description of actions described in the Part II Historic Application and the significantly deteriorated condition of the Mansion and well-house, extensive improvements, alterations and remodeling is necessary to bring these buildings up to applicable codes (i.e., the State Historical Codes) and create a usable structure. The California Historical Building Code is the applicable, prevailing code for this historic building and property in conjunction with the Secretary of Interior's Rehabilitation Standards and Guidelines. The Standards of Rehabilitation state:

> *"As stated in the definition, the treatment or rehabilitation assumes that at least some repair or alteration of the historic building will be needed in order to provide for an efficient contemporary use; however, these repairs and alterations must not damage or destroy materials, features, or finishes that are important in defining the building's historic character. For example, certain treatments--if improperly applied--may cause or accelerate physical deterioration of a historic building. This can include using improper repainting or exterior masonry cleaning techniques, or introducing insulation that damages historic fabric. In almost all of these situations, use of these materials and treatments will result in a project that does not meet the Standards. Similarly, exterior additions that duplicate the form, material, and detailing of the structure to the extent that they compromise the historic character of the structure will fail to meet the Standards."*

It should be noted that the existing deteriorated condition of the Mansion (and well-house) demonstrates a pre-existing adverse impact on the structure and its historic value, and that, in many ways, rehabilitation of the Mansion for efficient, contemporary use is a positive impact.[3] Potential non-project related impacts on the Historic District also exist due to additions near the northern portion of the Mansion. These additions include the Rispin-Peery Trail and the structures and alterations performed during the Poor Clares' residence, which altered the historic characteristics of the property.

[3] Steade Craigo, the State Architect with the State Office of Historic Preservation, has indicated to City staff that he believes this type of project offers the best opportunity for getting the Mansion restored, which he would like to see happen. He also supported the location of the new lodging units on the south end (the current South End Building) as the best location for these units.

Based on Historic Application materials, site plans, visual inspection of the Mansion and other buildings, and current and historic photographs, the Mansion (and well-house) requires extensive work in order to be in compliance with applicable Building and Health and Safety Codes (the State Historical Building Code), and to be made into a facility for efficient, contemporary use. Also, the proposed project includes addition of balconies, stairs, ADA lifts, and perforating the east wall for windows and doors to provide usable spaces in the Mansion for proposed guestrooms. These improvements to the existing structure have the potential to adversely impact the historic value of the structure in the following ways:

- These alterations may substantially "change ... its original characteristics" or "...historic character" (Standards #1, 2) or "create a false sense of historical development" (Standard #3).
- This extensive work may adversely impact the distinctive features, finishes and construction techniques of the Mansion (Standard #5).
- Due to the severity of deterioration of the Mansion, some distinctive features will have to be replaced. An impact would result if the new, "replaced" feature does not adequately match the old in design, texture and other visual qualities and, where feasible, materials. Replacement of missing features shall be substantiated by documentary or pictorial evidence (Standard #6).
- Chemical or physical treatments may cause damage to surfaces (Standard #7).
- An impact would result if new additions, exterior alterations or related new constructions destroy historic materials that characterize the property (Standard #9).

Impact: Despite the improvements that restoration will promote, the extensive work to be undertaken on the Mansion (and well-house) has the potential to violate the Standards for Rehabilitation #1, 2, 3, 5, 6, 7 and 9, as described above. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-46 The design and rehabilitation of the Rispin Mansion (and well-house) must comply with the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Historic Buildings, and the California State Historical Building Code. These documents shall be used as guidance documents for all agencies granting approval for the Rispin Mansion project.

R-47 Before construction begins, a Level 2 Historic American Building Survey/Historic American Engineering Record report on the Mansion and the entire District must be prepared in order to preserve a record of the Mansion.

R-48 Maintain an exhibit documenting and interpreting the history of the Rispin Mansion and its place in the community within the lobby, hallway, or other suitable location within the Mansion.

CUMULATIVE CULTURAL RESOURCES IMPACTS

See **5.0 CEQA Considerations**.

Geology and Soils

Cumulative development projects would result in exposure of greater numbers of people and structures to seismic hazards associated with groundshaking and/or soil failure. Preparation of geotechnical reports in sensitive areas will be required, and design of buildings will be required to withstand identified hazards based on the site-specific engineering recommendations. In addition, damage to buildings will be minimized by conformance with existing building codes. The hazards would be site-specific and, therefore, would not be common to (or shared with, in an additive sense) the impacts on the other sites. Therefore, the geotechnical impacts would not be considered cumulative in nature.

Cumulative grading and removal or vegetation could lead to incremental increases in erosion, leading to sedimentation in Soquel Creek and localized fugitive dust. Implementation of appropriate erosion control measures in this EIR and as required by the City for each project, will reduce significant cumulative erosion and sedimentation impacts to a less-than-significant level (see **4.2 Geology and Soils**).

Hydrology and Water Quality

Data from the City of Capitola Flood Insurance Study indicates that even if the floodplain were developed to the floodway boundaries, there would be essentially no rise in the 100-year flood elevations on Soquel Creek. The proposed project does not encroach on the FEMA floodway, and according to the methods and assumptions in the FEMA study, as long as other developments along the creek were constructed outside the floodway as required by local ordinances, no significant cumulative impacts to downstream 100-year flood elevations would result.

Erosion from development in the upper and lower portions of the Soquel Creek watershed has contributed to increased sediment transport and deposition in Soquel Creek. Cumulative development in the watershed would increase the rates, the intensity of runoff, the erosional processes, and the amount of sediment loading in Soquel Creek. This significant cumulative impact would be mitigated to a less-than-significant level by improvements proposed for storm drainage systems feeding to Soquel Creek, as provided for in the City's Soquel Creek Lagoon Enhancement project, including four storm drain interceptors. See **4.3 Hydrology and Water Quality** for additional discussion and mitigation measure language.

Biological Resources

Because of limited development opportunities in areas with biological resources, along Soquel Creek and in other areas of the City of Capitola, and because of City and County ordinances protecting environmentally sensitive habitats such as that along Soquel Creek, significant cumulative biological impacts are not expected.

This project has been determined to be outside of the required setback from the riparian vegetation area and, therefore, will not directly impact this habitat. Cumulative indirect impacts such as erosion or slope slippage (due to development on steep slopes above the creek) may occur due to this project and other cumulative projects. With the implementation of relevant mitigation measures in this EIR that aim to prevent erosion and slope slippage, the project's contribution to this cumulative impact would be less-than-cumulatively considerable and, therefore, less-than-significant, pursuant to CEQA Guidelines section 15130 (a)(3).

Cumulative development in and near areas used by steelhead can significantly impact availability and suitability of habitat areas. The Rispin project's contribution to this cumulative impact may be considered to be less-than-cumulatively considerable and, therefore, less-than-significant, pursuant to CEQA Guidelines section 15130 (a)(3), if relevant mitigation measures in this EIR identified for project-specific impacts on steelhead habitat are implemented. In addition, long-term avoidance of physical changes to steelhead habitats and implementation of similar mitigation measures for cumulative projects near all watercourses utilized by steelhead could effectively avoid or reduce impacts on these habitats.

Based on the cumulative development expected in the Santa Cruz County area and human use of areas near monarch butterfly habitat areas such as Escalona Gulch and Natural Bridges, the cumulative impact on monarch butterfly habitat would be considered significant and unavoidable. The Rispin Mansion, as proposed and with proper implementation of mitigation measures in this EIR, would largely avoid impacts on monarch butterflies and their habitat. However, the project proposes development within and around monarch overwintering habitat ESHA, which is a significant and unavoidable impact. The project would therefore contribute significantly to the cumulative impact of development and human activity on monarch habitat areas in the Santa Cruz County area. However, implementation of relevant mitigation measures in this EIR identified for project-specific impacts on monarch butterfly habitat will avoid significant ESHA degradation and will allow development in a fashion that is compatible with ESHA. In addition, long-term avoidance of physical changes to monarch habitats (including tree removal, damage, or substantial limbing), adaptive management for continued habitat suitability, and implementation of similar mitigation measures for cumulative projects near all monarch butterfly habitats could effectively avoid or reduce impacts on these sensitive habitats. See **4.4 Biological Resources** for additional discussion.

Cultural Resources

Cumulative impacts on cultural resources would likely be minimal due to the limited amount of identified cultural resources in the project vicinity. The significant historical impacts of development on the Rispin Mansion site are discussed in detail in this EIR and are purely a site-specific concern. If cultural resources are discovered during cumulative project construction (in the future), mitigation measures as described in **4.5 Cultural Resources** would need to be implemented to reduce the impact to a less-than-significant level.

Aesthetics

Sensitive viewsheds occur in the City of Capitola near the ocean, near Escalona Gulch, and along Soquel Creek. These viewsheds are valuable for their aesthetic qualities that add to the small-town, visitor-serving appeal of the City of Capitola. The significant viewshed impacts of development on the Rispin Mansion site are discussed in detail in this EIR and are purely a site-specific concern. The City has adopted visual requirements to ensure that significant impacts to sensitive viewsheds do not occur. In addition, the proposed project improvements at the Rispin Mansion site are considered to be aesthetically beneficial because the site is currently blighted due to vandalism and neglect.

Traffic and Circulation

Cumulative traffic impacts for General Plan Buildout conditions are analyzed in detail in **4.7 Traffic and Circulation**.

Noise

Cumulative projects, if sited and designed properly, would not be expected to result in significant noise impacts to nearby residents. Cumulative traffic increases under General Plan Buildout in terms of average daily traffic are not expected to exceed 20% along Wharf Road in the project vicinity (see **Table 6** in **4.7 Traffic and Circulation**). If traffic volumes double, noise levels at any given location exposed to that source will increase by approximately 3 dBA. Traffic increases of 20% or less would result in small increases in decibel levels (less than 1 dBA increase). This increase in noise level is not discernible to the human ear. The resulting noise levels are expected to be below the significance criteria identified in **4.8 Noise**.

Air Quality

A contribution to cumulative air quality degradation in the North Central Coast Air Basin is expected due to cumulative development in the area. The cumulative effect of additional traffic movements in the area will lead to an increase in emissions. As discussed in **4.9 Air Quality**, a proposed project that is consistent with the most recent AQMP would not have significant adverse cumulative impacts upon regional air quality.

Project consistency with the AQMP for the Monterey Bay Region is used by the District to determine a project's cumulative impact on regional air quality (i.e., ozone levels). Consistency of institutional projects is determined by comparing the estimated current population of the jurisdiction in which the project is to be located with the applicable population forecast in the *AMBAG 1997 Regional Population and Employment Forecast.* If the estimated current population does not exceed the forecasts, indirect emissions associated with the project are deemed to be consistent with the AQMP. Consistency of non-population related activities (i.e., hotels) is evaluated on a case-by-case basis by MBUAPCD. The project is consistent with the most recent AQMP (MBUAPCD, 2000) and would not exceed or approach emissions thresholds contained in the Plan. This is described in an AMBAG letter dated April 8, 1998 and included in **Appendix F** of this EIR. Based on discussion with Janet Brennan (MBUAPCD) in August of 2000, this letter is adequate to document that the project is consistent with the existing AQMP, which would not change for this Revised Draft EIR. Based on AMBAG/MBUAPCD analysis, the project will have a less-than-significant cumulative impact on air quality. To ensure cumulative impacts are adequately mitigated to a less-than-significant level, responsible City and County agencies should comply with portions of the AQMP that require ozone precursor and PM_{10} controls.

Because local ventilation is good and traffic modest, carbon monoxide (CO) is not monitored in the area, except in Salinas. CO emissions have been reduced dramatically by improved emission controls on new automobiles in recent years. CO concentrations will increase slightly as a result of the proposed project and cumulative projects, but based on modeling results in **Appendix F**, are projected to be well below both California Ambient Air Quality Standards and National Ambient Air Quality Standards.

Public Services

Cumulative development would result in an incremental increase in demand for public services, including water, wastewater treatment, police and fire protection, schools and solid waste. Long-term water supply within the area served by the Soquel Creek Water District is under review by the District because they anticipate the need for a supplemental water supply and for

improved conjunctive management of existing production facilities. The District is currently studying options for augmenting the District's existing water supply and other measures to provide services to cumulative development within its service area (SCWD, June 6, 2000).

Given that the District is planning for water supply improvements but has not developed specific funded programs, cumulative impacts on water supply are considered significant. Until such programs are defined, the District will continue to require new development to provide low-flow fixtures and water-conserving landscaping to reduce water consumption levels of urban development and minimize the impacts of new cumulative growth. The District would impose these requirements directly on properties within its jurisdiction; the City of Capitola would not need to adopt mitigation/improvement measures since water supply is managed and administered by the District. Nevertheless, the City supports the District's efforts to develop a regional plan and to require low-flow fixtures and water-conserving landscaping of new development. To help mitigate potentially significant cumulative water supply impacts, the City will participate in the integrated plan as requested and assist with implementation of recommendations and funding mechanisms, such as fees on new development. See **4.10 Public Services** for mitigation measure language.

Project and cumulative development would result in an incremental increase in the demand for fire protection services, provided by the Central Fire Protection District, and City police protection services. According to the AMBAG forecast, approximately 578 additional persons will reside in the City of Capitola by the year 2020. The District anticipates the need to improve existing facilities, increase personnel levels, and obtain new equipment to serve this increased population. Future development would be required to provide adequate site access and design and to use fire sprinkler systems to help minimize future demands. Property tax and sales tax revenues from new development would help defray the costs of these improvements. Given these actions and requirements, a significant cumulative impact on fire services is not expected. If, however, the District determines additional funding is necessary, increased fees, benefit assessments, or bonds could be considered. In this case, the Central Fire Protection District would implement the program and require participation by properties within its service area; the City of Capitola would not have any jurisdiction over these measures and improvements.

6.0 ALTERNATIVES

♦♦♦

INTRODUCTION

This section evaluates alternatives to the proposed Rispin Mansion project as required by CEQA. CEQA Guidelines Section 15126.6 requires the consideration of a range of reasonable alternatives to the proposed plan that could feasibly obtain most of the basic objectives of the proposed project. Thus, it is not required that an EIR study a completely different type of land use on the proposed project site. The Guidelines further require that the discussion focus on alternatives capable of eliminating significant adverse impacts of the project, or reducing them to a level of insignificance, even if those alternatives would not fully attain the project objectives or would be more costly. The discussion should also identify any significant effects that may result from a given alternative.

In compliance with CEQA, this section discusses the "No Project Alternative" as well as other alternatives and compares them to the proposed project. According to the CEQA Guidelines, the range of alternatives required in an EIR is governed by the "rule of reason" that requires an EIR to set forth only those alternatives necessary to permit a reasoned choice. An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

Summary of Identified Significant Project Impacts

As indicated above, the alternatives analysis is intended to focus on eliminating, or reducing in significance, those project impacts identified in the EIR as significant or significant and unavoidable. Significant and unavoidable impacts are those effects of the project that would affect either natural systems or other community resources, and cannot be mitigated to a less-than-significant level. The following significant and unavoidable impacts were identified:

- project and cumulative impacts to monarch butterfly overwintering habitat (ESHA);
- project and cumulative impacts on existing deficiencies at the 41st Avenue/Clares Street intersection;
- cumulative impacts on 41st Avenue north of Clares Street and 41st Avenue north of Highway 1;
- cumulative impacts on Capitola Road segments east and west of 46th Avenue; and
- cumulative impacts on Wharf Road north of Clares Street.

In addition to the aforementioned significant and unavoidable impacts, the project would result in potentially significant or significant impacts in the following areas: geology and soils, hydrology and water quality, biological resources, cultural resources, aesthetics, traffic and circulation, noise, air quality, and public services. All of these impacts can be reduced to a less-than-significant level with implementation of mitigation measures identified throughout the EIR.

Summary of Project Objectives

The following project objectives for the Rispin Mansion project were identified by the applicant and reviewed by the City of Capitola, which is seeking to balance the economic, historical, environmental, and community objectives in its review of this project:

- To provide public access to the restored historical Rispin Mansion, gardens, and grounds, guaranteed by appropriate legal instrument;
- To protect and enhance the ecosystem of the Rispin Mansion site, especially the riparian vegetation and the monarch butterfly habitat, guaranteed by appropriate legal instrument;
- To achieve historical certification of the project (as a rehabilitation/development project of a property on the National Register of Historic Places) from the State Historic Preservation Office/National Park Service, and obtain Historic Investment Tax Credits;
- To retain as much undeveloped open space on the Rispin Mansion site as possible, guaranteed by appropriate legal instrument;
- To provide a special event facility for public use in the gardens;
- To provide a meeting/wedding/multi-use facility for the public;
- To create a stable/profitable economic investment;
- To provide employment opportunities;
- To provide the City of Capitola with the best economic return while eliminating a current revenue drain; and
- To increase high-level visitor-serving days for the City and the Capitola Village.

Project objectives include rehabilitating the Rispin Mansion and providing public access to open space, a historically accurate garden, visitor-serving hotel, meeting and wedding facilities in accordance with City of Capitola land use policies and regulations. This restoration will create educational opportunities and public access to a historical area and natural open space, preserve local history, and provide a mechanism for habitat protection and enhancement. Finally, this project will provide employment opportunities and additional tax revenue for the City of Capitola, and will eliminate the current revenue drain associated with maintenance, insurance, and public safety calls to the site.

Summary of Planning Efforts to Derive Alternatives

The City purchased the Rispin property in December 1985, with the intention of using it for a library or other public use. In 1987, the Rispin Advisory Committee completed "The Rispin Report," which recommended a combination of seven public/quasi-public functions to be accommodated at the Mansion, including museum-type space, theater/presentation space, rental space, gift shop, artists-in-residence program, meeting space, small-scale food service. The City itself first proposed rehabilitation of the Rispin Mansion and construction of a regional library in 1991. In October of 1991, the City certified an EIR on uses considered for the combined Rispin/Clares site, including the following potential uses: regional library, childcare facility, 17 units of affordable housing, neighborhood park, footbridge over Soquel Creek, and joint-use parking area. However, implementation was put on hold due to a lack of City funding capacity. In 1993, a citizens' Rispin Advisory Committee was formed, which was formalized by the City Council in July 1994. Also in July 1994, consultants were hired to assist with the Rispin Mansion Use and Renovation Feasibility Study. Based on the results of this study, as well as discussion and public input at several Rispin Committee meetings and two community forums (in September and November 1994), in March 1995, the Rispin Steering Committee forwarded two recommendations to the City Council: use as a public facility (Capitola Library) or a private use (a bed and breakfast inn). In March/April 1995, a community survey was conducted, and in May 1995, the Rispin Steering Committee revised their recommendation to the City Council in

support of the bed and breakfast alternative. In June 1995, the City Council considered the results of the community survey and the revised Rispin Steering Committee recommendation, and directed the release of a Request for Proposals for a bed and breakfast inn development.

From the above chronology, it can be ascertained that the Rispin property was purchased with the intent of public use, but that preferences shifted over time based on public input and technical feasibility analyses. Despite the final recommendation by the Rispin Steering Committee in favor of the private use alternative, their recommendation for this type of use was contingent upon inclusion of public ancillary uses and public access in the Request for Proposals (see discussion on page 4.1-4 in **4.1 Land Use and Planning**). Further, the Committee had the following stipulations:

- If the Mansion is leased under a public/private partnership to a private developer/operator, the City should negotiate to have the developer/operator pay for as much of the costs of renovation of the Mansion as possible, and should negotiate to receive a return on the City investment in the site, to the extent feasible.
- A condition of any use must be provision for significant public access to the Mansion, gardens and grounds.
- The historic integrity of the Mansion must be maintained.
- Any new development on the property must be limited in scope and compatible with the Mansion, so that the Mansion remains the focal point.

The Rispin Mansion project, as currently proposed, meets all of these stipulations and nearly all of the public uses outlined in "The Rispin Report" and by the Rispin Steering Committee (see discussion on page 4.1-4 in **4.1 Land Use and Planning**). Further, in 1998-1999, the City developed a 4,200 square-foot modular library on the Clares/Wharf site across from the Rispin property, so this EIR need not look at a library use on the Rispin Mansion site.

Selected Alternatives

The following alternatives are described and analyzed, then compared to the proposed project. Also, the ability of each alternative to reduce the identified impacts is discussed. Other than the No Project Alternative, which is required by CEQA, the selected alternatives could feasibly obtain some, most, or all of the basic objectives of the proposed project, though perhaps to a lesser extent than the proposed project, and are capable of eliminating significant adverse impacts of the project, or reducing them to a level of insignificance.

- Alternative 1 — No Project Alternative
- Alternative 2 — Alternative Site Configuration (25-Unit Rispin Redevelopment Plan)
- Alternative 3 — Rispin Mansion Bed and Breakfast
- Alternative 4 — Reduced Scale Alternative

4.6 AESTHETICS

♦♦♦

INTRODUCTION

This section describes the existing visual setting of the project area in terms of physical attributes and aesthetics. The potential visual effect of the project is evaluated within the context of the existing urban character of the area, and is based on field observation, General Plan and California Coastal Act policies, and community guidelines.

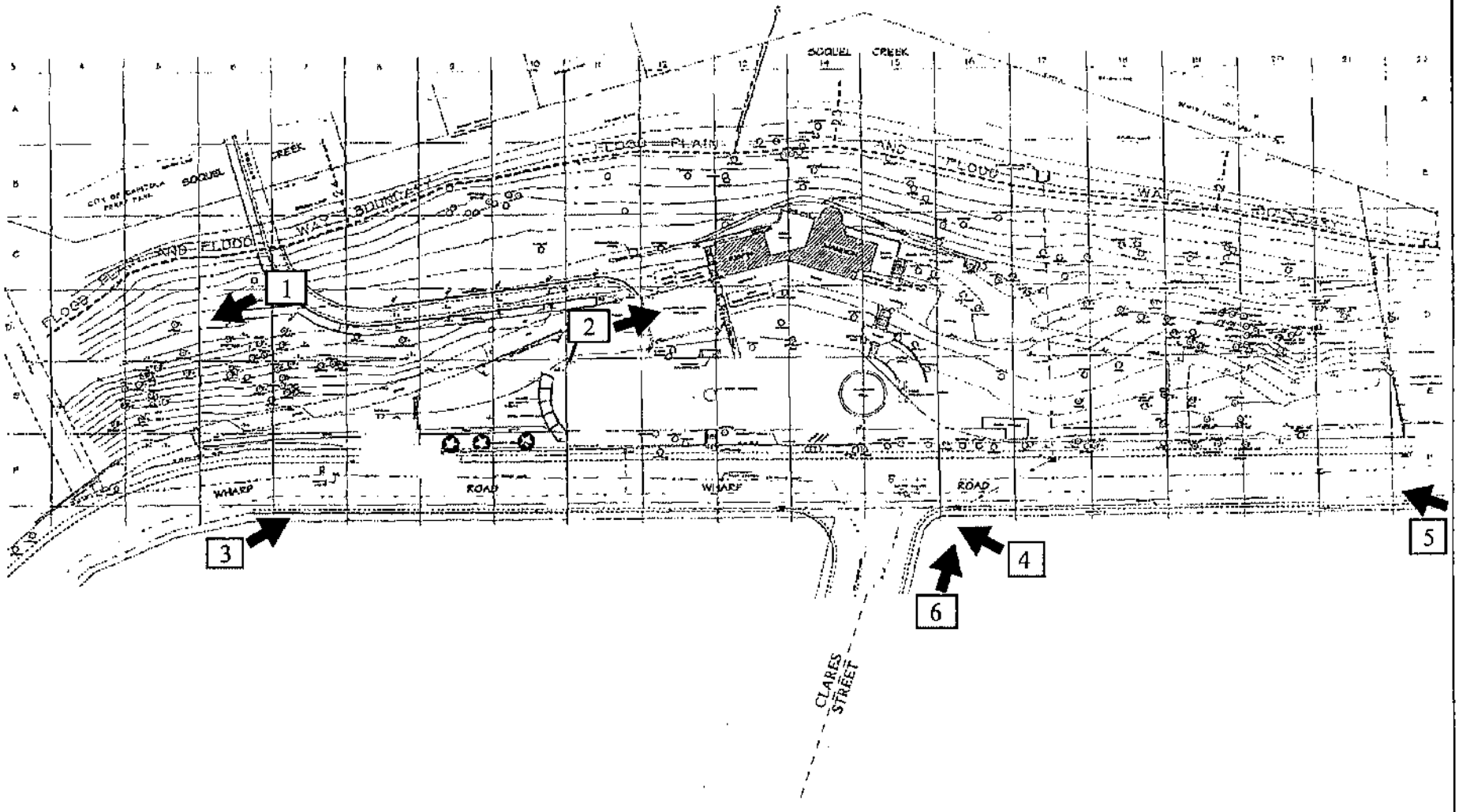
SETTING

The proposed Rispin Mansion site consists of 6.5 acres of land located east of Wharf Road and west of Soquel Creek. The site begins approximately 100 yards south of the intersection of Clares Street and Wharf Road and extends about a quarter mile along Wharf Road. The visual setting at the site is an important consideration because Wharf Road is a roadway used extensively by visitors and residents. The site is heavily vegetated and primarily open space. In addition the site contains the Rispin Mansion, a wooden well house, remains of various landscaping and infrastructure improvements, and the Rispin-Peery Pedestrian and Bicycle Trail (Rispin-Peery Trail).

Figure 4-6 shows some key public viewpoints of the project site. Photos 1 through 6 show photographs of the Rispin site from these viewpoints.

The Rispin-Peery Trail cuts through the property as a ten-foot wide concrete and asphalt trail. Looking north from this trail, the area formerly proposed for the north end building can be seen. It is heavily vegetated with oak trees and low-growing vegetation on a steep slope, as shown in Photo 1. Pedestrians and cyclists are able to see much of the north side of the Mansion grounds from the southernmost point on this trail (see Photo 2). The Mansion, walkways and other landscape features from Rispin's time, and the foundations and structures north of the Mansion built during Poor Clares residency, are clearly visible. This view reveals the deteriorated condition of the Mansion and its surroundings due to vandalism, fire damage, and neglect. The proposed area for the Rispin Conservatory is a sparsely-vegetated slope leading from the trail up to the historic garden that is immediately adjacent to the pedestrian trail.

The northern portion of the site along Wharf Road is mostly hidden by the historic eight-foot concrete wall that borders the site and by heavy vegetation near the northern boundary of the site, where the Rispin driveway connects with Wharf Road (see Photo 3). The roof of the Rispin Mansion is only somewhat visible from the neighbors to the west because it is at a lower elevation than the wall (see Photo 4). The south end of the site is visible from Wharf Road and is essentially open for access from Wharf Road (see Photo 5). This southern area is primarily wooded with eucalyptus and acacia trees and does not contain structural improvements except for a small retaining wall and portions of the old driveway. Near the intersection of Clares Street and Wharf Road, the deteriorated well house is clearly visible through the vegetation, eucalyptus and acacia trees (see Photo 6).



◀ N

Photo Viewpoints Rispin Mansion 1 - 6

Figure
4-6

DENISE DUFFY & ASSOCIATES, INC.

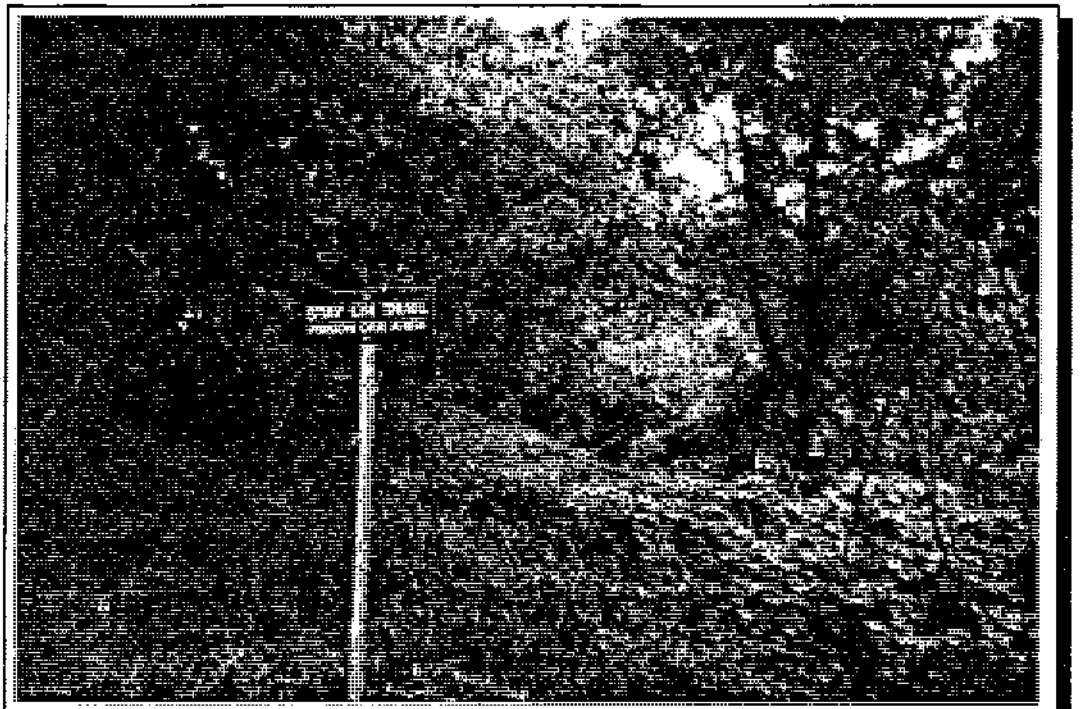


Photo 1 View of site north of Rispin-Peery Trail.

Photo 2 View of Rispin Mansion from the Rispin-Peery Trail.

Photo 3 View of Rispin Mansion site from southbound Wharf Road.

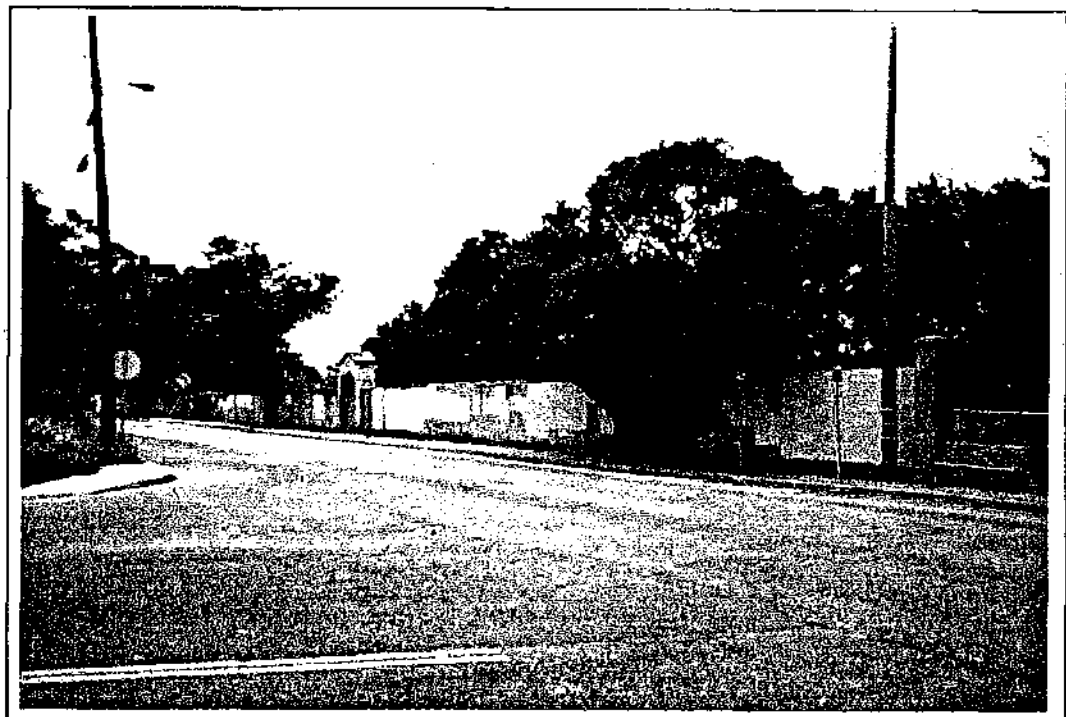


Photo 4 View of Rispin Mansion site looking north from Wharf Road/Clares Street intersection.

Photo 5 View of southern part of Rispin Mansion site from across Wharf Road.

Photo 6 View of well house and nearby trees from Wharf Road/Clares Street.

There are no public viewpoints from the east side of the Mansion across Soquel Creek. This side of the Creek is lined with private residences. It is assumed that these residences have very clear views of the Mansion itself and the heavy vegetation of the grounds. From these homes, the Mansion most likely appears deteriorated. From Peery Park, north of these residences, the Rispin-Peery Trail is visible, but the Mansion is almost entirely blocked from view by the trees and heavy foliage surrounding it.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

In accordance with the State CEQA Guidelines, and agency and professional standards, a project impact may be considered significant if the project would:

- have a substantial adverse effect on a scenic vista;
- substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- substantially degrade the existing visual character or quality of the site and its surroundings; or
- create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Alteration of Site Visual Character

Based on the current site plans, the site will be developed with the following features/improvements:

- Restoration of the Mansion building with 13 guest rooms, living room, dining room, concierge area, small service kitchen, exercise room, and storage room;
- Construction of one new building with eight guest units on the south end of the site for visitor-serving accommodations ("South End Building");
- Construction of seven guest units north of and adjacent to the Mansion ("North End Guest Rooms"), including:
- three units just north of and adjacent to the Mansion entirely below the level of the entrance to the Mansion and immediately beneath the laundry room/terrace,
- one unit at the location of the laundry room/terrace,
- three units northwest of the Mansion separated from the laundry room/terrace by a brick pathway where there is currently an existing foundation ("Poor Clares Rooms");
- Construction of the "Rispin Pavilion," a glass-enclosed structure, above three of the North End Guest Rooms, and placement of a tent structure adjacent to the North End Guest Rooms to provide a weather-proof setting on the north terrace and outdoor seating for the Rispin Pavilion;

- Construction of an office within the restored well-house, and small expansions below the existing well-house for security guard quarters and trash collection/ZEV parking;
- Construction of a new garden conservatory for weddings ("Rispin Conservatory");
- Restoration and addition of terraces (including the glass-covered Rispin terrace between the dining and living rooms), ADA pathways and handicap lifts, and stairways in and around the Rispin gardens and fountain area;[1]
- Improvements within the prism of the existing Rispin driveway and construction of five interim valet parking spaces south and west of the Mansion (near the well-house); and
- Use of the parking lot at the Clares/Wharf site to accommodate 60 spaces for the Rispin Mansion project and the existing library (expandable to 85 spaces for "event parking" through the use of a valet parking system).

The plans attached to this document show the proposed locations and elevations of the new buildings. The South End Building will be a stepped building with a two-story configuration and a maximum building height of no more than 17 feet above the existing grade, slanting to only 11 feet above existing grade at its eastern edge. The height of the building is approximately 15 feet above the grade of Wharf Road. The plan for this area of the site includes a six-foot high cantilevered wall separating the development from Wharf Road. According to the plans, the proposed South End Building will be approximately nine feet higher than the wall and would be visible from vehicles traveling both directions on Wharf Road and potentially from vehicles on Clares Street as it meets Wharf Road. Landscaping is proposed by the applicant to filter views of this building. This includes attached lattice with ivy or similar vegetation, and trees along the border between the South End Building and Wharf Road.

The restored rose arbor and the new North End Guest Rooms, Rispin Pavilion and tent structure adjacent to the Mansion will be at a lower elevation, so that the top of these structures will be at or below the top of the existing concrete wall and therefore not visible from Wharf Road. According to the plans, the proposed Rispin Conservatory will be approximately nine feet higher than the existing concrete wall and will thus be visible from Wharf Road. These buildings will also be visible from the Rispin-Peery Trail. Specifically, the following will be visible:

- The south and east elevations of the Rispin Conservatory; and
- The north elevation of the North End Guest Rooms, and the Mansion in its restored condition.

Heights of these buildings and architectural features are shown graphically on the site plans and elevations attached to this document. In addition, the restored gardens, driveways and other landscaping features will be visible and accessible from the Rispin-Peery Trail, as proposed. These features will be improved under the proposed project creating a more maintained, landscaped, and less overgrown appearance.

No public views of the site exist from the east side (across Soquel Creek). From Peery Park, the Rispin-Peery Trail is visible; however, heavy vegetation blocks views of the Mansion and

[1] This includes minor changes to the Rispin-Peery bicycle/pedestrian trail to accommodate site improvements.

the grounds. Other views from the east are available from residences along Riverview Drive. Views from these residences will be changed, as it is probable that some new structures and improvements to Rispin Mansion will be visible from these residences. Some improvements will be positive, including cleaning the exterior walls and improving the quality of the Rispin Mansion structure. The new buildings may adversely impact the viewshed depending on the quality of design, construction, and long-term maintenance. The plans attached to this document show details of the east elevations of the new units to the north of the Mansion and the Mansion itself, including the new windows, doors, railings, and stairs.

Impact: The visual character of the site would be substantially altered as a result of construction, buildout, and occupancy of the project. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation. [Note: aesthetic mitigation (and related design elements) must not conflict with, and should be done in coordination with, mitigation presented in **4.5 Cultural Resources**.]*

Mitigation

R-49 Obtain Architectural and Site Review approval from the City.

R-50 On-site utilities, including heating and cooling systems located on building roofs, must be located in inconspicuous areas or screened.

R-51 Building materials must be of a material or color that minimizes visual disruption and glare.

R-52 Any on-site buildings, signs, fences, walls, and entry gates must be consistent with the character of the Mansion and adjacent land uses.

Increased Light and Glare

The site will require security lighting and lighting for any outdoor evening events. In addition, lighting would be necessary for the crosswalk between the site and the parking lot.

Impact: Development of the Rispin Mansion project would introduce increased glare and night lighting to the project site and surrounding area compared with existing conditions, which could adversely affect nighttime views in the project area. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation (in addition to mitigation measures R-26 and R-42 in **4.4 Biological Resources**).*

Mitigation

R-53 Lighting must be designed to minimize off-site glare. The type, height, and spacing of lighting shall be approved by the City. Lighting must be directed downward and away from Soquel Creek and residences to the east. Lights must be of minimum intensity necessary for safety lighting. Light standards shall be a maximum of 15 feet high.

CUMULATIVE AESTHETIC IMPACTS

See **5.0 CEQA Considerations.**

4.7 TRAFFIC AND CIRCULATION

♦♦♦

INTRODUCTION

This section describes the traffic and circulation issues of the proposed project based on the traffic analysis by Higgins Associates (September 16, 2002). The 2002 report is an update of traffic analyses prepared by Higgins Associates for the previous project proposals that were evaluated in the 1998 Draft EIR (34 visitor-serving units) and 2000 Recirculated Draft EIR (26 visitor-serving units). The 1998 traffic analysis also evaluated a proposed 7,000 square-foot library that is not now a component of the project. The traffic analysis is included in this EIR as **Appendix E.**

The traffic analysis describes existing conditions, evaluates potential impacts due to the proposed project, and recommends mitigation to reduce the impacts to a less-than-significant level, if possible. Issues addressed include intersection and roadway levels of service analysis, project access, internal circulation, parking and traffic safety. In addition, a cumulative analysis under General Plan buildout conditions is included in this section.

SETTING

The Rispin Mansion project site is located just east of the Clares Street/Wharf Road intersection in the City of Capitola, California. The joint-use parking lot is located on the northwest corner of the Clares Street/Wharf Road intersection. The Rispin Mansion project will be accessed via the southern driveway on Wharf Road.

Street Network

Roadways serving the study area include Highway 1, Wharf Road, Robertson Street, Clares Street, Capitola Road, 41st Avenue, 46th Avenue, 49th Avenue and Grace Street.

Highway 1 is a four-lane freeway with a grade-separated interchange at 41st Avenue. In the vicinity of the project, Highway 1 is oriented in an east-west alignment, while the interregional alignment of Highway 1 is designated as north-south. To the west (or Highway 1 north), it provides access to the City of Santa Cruz and Santa Clara County via Highway 17. To the east (or Highway 1 south), it provides access to south Santa Cruz County, Monterey County, and Watsonville.

Wharf Road is a two-lane north-south minor arterial and is approximately 33 feet wide along the project frontage. The posted speed limit on Wharf Road is 25 miles per hour (mph). North of Clares Street, bike lanes are provided on Wharf Road. All movements at the Wharf Road/Clares Street intersection, a T-intersection, are protected by a stop sign. Near the project vicinity, parking is prohibited on Wharf Road. North of the Highway 1 underpass, Wharf Road changes to Robertson Street.

Robertson Street is a two-lane north-south minor arterial that connects Wharf Road to Soquel Drive. Robertson Street is approximately 40 feet wide at its approach to Soquel Wharf Road. The posted speed limit on Robertson Street is 25 mph. Robertson Street forms a T-intersection with Soquel Wharf Road that is uncontrolled since Soquel Wharf Road is a one-way street (eastbound only).

Clares Street is a two-lane east-west minor arterial that connects the northerly boundary of the Capitola Mall complex to Wharf Road. Bike lanes are currently provided on the north side of Clares Street. Near the project vicinity, parking is only allowed on the south side of Clares Street.

Capitola Road is a four-lane east-west arterial with a posted speed limit of 25 mph. Bike lanes are currently provided on both sides of Capitola Road. Parking is prohibited on both sides of Capitola Road.

41st Avenue is a six-lane north-south divided arterial that provides access to the Capitola Mall complex and State Highway 1. Bike lanes are currently provided on both sides of 41st Avenue. Traffic movements at the 41st Avenue/Clares Street intersection are controlled by a fully actuated traffic signal. North of Highway 1, 41st Avenue is four lanes wide.

46th Avenue is a two-lane local street that serves local residences. The 46th Avenue northbound approach at Clares Street and southbound approach at Capitola Road is controlled by a stop sign.

49th Avenue is a two-lane collector street with a posted speed limit of 25 mph. Parking is allowed on both sides of 49th Avenue. All movements at the 49th Avenue/Capitola Road intersection are controlled by stop signs.

Grace Street is a two-lane collector street and is approximately 45 feet wide at its approach to Wharf Road. Parking is allowed on both sides of Grace Street. At Wharf Road, the Grace Street approach is protected by a stop sign.

A total of 9 intersections are included in the analysis for weekday PM (4:00 to 5:00 p.m.) and Saturday mid-day (MD) peak hours (11:45 a.m. to 12:45 p.m.). The nine study intersections are listed as follows:

1. Robertson Street/Soquel Wharf Road
2. Wharf Road/Clares Street
3. 46th Avenue/Clares Street
4. 41st Avenue/Clares Street
5. Wharf Road/Grace Street
6. 49th Avenue/Capitola Road
7. 46th Avenue/Capitola Road
8. 41st Avenue/Highway 1 - South Ramps
9. 41st Avenue/Highway 1 - North Ramps

Based on discussion with Caltrans, the Highway 1/Bay Avenue interchange does not require analysis in this EIR (Charles Larwood, Caltrans, personal communication, March 22, 1999).

Existing Roadway Segment Volumes and Operating Conditions

Traffic volumes documented in the previous traffic studies prepared for this project were collected in December 1997 and January/February 1998. New weekday PM peak period and Saturday MD peak period traffic counts were conducted at the Wharf Road/Clares Street intersection on Thursday May 9, 2002 and Saturday May 11, 2002 to determine the extent to which traffic volumes have changed between 1998 and 2002. On the basis of the percentage change between the 1997/1998 counts and the 2002 counts collected at the Wharf Road/Clares Street intersection, intersection volumes at the Clares Street/46th Avenue, Capitola Road/46th Avenue, Capitola Road/49th Avenue, Wharf Road/Grace Street and Robertson Street/Soquel Wharf Road were adjusted to reflect existing conditions. Existing weekday PM and Saturday MD peak hour volumes documented in the traffic study prepared for the proposed 41st Avenue Safeway Shopping Center expansion project located on 41st Avenue, north of Highway 1, were utilized in this study to represent existing volumes at the 41st Avenue intersection with the northbound Highway 1 ramps, southbound Highway 1 ramps and Clares Street.[1] The existing weekday PM and Saturday MD peak hour volumes are shown on **Figure 4-7**. The volumes reflect peak season conditions, which occur during the summer.

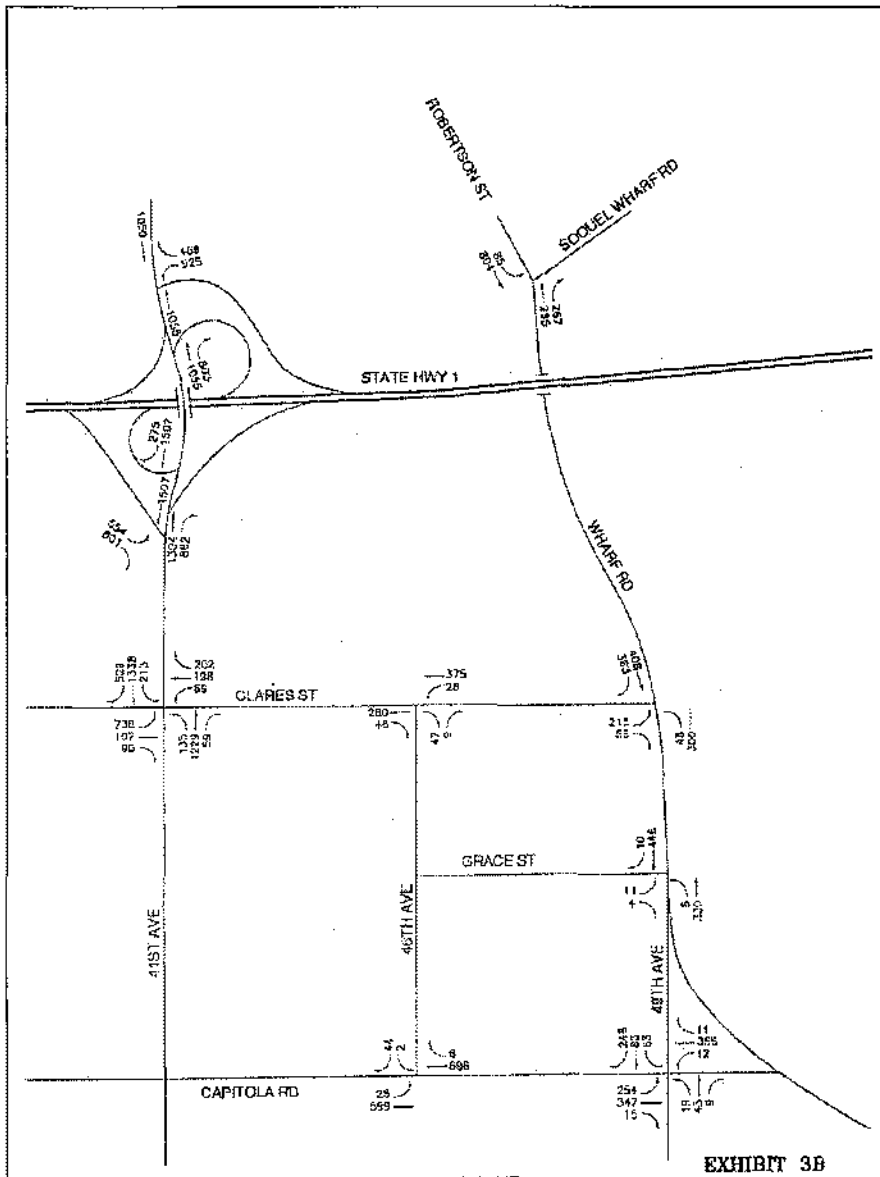
Intersection and roadway segment traffic flow operations are evaluated using a level of service (LOS) concept. Intersection and road segments are rated based on a grading scale of "LOS A" through "LOS F," with "LOS A" representing free flowing conditions and "LOS F" representing forced flow conditions. As per City of Capitola General Plan, LOS C would be considered the maximum allowable LOS for roadway segments and intersections.

The LOS ratings for roadway segments are based on the peak hour threshold volumes provided in **Appendix** E. Other factors that may affect traffic flow conditions include intersection channelization design, type of traffic control devices, pedestrian volume and on-street parking activities. Therefore, the road segment level of service ratings should not be relied solely upon to describe traffic operations along a street corridor. Intersection operating conditions are discussed in the next section.

The weekday PM and Saturday MD peak hour roadway segment volumes shown on **Table 6** indicate that all study roadway segments currently operate within acceptable levels of service (LOS C or better). No improvements are currently required for the study street segments.

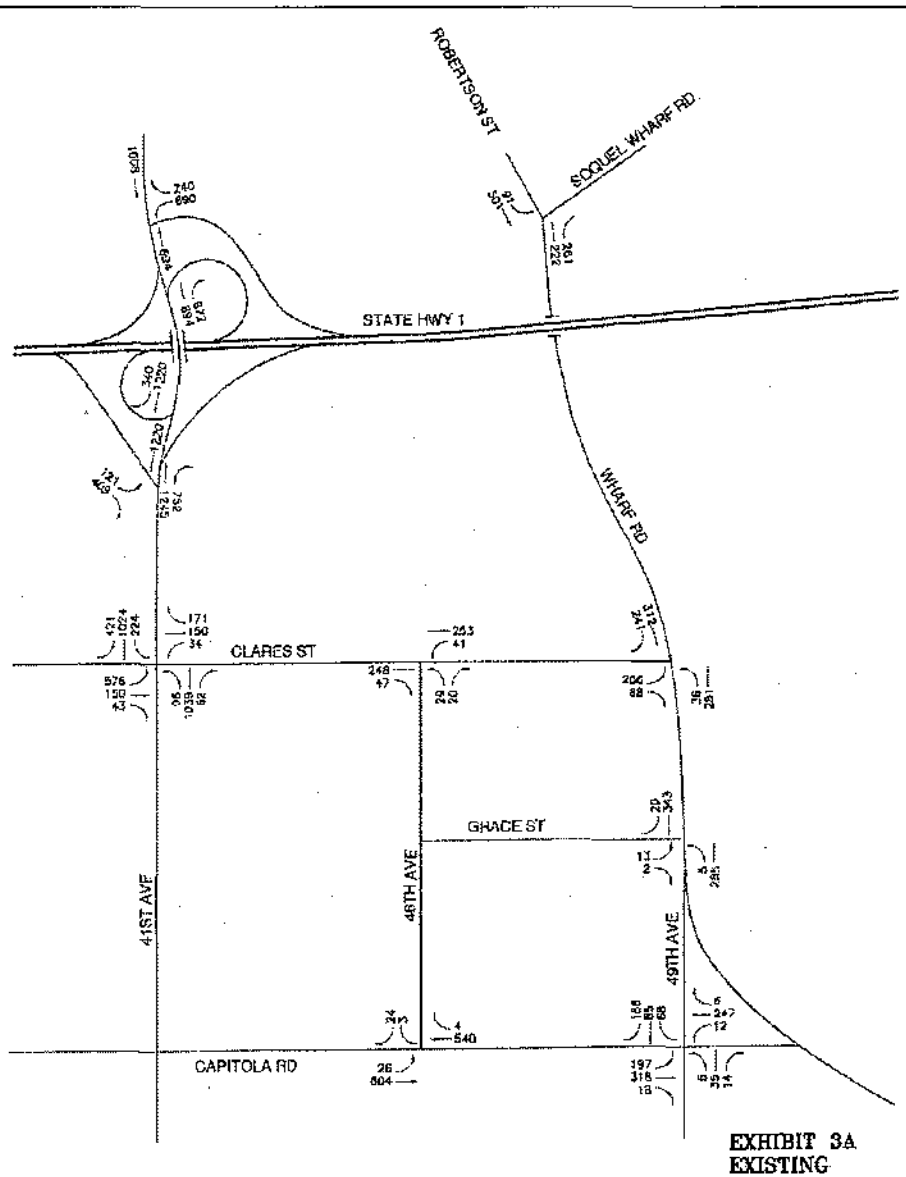
The project proposes to place a new use along a roadway that is considered to be dangerous by some members of the Capitola community, as evidenced by the public comments received during the first public review period and at subsequent public hearings. Members of the public have cited concerns for the existing conditions in the vicinity of the project, including high speed, blind curves, and lack of adequate parking. The public has also expressed concern about the existing truck traffic on Wharf Road and Clares Street, and has requested that the City consider restricting truck traffic on these roadways. The California Vehicle Code sections 35701 through 35712 describe regulations affecting local agencies such as Capitola in their ability to impose truck traffic restrictions on local roadways. Caltrans requires that they be contacted prior to imposing any truck limitations.

[1] *41st Avenue Safeway Shopping Center Expansion Traffic Impact Analysis*, Fehr & Peers Associates, January 2001.



SATURDAY MD PEAK HOUR

EXHIBIT 3B
EXISTING PEAK HOUR VOLUMES



PM PEAK HOUR

EXHIBIT 3A
EXISTING PEAK HOUR VOLUMES

N

Existing Peak Hour Volumes

Figure 4-7

DENISE DUFFY & ASSOCIATES, INC.

TABLE 6

ROAD SEGMENT LEVEL OF SERVICE SUMMARY

Facility	Location	Class	No. of Travel Lanes	Existing				Existing Plus Project				General Plan Buildout			
				PM Pk		Sat MD Pk		PM Pk		Sat MD Pk		PM Pk		Sat MD Pk	
				Vol	LOS	Vol	LOS	Vol	LOS	Vol	LOS	Vol	LOS	Vol	LOS
41st Ave	n/o Clares St	Arterial	6	3,455	B	4,218	C	3,465	B	4,279	B	4,643	D	5,753	F
	n/o Hwy 1 NB Off Ramp	Arterial	4	1,942	A	2,574	C	1,944	A	2,576	C	2,860	F	3,920	F
Clares St	w/o 46th Ave	Collector	2	577	A	748	B	587	A	781	C	649	B	864	C
	e/o 46th Ave	Collector	2	562	A	692	B	572	A	703	B	634	B	801	B
46th Ave	s/o Clares St	Collector	2	137	A	130	A	137	A	130	A	151	A	145	A
	n/o Capitola Rd	Collector	2	57	A	79	A	57	A	79	A	63	A	88	A
Capitola Rd	w/o 46th Ave	Arterial	2	1,194	B	1,364	C	1,196	B	1,369	C	1,328	C	1,520	D
	e/o 46th Ave	Arterial	2	1,151	B	1,305	C	1,153	B	1,310	C	1,279	C	1,454	D
Wharf Rd	n/o Clares St	Minor-Arterial	2	1,040	A	1,286	C	1,064	A	1,339	C	1,177	B	1,480	D
	s/o Clares St	Minor-Arterial	2	697	A	812	A	711	A	832	A	787	A	921	A

Existing Intersection Operating Conditions

In a manner similar to that conducted for the study road segments, an analysis of the study intersections was conducted using the LOS concept. For signalized intersections, average vehicle control delay (seconds) is used to estimate intersection LOS values. Delay is dependent on many factors including the signal cycle length, the roadway capacity (number of travel lanes provided on each intersection approach) and the traffic demand and arrival pattern. **Appendix E** provides a level of service description for signalized intersections. The TRAFFIX 7.5 software was utilized to calculate the level of service for the signalized study intersections. The levels of service calculations determined by this software are based on technical procedures documented in the 2000 Highway Capacity Manual. At stop sign controlled intersections (unsignalized), vehicle delays for the side street (minor street approach) and mainline left-turn traffic are analyzed. The level of service values for vehicle movements on the controlled approaches (minor street) are based on the peak hour approach volumes and the availability of sufficient gaps in the major street traffic stream. The relationship between vehicle delays and level of service values for stop sign controlled intersections is shown in **Appendix E**. Per City standards, LOS C is established as the threshold for acceptable levels of service. Existing intersection lane configurations are shown in **Figure 4-8**.

Table 7 provides the results of the existing weekday PM and Saturday MD peak hour intersection operating conditions. The results indicate that all the study intersections currently operate at acceptable levels of service (LOS C or better) with the exception of the 41st Avenue/Clares Street intersection and the Wharf Road/Clares Street intersection.

At the Wharf Road and Clares Street intersection the following improvement will improve the existing LOS to an acceptable C:

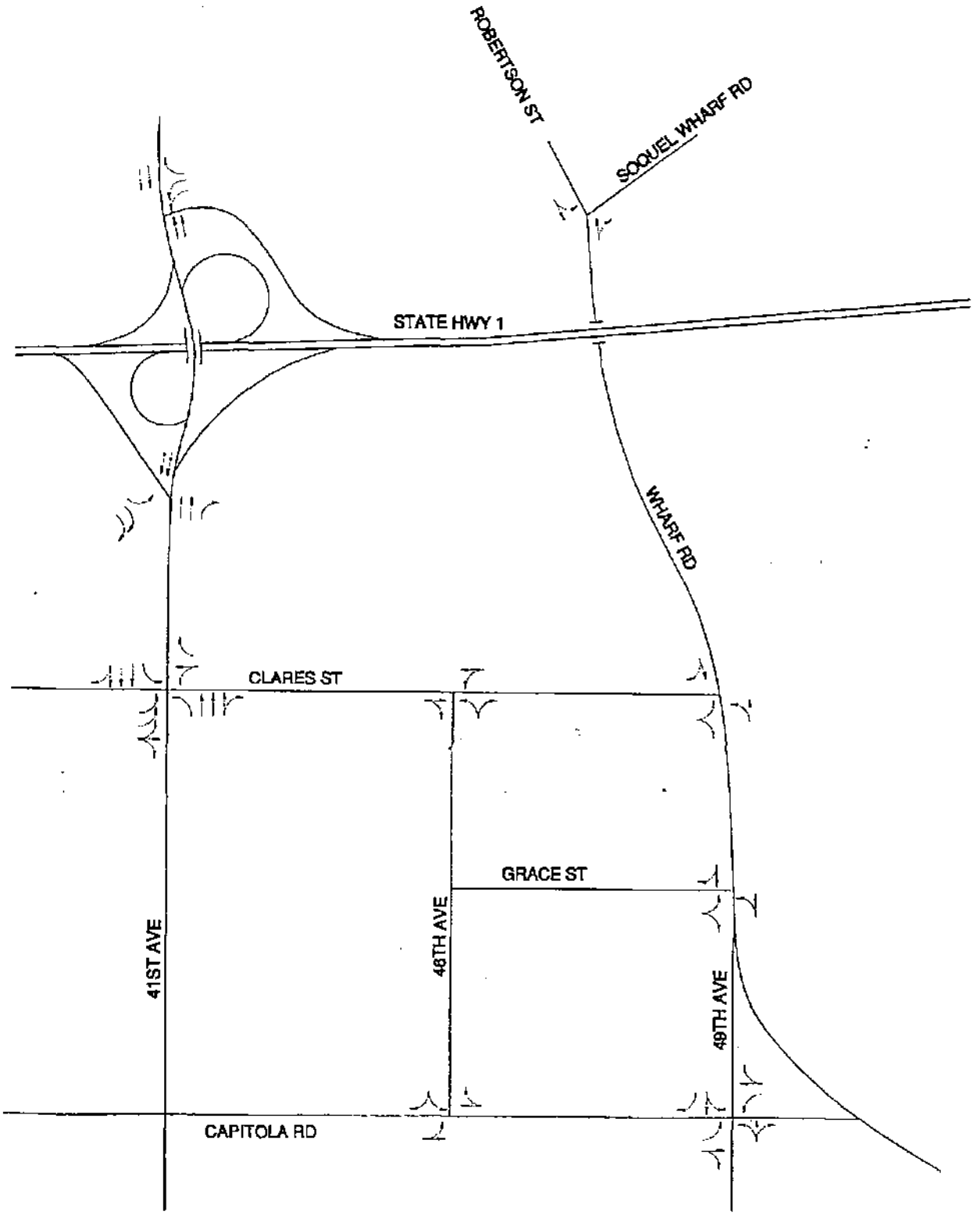
- An exclusive right turn only lane on the southbound Wharf Road approach to the intersection with Clares Street shall be installed. After the exclusive right-turn lane is installed, the City shall monitor this intersection in the future and if the intersection LOS degrades to D, signalization shall be installed or other improvements implemented to ensure that the LOS remains at C.

At the 41st Avenue / Clares Street intersection, it may not be feasible to provide capacity related improvements that would improve intersection operations to LOS C or better due to the proximity of existing development. An exclusive right turn lane can be added on the southbound 41st Avenue approach to Clares Street. This improvement would reduce the average vehicle delay experienced at the intersection, but the intersection would continue to operate at LOS D during the weekday PM and Saturday peak hours.

Intersection levels of service worksheets are included in the traffic analysis in **Appendix E**.

Transit Service

The Santa Cruz County Transit District provides regular transit service to and from the site. The nearest bus stops to the project site are located at the corner of Wharf Road/Clares Street and at the corner of 46th Avenue/Clares Street.



Source: Higgins Associates

N

Existing Intersection Lane Configurations

Figure 4-8

Table 7
Peak Hour Intersection Levels of Service (LOS)

INTERSECTION	EXISTING TRAFFIC CONTROL		EXISTING				EXISTING + PROJECT				GENERAL PLAN			
			WEEKDAY PM PEAK		SATURDAY MD PEAK		WEEKDAY PM PEAK		SATURDAY MD PEAK		WEEKDAY PM PEAK		SATURDAY MD PEAK	
			DEL	LOS	DEL	LOS	DEL	LOS	DEL	LOS	DEL	LOS	DEL	LOS
Robertson St (N-S)	NO		8.7	A	8.9	A	8.7	A	8.9	A	8.9	A	9.1	A
Soquel Wharf Rd	CONTROL													
(WB)														
41st Ave (N-S)	SIGNAL		41.3	D	44.5	D	41.7	D	55.3	D	72.0	E	139.1	F
Clares St (E-W)		W/SB RT	40.1	D	42.6	D	40.3	D	49.5	D	61.5	E	104.9	F
46th Ave (NB)	2-WAY	NB Approach	12.6	B	15.7	C	12.7	B	16.3	C	13.5	B	17.2	C
Clares St (E-W)	STOP													
Wharf Rd (N-S)	3-WAY		19.8	C	64.9	F	21.2	C	77.1	F	33.1	D	120.3	F
Clares St (EB)	STOP	W/SB RT	14.8	B	14.9	B	14.9	B	16.4	C	15.6	C	16.6	C
Wharf Rd (N-S)	2-WAY	EB Approach	13.5	B	14.8	B	12.8	B	14.9	B	14.5	B	16.1	C
Grace St (EB)	STOP													
49th Ave (N-S)	ALL-WAY		14.5	B	21.1	C	14.5	B	21.2	C	17.1	C	29.6	D
Capitola Rd (E-W)	STOP	W/Signal									21.1	C	23.1	C
46th Ave (SB)	2-WAY	SB Approach	13.8	B	15.5	B	13.8	B	15.6	B	14.9	B	17.2	C
Capitola Rd (E-W)	STOP													
41st Ave (N-S)	SIGNAL		10.6	B	26.3	C	10.6	B	26.7	C	16.2	B	89.2	E
Hwy 1 SB Ramps		W/3rd NB & SB									13.4	B	34.0	C
		Lanes & 2nd NB												
		RT to ramp.												
41st Ave (N-S)	SIGNAL		15.8	B	19.3	B	15.8	B	19.3	B	19.0	B	40.1	D
Hwy 1 NB Off-		W/3rd NB & SB									17.5	B	24.7	C
Ramp		Lanes												

Notes: 1. DEL - Delay (seconds per vehicle)
2. LOS - Level of service.
3. L, T, R -- Left turn lane, Through lane, Right turn lane.
4. NB, SB, EB, WB - Northbound, Southbound, Eastbound, Westbound.
5. Level of service highlighted represents operating conditions with mitigation.

Route 52 serves the project site. Route 52 provides hourly weekday service connecting the project site to the Capitola Mall, Portola Drive, Capitola Avenue and Soquel Drive. The route provides access to the Capitola Mall, which is a major transfer site, where transfers can be made to other routes on the system.

Bikeways

The bikeways near the project vicinity include striped on-street bike lanes along Wharf Road, from Clares Street north to the Capitola city limit, along the north side of Clares Street west to 41st Avenue, and along Capitola Road from Wharf Road west beyond Capitola Mall. Bike lanes are also provided along both sides of 41st Avenue on the study road segment.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

In accordance with the State CEQA Guidelines and agency and professional standards, a project impact may be considered significant if:

- it would result in a traffic increase that is substantial in relation to the existing traffic load and capacity of the street system;
- it would cause existing intersection or highway roadway levels of service to degrade below LOS "C" or substantially contribute to significant cumulative impact;
- the project design does not have adequate parking or internal circulation capacity or parking to accommodate increased traffic; or
- the project does not include adequate provision for bicycle, pedestrian, or transit access.

This section describes project trip generation, project trip distribution and assignment, operating conditions, project access and potential project impacts.

The 1998 Draft EIR evaluated the Rispin project as proposed in March 1998 by the developer that included a 34-unit "Inn at Rispin Mansion," meeting and wedding facilities for 50 or less people, and restoration of the Mansion and grounds. In addition, the 1998 Draft EIR evaluated a proposed 7,000 square foot library, and joint use parking lot as a separate project, and in combination with the proposed Rispin Mansion project. The 2000 Recirculated Draft EIR evaluated the impacts of the project associated with development of 26 units (29 rooms) for visitor serving accommodations, a Rispin Conservatory for meetings and/or weddings, restoration of the Mansion and grounds, and improvements to the joint use parking lot. This Revised Draft EIR evaluates the currently proposed Rispin project, which includes 28 guest rooms, as well as a Rispin Conservatory, restoration of the Mansion and grounds, and joint use parking lot.

The following alternative development scenarios were evaluated:

1. Development of the Rispin Mansion project only
2. Cumulative Traffic Analysis - General Plan Buildout Conditions

The proposed project considered in this EIR would generate less vehicle and truck trips, and less parking demand than the project proposed in 1998 and evaluated in the 1998 Draft EIR, as well as the April 1999 project evaluated in the 2000 Recirculated Draft EIR. The previously prepared traffic analysis has been updated to account for changes to traffic volumes that have occurred since the original traffic counts for the project were collected.

Intersection and Roadway LOS Impacts

A maximum of two weddings would generally occur on a Saturday. The first wedding is scheduled to begin around 11:00 a.m. During this time, it is estimated that minimal outbound trips will occur because people will be arriving at, rather than departing from, the wedding. The Saturday MD street peak hour occurs between 11:45 a.m. and 12:45 p.m. near the project vicinity. During this peak hour, minimal project trips would occur. However, for a worst-case analysis, it is assumed that the wedding inbound peak occurs during the street peak hour. The second wedding will occur on Saturday evenings (around 5:00 p.m.), well after street peak hour traffic conditions. The second wedding will therefore have a lesser impact than the first wedding, and no analysis of the traffic impacts associated with the second wedding is necessary.

To provide a worst-case analysis of project impacts, the project trip generation was based upon a 27-room project. Based on ITE trip generation rates for motels (see **Table 8**) and assuming an average auto occupancy of two persons/vehicle for the wedding component, the project developed with 24 rental units (27 rooms) will generate approximately 246 daily (weekday) trips and 389 daily (Saturday) trips. The project will generate 16 vehicle trips (9 inbound and 7 outbound) during the weekday PM peak hour, and 51 vehicle trips (34 inbound and 17 outbound) during the Saturday MD peak hour. The project traffic generation is summarized in **Table 9**.[2]

Trip distribution defines the origins and destinations of all trips to and from a project site. Trip assignment defines the actual travel paths that motorists would choose between the project site, and their origins or destinations. The project traffic was distributed to the study street network based upon a review of existing traffic counts and travel patterns. The distribution of peak hour trips generated by the Rispin Mansion project and trip assignment is presented in **Figure 4-9**. The project trip assignments were added to existing weekday PM peak hour and Saturday MD peak hour volumes to derive the existing plus project peak hour volumes. These volumes are illustrated in **Figure 4-10**.

[2] With one additional room, the 28-room project would generate nine (9) more trips on a weekday and nine (9) more trips on a weekend day. This is not a significant volume of trips and these additional trips would not change the results/conclusions of the traffic analysis. During the peak hour analysis periods (weekday PM and Saturday MD), the additional room would not increase the trip generation that was analyzed in the traffic study. The peak hour trip generation for the visitor-serving component of the project is summarized below:
Weekday PM peak hour – 27 rooms=15.7 trips; 28 rooms=16.2 trips
Saturday MD peak hour – 27 rooms=20.5 trips; 28 rooms=21.3 trips
When rounded, either size project (27 rooms or 28 rooms) generates 16 trips during the weekday PM peak hour and 21 trips during the Saturday MD peak hour. Therefore, one additional room can be added to the project without requiring any changes to the peak hour traffic analyses previously completed for the project (memo from Dan Takacs, Higgins Associates, November 2002; see **Appendix E**).

TABLE 8

PROJECT TRIP GENERATION RATES

		WEEKDAY					SATURDAY				
			PM PEAK HOUR					MD PEAK HOUR			
LAND USE	UNIT	DAILY	PEAK HOUR	% OF ADT	IN	OUT	DAILY	PEAK HOUR	% OF ADT	IN	OUT
INN AT RISPIN MANSION											
1. Bed and Breakfast	per room	9.11	0.58	6%	53%	47%	8.84	0.76	9%	45%	55%
2. Meeting/Wedding Facilities	per person						3.0	0.50	20%	100%	0%

TABLE 9

PROJECT TRIP GENERATION SUMMARY

		WEEKDAY					SATURDAY				
			PM PEAK HOUR					MD PEAK HOUR			
LAND USE	SIZE	DAILY VOL.	PEAK HOUR VOL.	% OF ADT	IN	OUT	DAILY VOL	PEAK HOUR VOL.	% OF ADT	IN	OUT
INN AT RISPIN MANSION											
1. Bed and Breakfast	27 rooms	246	16	6%	9	7	239	21	9%	9	12
2. Meeting/Wedding Facilities	50 people	0					150	30	20%	25	5
TOTAL PROJECT TRIPS		**246**	**16**	**6%**	**9**	**7**	**389**	**51**	**13%**	**34**	**17**

Note:
1. Bed and Breakfast trip generation rates based on Motel (ITE Land Use Code 320) trip generation rates published by ITE; Trip Generation Manual, 6th Edition.
2. Wedding facility trip generation rate based on auto occupancy of 2 persons/vehicle with maximum of 2 weddings per Saturday.
3. 1 ksf = 1,000 square feet.

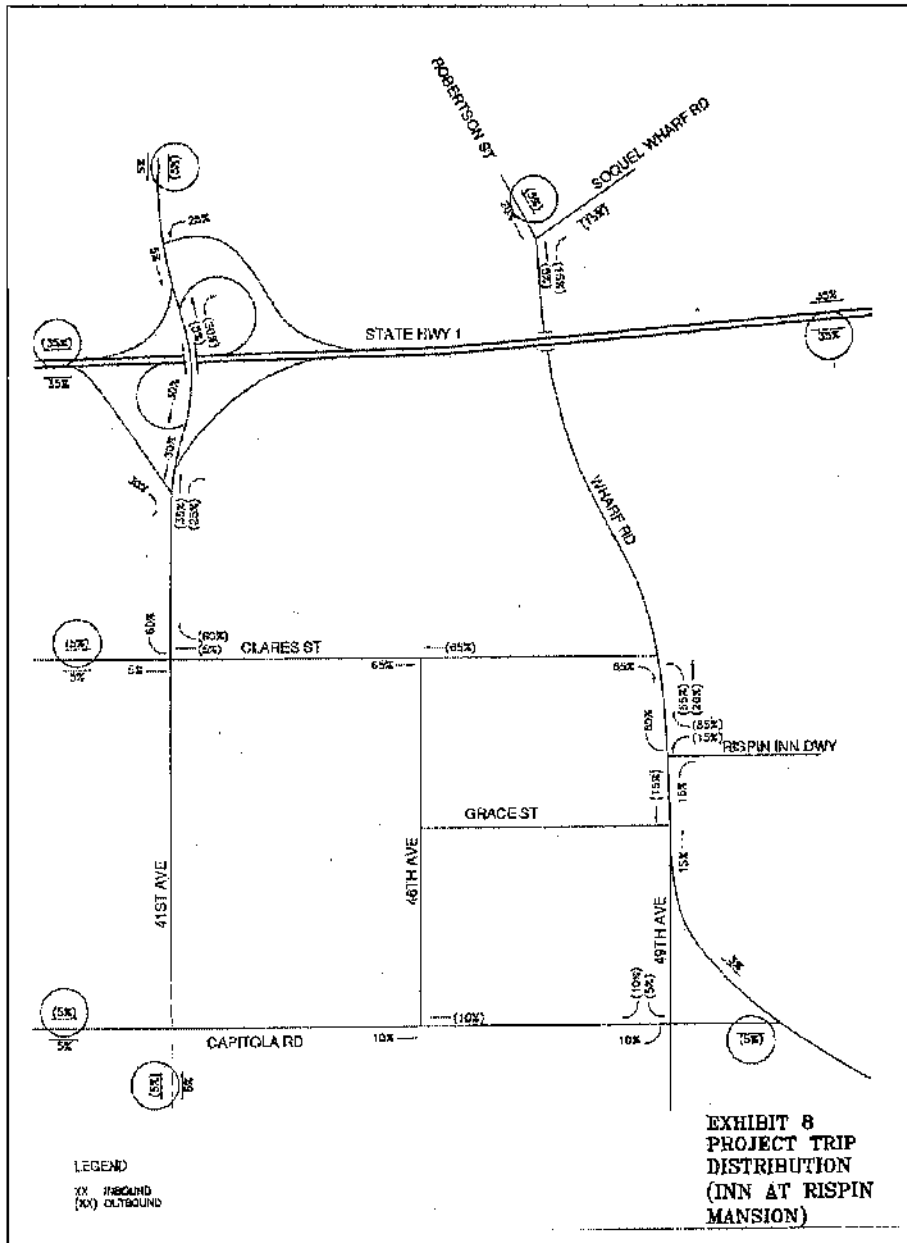


EXHIBIT 8
PROJECT TRIP DISTRIBUTION
(INN AT RISPIN MANSION)

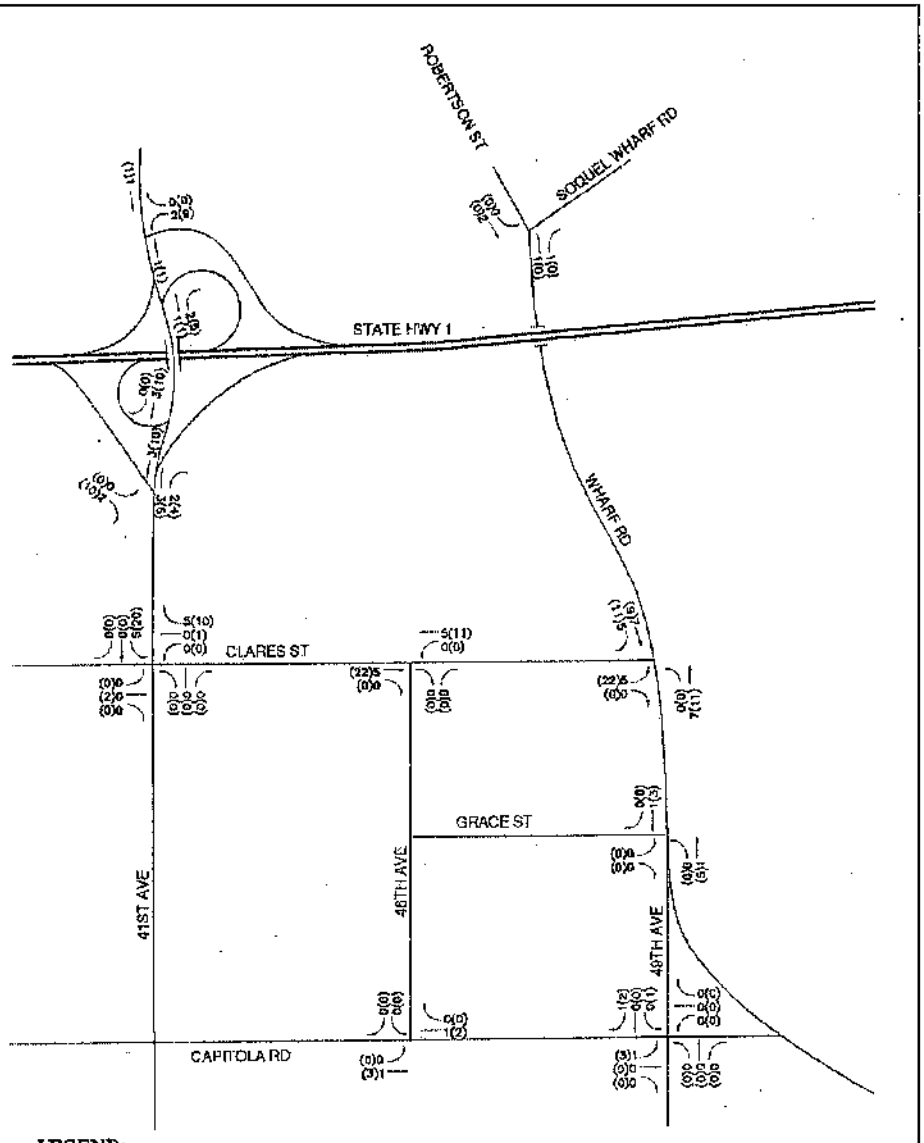


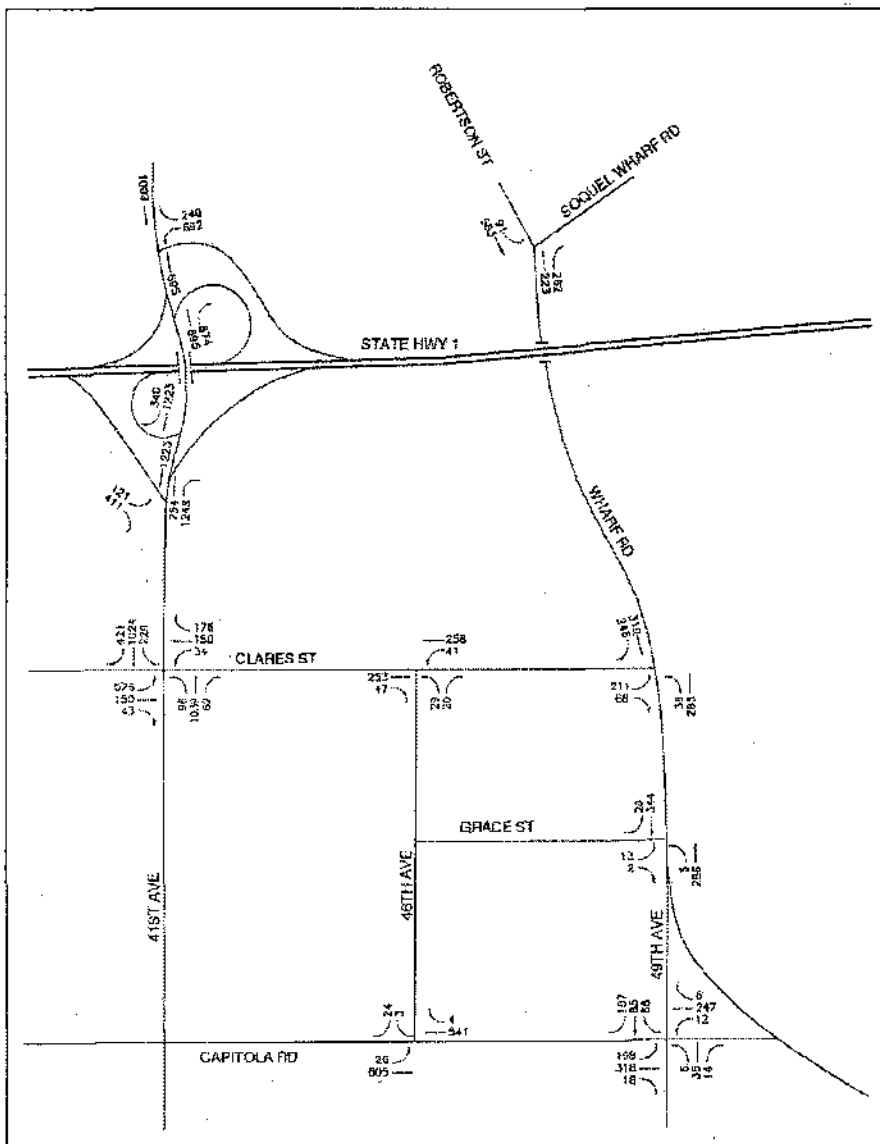
EXHIBIT 9
PROJECT TRIP ASSIGNMENT

N

Project Trip Distribution and Assignment

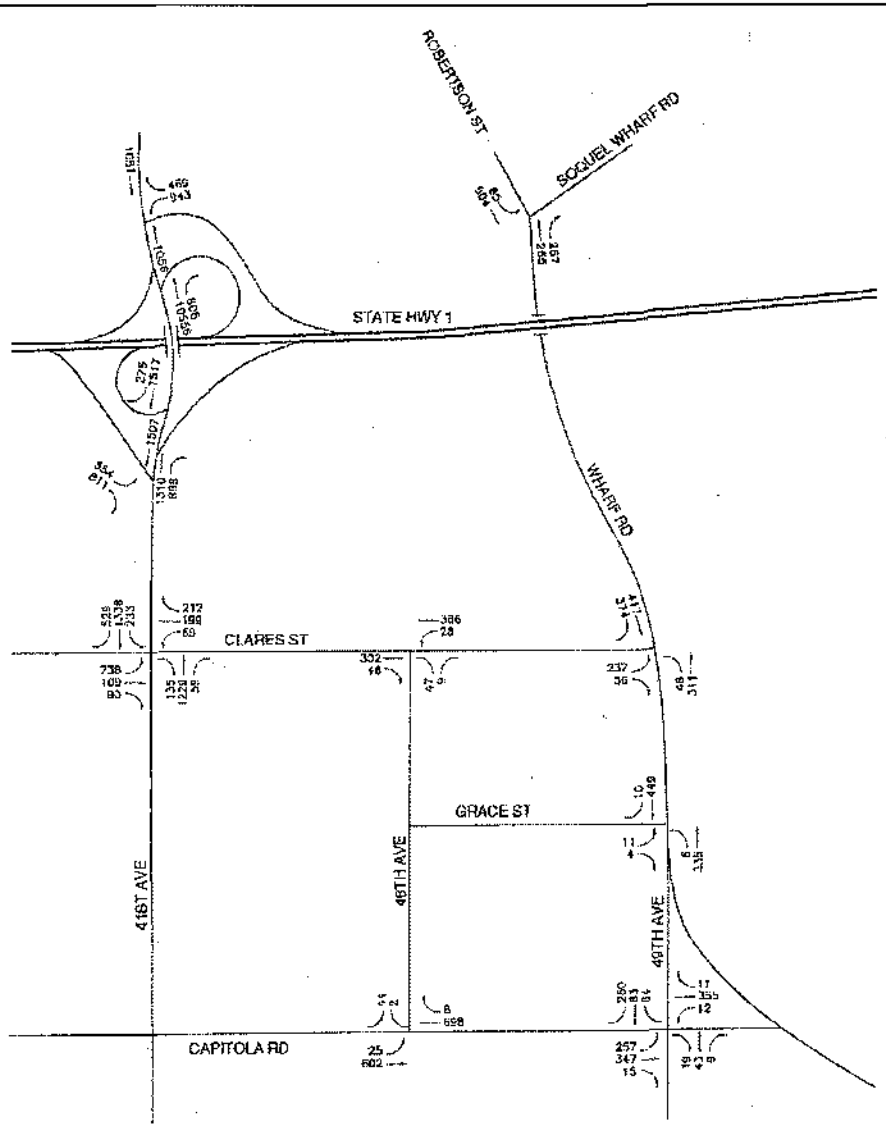
Figure
4-9

DENISE DUFFY & ASSOCIATES, INC.



PM PEAK HOUR

EXHIBIT 10A
EXISTING PLUS PROJECT
PEAK HOUR VOLUMES



SATURDAY MD PEAK HOUR

EXHIBIT 10B
EXISTING PLUS PROJECT
PEAK HOUR VOLUMES

N

Peak Hour Volumes

Existing + Project

Figure
4-10

DENISE DUFFY & ASSOCIATES, INC.

The existing plus project weekday PM and Saturday MD peak hour intersection levels of service are summarized in **Table 7**. The results indicate that all the study intersections will continue to operate at acceptable levels of service (LOS C or better), except the two intersections that currently have deficient operations – 41st Avenue/Clares Street (weekday PM peak hour and Saturday MD peak hour) and Wharf Road/Clares Street (Saturday MD peak hour). Intersection improvements will be warranted for existing plus Rispin Mansion project conditions.

Impact: The project will contribute to existing deficiencies at the Clares Street and Wharf Road intersection during the Saturday MD peak hour conditions. The existing plus Rispin Mansion project condition at this intersection during the Saturday MD peak hour would be a vehicle delay of 77.1 seconds (LOS F). *This is a significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-54 The Rispin Mansion project shall contribute its fair share of construction costs for the installation of an exclusive right turn lane on the southbound Wharf Road approach to the intersection with Clares Street; the improvement shall be implemented prior to project occupancy. This improvement would change the Saturday midday LOS at Clares Street and Wharf Road from LOS F to LOS C under existing plus project conditions during the Saturday MD peak hour. After the exclusive right-turn lane is installed, the City shall monitor this intersection in the future and if the intersection LOS degrades to D, signalization shall be installed or other improvements implemented to ensure that the LOS remains at C.

Note: If an exclusive right turn lane on the southbound Wharf Road approach to the intersection is not constructed prior to project occupancy, this impact would be a significant and unavoidable short-term impact.

Impact: The Rispin Mansion project will contribute to existing deficiencies at the 41st Avenue/ Clares Street intersection during the weekday PM peak hour and Saturday MD peak hour. The existing plus Rispin Mansion project weekday PM peak hour condition at this intersection is a vehicle delay of 41.7 seconds (LOS D) and the Saturday MD peak hour condition is a vehicle delay of 55.3 seconds (LOS D). *This is a significant and unavoidable impact. The following mitigation measure can reduce the impact, but not to a less-than-significant level.*

Mitigation

R-55 The Rispin Mansion project shall contribute its fair share of construction costs for the installation of an exclusive right turn lane on the southbound 41st Avenue approach to Clares Street; the improvement shall be implemented prior to project occupancy. With construction of this improvement, the LOS would remain at LOS D during the weekday PM and Saturday MD peak hours with 40.3 seconds of delay and 49.5 seconds of delay, respectively.

Short-term Construction Traffic

Short-term construction traffic (including truck traffic for exporting fill) will occur on the roadways surrounding the project site during the period of construction. Development of the Rispin Mansion project will require export of approximately 1,013 cubic yards of soil. This amount of soil export requires 51 truckloads based on 20 cubic yards of soil per load. Each truckload

creates one inbound and one outbound truck trip (for a total of 102 truck trips, in this case). A truck trip is equivalent, in terms of impacts, to three passenger car trips and, therefore, it can be assumed that 306 passenger car trips have equivalent impacts.

In the worst-case scenario, all soil export will occur within one workweek, resulting in 61 equivalent passenger car trips everyday. This is equivalent to the impacts for one week of a seven-lot subdivision. If the soil export is spread out over more than five days, the truck trips will be less per day. Based on this discussion, the amount of new traffic will be short-term and will not significantly impact the levels of service on roadways or at intersections (Keith Higgins, personal communication, November 9, 1998).

Parking

The Rispin project proposes improvements to the joint-use parking at the corner of Clares Street and Wharf Road to provide 60 spaces for the Rispin project and the existing library. For special events, a valet parking system will be used that will allow for up to 85 parking spaces at the joint-use site.

Based on the data contained in Institute of Transportation Engineers (ITE), Parking Generation Manual, 2nd Edition, peak parking demand rates for a non-conventional hotel (such as the Rispin Mansion project) range from 0.29 to 0.68 parking spaces per occupied room. These rates include small meetings and employees. For a worst-case weekday scenario, the highest rate that is suggested by ITE is 0.68 parking spaces per occupied room. Therefore, the peak demand for parking on weekdays would be 19 spaces. This demand analysis counts the three "suite" units (with two bedrooms and two bathrooms each) as two units each.

During the Saturday MD peak hour, the wedding component of the project will require additional parking. Assuming maximum capacity (49 persons), an auto occupancy of two persons/vehicle, and two employees/caterers' vehicles at the wedding, a maximum of 27 parking spaces will be required by the wedding component of the project.

Section 17.51.200 of the City zoning code prohibits sharing of off-street parking areas unless the type of structure indicates, in the opinion of the Planning Commission, that the periods of usage of such structures will not be simultaneous with each other. To permit discussion about the use of shared parking, an evaluation of hour-by-hour parking requirements is provided in **Table 10**. **Table 10** assumes a worst-case parking demand scenario (between the hours of 10:00 p.m. and 6:00 a.m.) of one space per occupied room (based on 28 rooms) plus one additional space for employees. The demand reduces gradually to 30% of peak demand[3] between the hours of noon and 2:00 p.m. and then increases back to 100%. **Table 10** also uses an assumption of 25 spaces for the wedding component and 2 additional spaces for caterers/employees that peaks during the wedding with a portion of these demands required for the hours before and after the wedding. The library parking demand rate is one space per 600 square feet plus three spaces for employees (10 spaces total), and the library's Saturday hours are 10:00 a.m. to 5:00 p.m.

[3] Based on the data contained in the Urban Land Institute's, Shared Parking (1983), the parking demand rate for a hotel between 12:00 to 1:00 PM on a Saturday is 0.30 parking spaces per occupied room.

Table 10
Worst-Case Hourly Parking Analysis – Saturday

HOUR OF DAY	RISPIN MANSION					LIBRARY	TOTAL
	HOTEL		WEDDING SPACES	TOTAL SPACES		SPACES REQUIRED	SPACES REQUIRED
	% OF PEAK	SPACES					
0:00	100%	29	0	29		0	29
1:00	100%	29	0	29		0	29
2:00	100%	29	0	29		0	29
3:00	100%	29	0	29		0	29
4:00	100%	29	0	29		0	29
5:00	100%	29	0	29		0	29
6:00	90%	26	0	26		0	26
7:00	70%	20	0	20		0	20
8:00	60%	17	0	17		0	17
9:00	50%	15	0	15		3	18
10:00	40%	12	20	32		10	42
11:00	35%	10	27	37		10	47
12:00	30%	9	27	36		10	46
13:00	30%	9	27	36		10	46
14:00	35%	10	5	15		10	25
15:00	40%	12	5	17		10	27
16:00	50%	15	20	35		10	45
17:00	60%	17	27	44		0	44
18:00	70%	20	27	47		0	47
19:00	80%	23	27	50		0	50
20:00	90%	26	27	53		0	53
21:00	95%	28	5	33		0	33
22:00	100%	29	0	29		0	29
23:00	100%	29	0	29		0	29
MAXIMUM HOURLY PARKING DEMAND							53
PROPOSED SPECIAL-EVENT PARKING SUPPLY							85
PARKING SURPLUS AT WORST-CASE PARKING DEMAND							32

Table 10 demonstrates that the proposed joint use parking lot would provide adequate parking for the Rispin Mansion project and the existing library at the Clares/Wharf site during a special event (i.e., wedding). **Table 10** shows that the peak parking demand would occur on Saturdays between 8:00 p.m. and 9:00 p.m. when there is expected to be a minimum parking surplus of 32 spaces. The actual conditions are expected to require less parking for the following reasons:

- The Rispin Conservatory cannot accommodate more than 49 people and every event will not be at maximum capacity.
- Some wedding or meeting guests will stay at Rispin as hotel guests; therefore, they could be included twice in **Table 10**.

In addition to parking for the uses detailed above during the Saturday worst-case scenario, there may be additional demand for parking by the general public coming to visit the open space. However, this type of use would typically occur during daytime hours when parking

demands from the other uses in **Table 10** would be below the peak parking demand, and would thus be accommodated within the proposed parking supply. Based on this analysis, the Rispin Mansion project would have a less-than-significant impact on parking in the local area.

Internal Project Circulation, Access and Safety

The 1998 Draft EIR found that the internal circulation on the Rispin Mansion site did not appear to have adequate capacity for the volume of cars that would have used the site. The project evaluated in the 1998 Draft EIR proposed 20 parking spaces on the steeply sloped site that is accessed from a single driveway. This impact has been reduced to less-than significant due to the redesign of the site and proposed access needs. In the current plans evaluated in this EIR, the proposed project includes only five parking spaces, and limits on-site access and parking to Americans with Disabilities Act (ADA) requirements, emergency vehicles, deliveries, and short-term guest check-in and drop-off (i.e., valet service).

Increased vehicle (including trucks), bicycle and pedestrian use of the area has the potential to cause safety conflicts, due primarily to the use of the Clares/Wharf site for parking, additional delivery vehicle use of the road, and the proposed valet parking system. During the public review and hearings on the 1998 DEIR for the Rispin Mansion project, members of the public commented that the existing condition of Wharf Road and Clares Street in the project vicinity is dangerous due to vehicular speeds and a blind curve just north of the site. There will be an increased number of vehicles turning left (across through traffic) into and out of the Clares/Wharf parking lot, and there will be some vehicles turning left onto the Rispin site. These turning movements, in combination with increased pedestrian activity, present a significant safety impact.

The project proposes to provide a valet/bellman service at the Clares/Wharf parking lot. Guests approaching the site from the north on Wharf Road or from the west on Clares Street would turn into the Clares/Wharf parking lot and would have the ability to be transported from the parking lot to the Rispin site in street-legal zero-emission vehicles (ZEVs).

Impact: The proposed Rispin Mansion project would: 1) increase vehicle (including truck), bicycle and pedestrian use of the area, and 2) increase left turn movements on Wharf Road. These project features present potentially significant safety impacts. *This is a significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-56 Install signs to encourage pedestrians to use the crosswalk at the intersection of Clares Street and Wharf Road.

R-57 Install a stop sign at the project driveway approach out onto Wharf Road.

R-58 Because vehicular access to the site will be restricted, and because the project parking area is located north of the Wharf Road/Clares Street intersection, appropriate guide signing shall be provided on Wharf Road and Clares Street to direct Rispin Mansion patrons to the parking area.

To address public concern regarding speeds and safety on Wharf Road, the City should explore the following recommended condition of approval.

Recommended Condition of Approval

- As part of the Rispin Mansion project, the applicant shall implement traffic calming measures on Wharf Road, such as sidewalk bulbs or other roadway improvements that have been demonstrated to reduce traffic speeds, subject to review and approval by the City.

CUMULATIVE TRAFFIC ANALYSIS - GENERAL PLAN BUILDOUT CONDITIONS

This scenario presents the analysis of cumulative buildout traffic conditions, including an evaluation of future roadway and intersection operations. Development of the Rispin Mansion project under General Plan Buildout was analyzed. Impacts related to this development scenario on study road segments and intersections are described below.

General Plan Buildout Road Segment Volumes and Operating Conditions

Traffic volumes on the study road network are expected to increase over time, as new projects are developed within the Capitola area. Future traffic in Capitola will primarily increase as a result of growth in the County, particularly the area immediately adjacent to Capitola. To account for the additional traffic that will be added to the road network from cumulative projects, existing peak hour volumes were increased using growth rates established by AMBAG forecast volumes developed for recent projects in the immediate vicinity (including Capitola Crossing EIR, February, 1998, with changes in May 1998) and County of Santa Cruz forecasts documented in the traffic study prepared for the Soquel Drive/41st Avenue Shopping Center Expansion project. The cumulative analysis documented in the Soquel Drive/41st Avenue Shopping Center study derived annual growth factors of 0.7 percent to 2.0 percent for 41st Avenue and Soquel Drive based on traffic volume forecasts from the County of Santa Cruz General Plan Circulation Element. To provide a conservative analysis, a growth factor of 2.0 percent per year was applied to existing peak hour volumes for a 15-year period at the 41st Avenue intersections with the Highway 1 northbound ramps, Highway 1 southbound ramps and Clares Street. To establish General Plan buildout volumes at the other study intersections, a growth factor of 1.11 was applied to the existing weekday PM and Saturday MD peak hour volumes. The 1.11 factor was obtained from the AMBAG forecast volumes developed for the Capitola Crossing EIR. The project trips were added to the buildout base volumes to achieve total General Plan Buildout volumes. The roadway segment peak hour volumes for General Plan Buildout conditions are illustrated in **Table 6**.

Traffic growth is expected to result in unacceptable conditions on the following links under General Plan Buildout conditions:

1. 41st Avenue north of Clares Street;
2. 41st Avenue north of Highway 1;
3. Capitola Road east and west of 46th Avenue; and
4. Wharf Road north of Clares Street.

Widening 41st Avenue between Clares Street and Highway 1 to an 8-lane facility would be required to achieve LOS D operations on this facility based on the planning level threshold volumes shown in **Appendix E**. North of Highway 1, widening 41st Avenue to a 6-lane facility

would also achieve LOS D operations based on the planning level threshold volumes. However, widening 41st Avenue is not considered feasible given the proximity of existing development. Similarly, widening the two-lane sections of Capitola Road east and west of 46th Avenue and Wharf Road north of Clares Street is not considered feasible given the proximity of existing development and/or topographic constraints. A well-coordinated system of signals along the 41st Avenue corridor could improve corridor operations. However, a detailed corridor study that would identify feasible improvements on 41st Avenue has not been performed. Under these conditions, cumulative impacts to the road segments listed above are considered significant and unavoidable.

Cumulative Impact: The following road segments will operate at unsatisfactory levels of service under General Plan Buildout conditions:

1. 41st Avenue north of Clares Street; and
2. 41st Avenue north of Highway 1.

Implementation of the mitigation measure listed below will reduce cumulative impacts, but it is not certain that impacts will be fully mitigated. *This is a significant and unavoidable cumulative impact.*

Cumulative Mitigation

C-3 A study of the 41st Avenue corridor between Capitola Road and Highway 1 will be conducted to identify feasible improvements, including traffic signal coordination, that would improve corridor traffic operations. The proposed project shall provide a fair share contribution towards the cost for this study.

Cumulative Impact: The Capitola Road segments east and west of 46th Avenue will operate at unsatisfactory levels of service under General Plan Buildout conditions. *This is a significant and unavoidable cumulative impact.*

Cumulative Mitigation

No known mitigation currently available.

Cumulative Impact: Wharf Road north of Clares Street will operate at unsatisfactory levels of service under General Plan Buildout conditions. *This is a significant and unavoidable cumulative impact.*

Cumulative Mitigation

No known mitigation currently available.

Highway 1

In addition, the project will contribute to an existing level of service deficiency on Highway 1 in the vicinity of the City of Capitola (LOS F during weekday AM and PM peak hours). Until improvements to Highway 1 that would increase the capacity of the facility are constructed, LOS F operating conditions will continue.

Caltrans has established a level of service policy that applies statewide. Caltrans seeks to maintain a target level of service at the transition between LOS C and LOS D on State highway facilities. Caltrans acknowledges that this may not always be feasible. If an existing State highway facility is operating at less than the appropriate target LOS, the existing measure of effectiveness (MOE) should be maintained. This policy is documented in "Guide for the Preparation of Traffic Impact Studies," a Caltrans document that was first published in 2000. While it is not feasible for the Rispin project to implement mitigation that would maintain the existing MOE, Caltrans recognizes a contribution towards a future improvement to the facility as mitigation. In this case, a contribution towards Highway 1 improvements that are currently under planning and design studies could be considered as mitigation for impacts to Highway 1.[4]

In May 2003, Dan Takacs from Higgins Associates spoke with Mike Galizio, the Caltrans staff person in charge of intergovernmental relations for Santa Cruz County, to clarify this issue. Caltrans had written a comment letter on a project in Monterey County that contained the following sentence: "In cases where a state highway facility is already operating at an unacceptable LOS, it is our position that any project traffic trips added to this facility should be considered a significant cumulative traffic impact and should be mitigated accordingly." Where there is a significant cumulative impact as described in this situation, Caltrans looks for a pro-rata contribution towards an improvement that mitigates the cumulative impact. Mr. Galizio indicated that when a Project Study Report has been completed for an improvement project that would mitigate a project's cumulative impact, the findings of the PSR should be used to determine the pro-rata contribution.

Cumulative Impact: The project will contribute to an existing level of service deficiency on Highway 1 in the vicinity of the project. *This is a significant cumulative impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Cumulative Mitigation

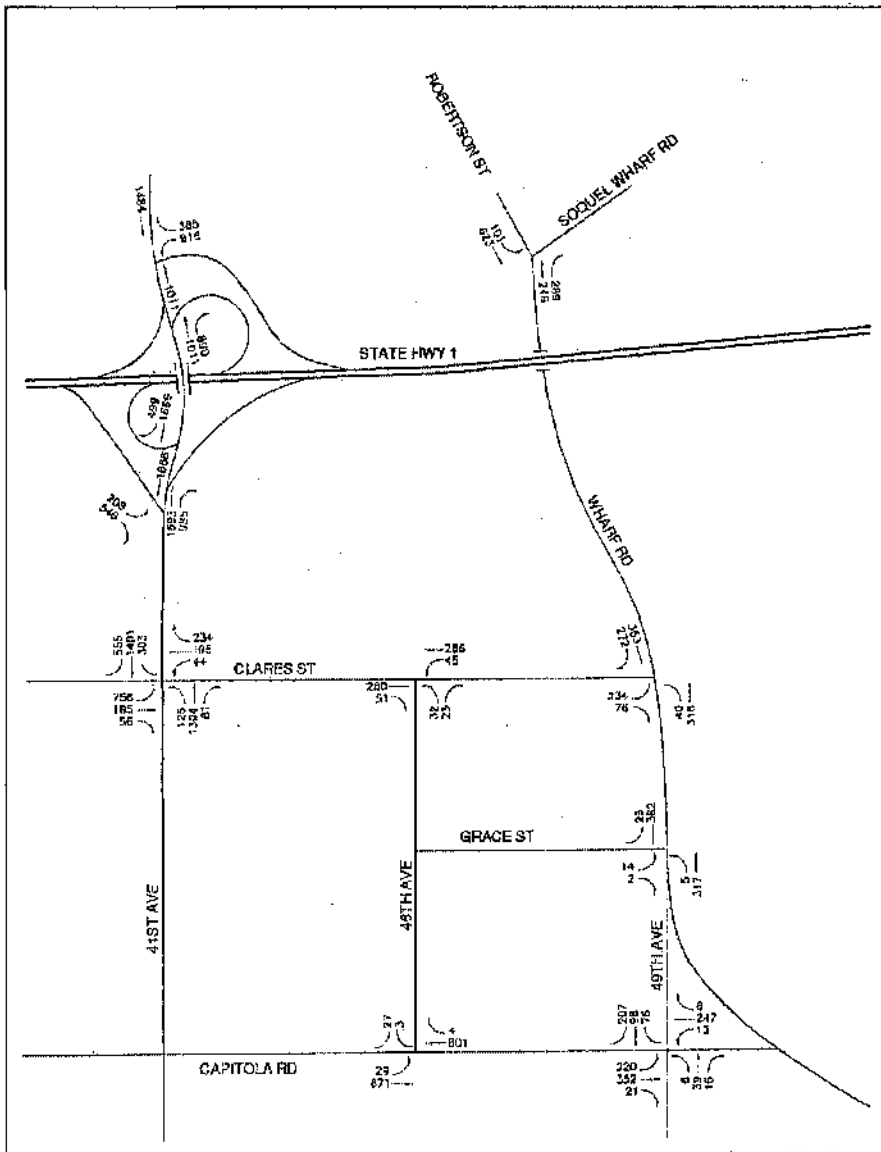
C-4 The Rispin project shall contribute its fair share of construction costs (pro-rata contribution) for the widening of Highway 1 to six lanes between Morrissey Boulevard and Larkin Valley Road, using the findings of the PSR completed in 2002.

General Plan Buildout Intersection Operating Conditions

Traffic growth associated with General Plan buildout and traffic generated by the Rispin Mansion project were added to existing volumes to establish General Plan peak hour volumes. General Plan weekday PM and Saturday MD peak hour volumes for the Rispin Mansion project are presented in **Figure 4-11**.

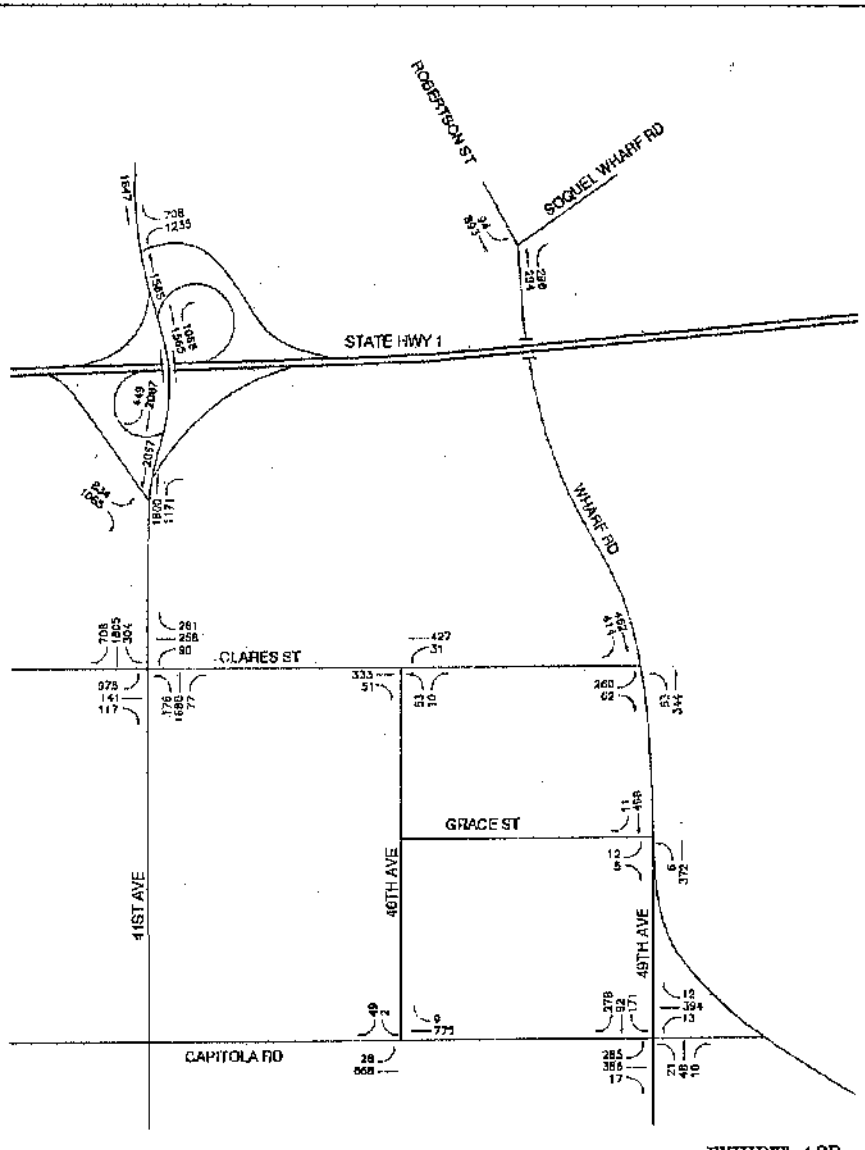
The results displayed in **Table 7** indicate that General Plan conditions with development of the Rispin Mansion project will result in unacceptable levels of service (LOS C or better) at five of the nine study intersections.

[4] A Project Study Report (PSR) was completed last year for widening Highway 1 to six lanes between State Park Drive and Morrissey Boulevard. Eight alternatives were evaluated in the PSR with year 2002 construction costs ranging from $161 million to $194 million and year 2002 right-of-way costs of up to $25 million. The selected alternative will add a lane in each direction for High Occupancy Vehicles (HOVs) with the project limits extended to Larkin Valley Road/San Andreas Road. The next phase of the project is the environmental review; the Regional Transportation Commission has approved $8 million for preparation of an EIR. A local transportation sales tax ballot measure proposed for the November 2004 ballot would fund the project. A Joint Powers Authority is being established to oversee and manage the project.



PM PEAK HOUR

EXHIBIT 12A
GENERAL PLAN
PEAK HOUR
VOLUMES



SATURDAY MD PEAK HOUR

EXHIBIT 12B
GENERAL PLAN
PEAK HOUR
VOLUMES

N

Peak Hour Volumes

General Plan + Project

Figure
4-11

DENISE DUFFY & ASSOCIATES, INC.

Cumulative Impact: Under General Plan conditions, the Wharf Road/Clares Street intersection will operate at an overall LOS D (33.1 seconds of delay per vehicle) during the weekday PM and LOS F (120.3 seconds of delay per vehicle) during the Saturday MD peak hours. Cumulative condition weekday PM and Saturday MD peak hour volumes at this intersection satisfy Caltrans peak hour signal warrants. *This is a significant cumulative impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Cumulative Mitigation

C-5 The Rispin project shall contribute its fair share of construction costs (pro-rata contribution) for the installation of an exclusive right turn lane on the southbound Wharf Road approach to the intersection with Clares Street; the improvement shall be implemented prior to General Plan buildout. This improvement would change the LOS at Clares Street and Wharf Road to LOS C under General Plan buildout conditions during Saturday MD and weekday PM peak hours. After the exclusive right-turn lane is installed, the City shall monitor this intersection in the future and if the intersection LOS degrades to D, signalization shall be installed or other improvements implemented to ensure that the LOS remains at C.

Note: If an exclusive right turn lane on the southbound Wharf Road approach to the intersection is not constructed prior to General Plan buildout, this impact would be a significant and unavoidable cumulative impact.

Cumulative Impact: Under General Plan Buildout conditions, the 41st Avenue/Highway 1 southbound off-ramp intersection will operate at an overall LOS E (89.2 seconds of delay per vehicle) during the Saturday MD peak hour and 41st Avenue/Highway 1 northbound off-ramp intersection will operate at an overall LOS D (40.1 seconds of delay per vehicle) during the Saturday MD peak hour. *This is a significant cumulative impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Cumulative Mitigation

C-6 The Rispin project shall contribute its fair share of construction costs (pro-rata contribution) for the reconstruction of the Highway 1/41st Avenue interchange to include three through lanes on 41st Avenue and an additional exclusive right turn lane on the northbound 41st Avenue approach to the southbound Highway 1 on-ramp; the improvement shall be implemented prior to General Plan buildout. With construction of this improvement, the LOS at the Highway 1 southbound ramp intersection and the Highway 1 northbound ramp intersection would be improved to LOS C under General Plan buildout conditions during the Saturday MD peak hour.

Note: If the interchange is not reconstructed to provide three through lanes on 41st Avenue over Highway 1 and an exclusive right turn lane on the northbound 41st Avenue approach to the southbound Highway 1 ramp prior to General Plan buildout, this impact would be a significant and unavoidable cumulative impact.

Cumulative Impact: The 41st Avenue and Clares Street intersection under General Plan Buildout conditions will operate at an overall LOS E (72.0 seconds of delay per vehicle) during the weekday PM peak hour and LOS F (139.1 seconds of delay per vehicle) during the Saturday MD peak hour. The mitigation measures provided below can partially mitigate this

impact. Until a detailed corridor study is performed to identify capacity related improvements that can be implemented, and evaluate alternative signal timing coordination plans, it is not certain whether this cumulative impact can be fully mitigated. *This is a significant and unavoidable cumulative impact.*

Cumulative Mitigation

C-7 The Rispin project shall contribute its fair share of construction costs (pro-rata contribution) for the addition of an exclusive right-turn only lane on the 41st Avenue southbound approach to Clares Street; the improvement shall be implemented prior to General Plan buildout. With construction of this improvement, the LOS would remain at LOS E (61.5 seconds of delay per vehicle) under General Plan buildout conditions during weekday PM peak hours and LOS F (104.9 seconds of delay per vehicle) during the Saturday MD peak hour.

C-8 The Rispin project shall contribute its fair share of costs for a detailed study of the 41st Avenue corridor that evaluates the feasibility of alternative roadway improvements and alternative traffic signal coordination plans that would improve corridor traffic operations. *[Note: this is the same as cumulative mitigation C-3.]*

Cumulative Impact: Under General Plan Buildout conditions, the 49th Avenue/Capitola Road intersection is projected to operate at LOS D (29.6 seconds of delay per vehicle) during the Saturday MD peak hour. Weekday PM and Saturday MD peak hour volumes at this intersection satisfy Caltrans peak hour signal warrants under cumulative conditions. *This is a significant cumulative impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Cumulative Mitigation

C-9 The 49th Avenue/Capitola Road intersection should be monitored by the City and a traffic signal installed when warranted based on intersection operations and volumes. Signalization of the intersection would result in LOS C operations during the weekday PM and Saturday peak hours.

Note: If the intersection is not signalized when intersection volumes and operations warrant, this impact would be a significant and unavoidable cumulative impact.

This page intentionally left blank.

4.8 NOISE

♦♦♦

INTRODUCTION

This section is based on a previous noise analysis prepared for the site in 1991 as part of the Rispin Project EIR, and is supplemented by additional noise measurements performed by Denise Duffy & Associates on May 1, 1998. In addition, recent traffic volumes from the traffic analysis prepared by Higgins Associates in September 2002 are used in the analysis to determine if significant increases in noise levels have occurred over time since these measurements.

ENVIRONMENTAL SETTING

Noise Definitions

Noise is defined as unwanted sound. Noise intensity is measured on a decibel (dB) scale. On this scale, noise at zero decibels is barely audible, while noise at 120-140 decibels is painful and can cause hearing damage.

There are several different measurements of noise. Community noise is typically measured in decibels with A-weighting (dBA). The dBA scale provides compensation for human sensitivity by discriminating against frequencies to approximate the sensitivity of the human ear. For evaluating noise over extended periods, the "Day-Night Noise Level" scale (Ldn) and the "Community Noise Equivalent Level" (CNEL) are measures of the average equivalent sound level (Leq) during a 24-hour period. These measurements of noise account for greater sensitivity of noise receptors at night by adding 5 decibels (for evening hours between 7:00 pm and 10:00 pm) and 10 decibels (for evening hours between 10:00 pm and 7:00 am) to nighttime noise levels, and averaging the noise over a full day.

Existing Noise Sources

The primary noise source in the project area is traffic from several local roadways. Peak pass-by noise levels for passenger vehicles on local streets are 60-70 dBA at 25 feet. Buses, trucks, motorcycles, and poorly muffled cars produce pass-by noise levels 5-15 dBA higher. The sound level of noise from traffic in decibels is related to the amount of traffic. A doubling or halving of traffic volume typically results in a 3-dB increase or decrease, respectively, in the traffic sound level. A change of 3 dB is generally considered to be the threshold for a perceptible change in sound. This means that a significant change in traffic volume (i.e., doubling or halving) is needed before a perceptible change in traffic noise will occur. In general, a 10-dB increase in noise level is perceived as a doubling in loudness.

When the noise source (i.e., location and level) is the same and the distance is increased, the noise will decrease by approximately 6 dB for every doubling of distance away from the source. When the noise source is a continuous line (i.e., vehicle traffic on a highway), noise levels decrease by approximately 3 dB for every doubling of distance. Often a drop-off rate of 4.5 dB per doubling of distance is used when the local ground between the roadway and the receiver is vegetated.

The primary roadways in the project area are Clares Street and Wharf Road and, to a lesser extent, 46th Avenue, 41st Avenue and Highway 1. These streets also are primary access routes to and from the project site. Aircraft flying overhead is occasionally audible in the project area, but is not a significant noise source relative to traffic noise. Other noise sources typical in this urban location include dogs barking, children playing, etc. These sources are not significant compared to the noise produced by the dominant transportation sources.

Sensitive Receptor Locations

Noise sensitive land uses are typically given special attention to achieve protection from excessive noise. Noise sensitive land uses include residential areas, hospitals, libraries, schools and retirement homes (City of Capitola, 1989). Sensitive receptors that could be affected by the project include the existing library, the residential care facility, and single-family and multi-family residences on streets such as Wharf Road and Clares Street, which will carry traffic to the Rispin Mansion project site. In addition, residential receptors are located adjacent to or near the project site, including south of the Rispin Mansion site and surrounding the library.

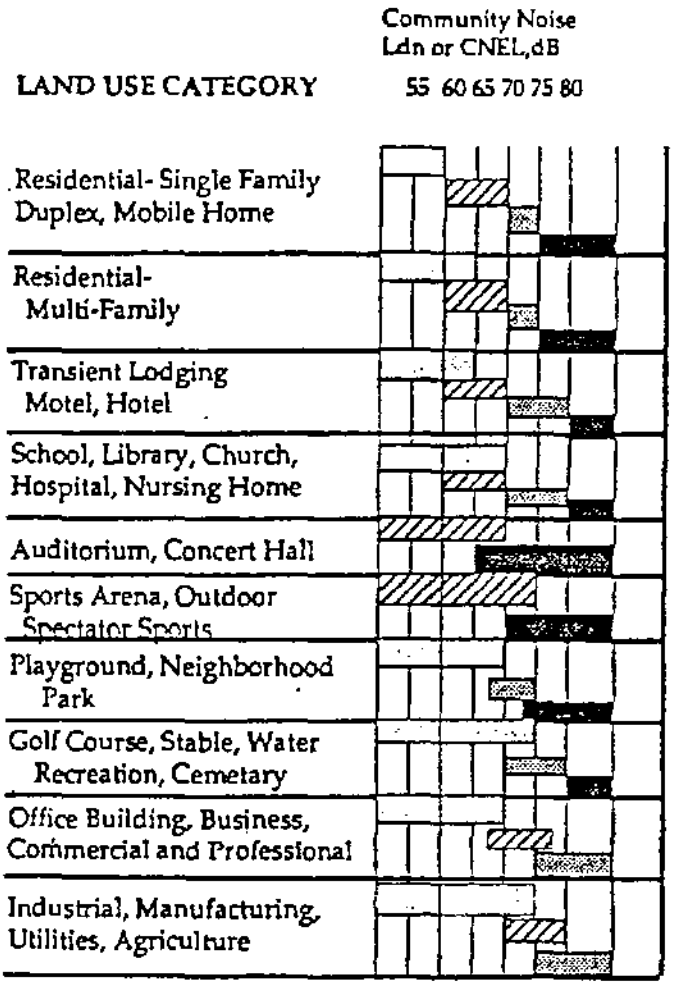
Noise Policies and Guidelines

Federal, state, and local agencies regulate noise. The state Environmental Protection Agency establishes a noise goal of 60 decibels (dBA) for outdoor noise and 45 dBA for interior noise for sensitive uses. State Department of Health and General Plan Guidelines indicate that school, library and residential uses are normally acceptable where exterior noise levels are 60 dBA (Ldn or CNEL) or below with conventional construction. Construction of buildings in areas where noise levels are 60-70 dBA is conditionally acceptable with adequate design features incorporated.

The City of Capitola General Plan Noise Element has adopted noise criteria planning guidelines to assist in evaluating the compatibility of land use proposals. These noise guidelines can be used to assess potentially significant project-generated noise levels. The appropriate noise limits suggested by the Noise Element for various types of land uses are shown in **Figure 4-12**. These noise guidelines are based upon the California Department of Health Services (DHS) recommendations that are provided in **Figure 4-13**.

The City's noise level guidelines are specified as Ldn/CNEL for various land use categories and are rated as normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable. These designations are defined in **Figure 4-12**. There is some overlap in the standards because each situation is unique. For the purposes of this evaluation, the worst-case noise interpretation of the standards and guidelines is used to determine impacts and mitigation measures required.

The overall goal of the City of Capitola Noise Element is "to preserve the quiet that exists in the City." Several goals and policies will help the City achieve this overall goal by ensuring that new developments mitigate noise to acceptable levels, siting noise sensitive uses to avoid exposure greater than "normally acceptable," and controlling construction noise. The City's Noise Ordinance generally prohibits using equipment that creates "loud, penetrating, irritating, boisterous or unusual" noise within 200 feet of a noise-sensitive land use. This is especially applicable for the proposed project, due to the close proximity of the site to residential uses.



Interpretation

NORMALLY ACCEPTABLE

Specified land use is satisfactory, based upon the assumption, that any buildings involved are of normal conventional construction, without any special noise insualtion requirements.

CONDITIONALLY ACCEPTABLE

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE

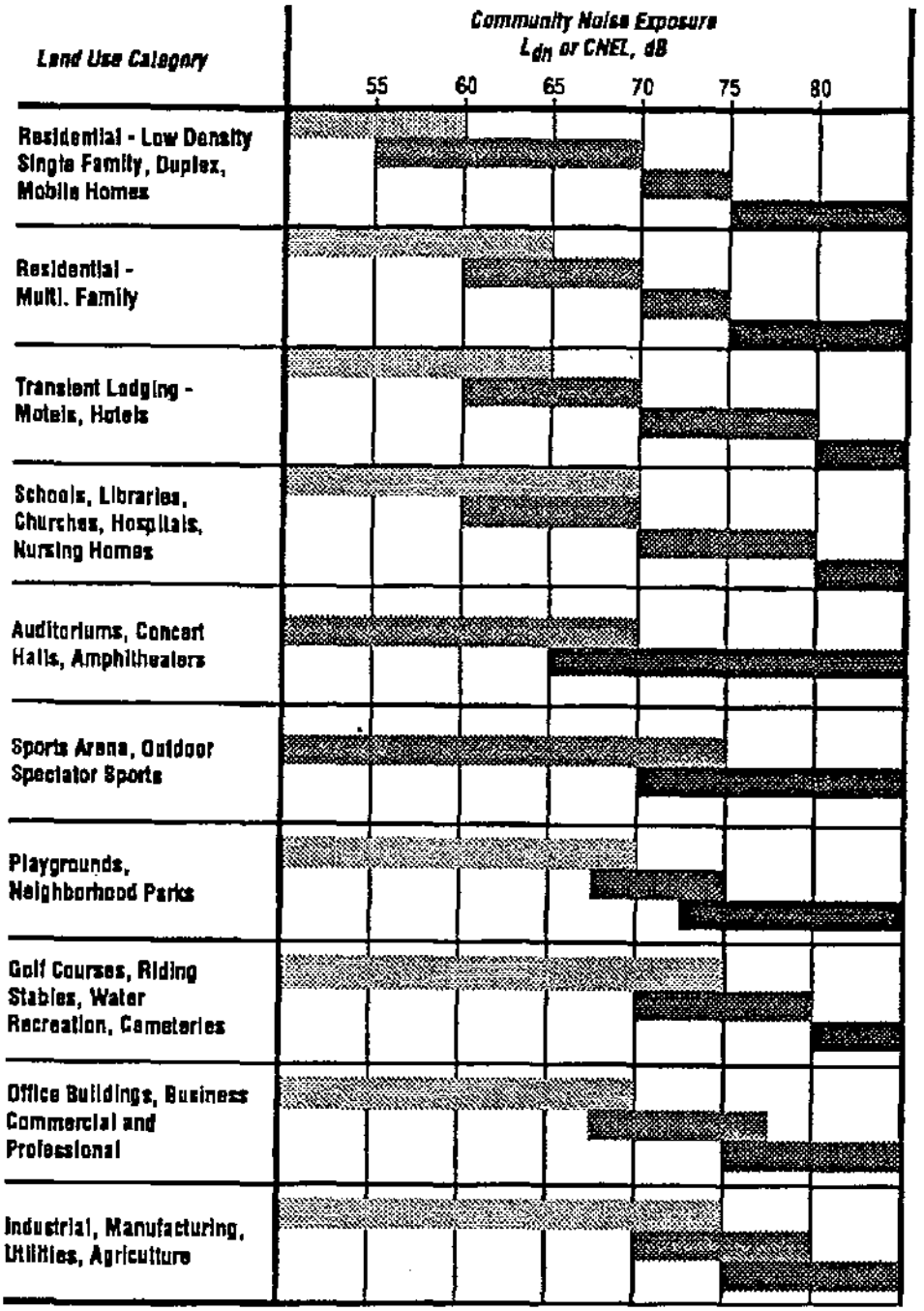
New construction or development should generally not be undertaken.

Note: Based on guidelines prepared by the State of California and modified by the City.

City of Capitola
Noise Compatibility Standards

Figure 4-12

LAND USE COMPATABILITY FOR COMMUNITY NOISE ENVIRONMENTS



INTERPRETATION:

Normally Acceptable
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable
New construction or development should generally not be undertaken.

Source: California Office of Planning and Research, General Plan Guidelines , Appendix A (Department of Health Services, Guidelines for Preparation and Content of the Noise Element), 1990.

California Department of Health Services
Noise Compatibility General Guidelines

Figure
4-13

Noise Measurements

Four noise monitoring locations were selected to represent worst-case residential receptor locations. During the morning of May 1, 1998 (at approximately 7:30 AM), ambient noise monitoring was performed at four representative receptor locations that could be adversely affected by project traffic or on-site noise. The results, including a description of the locations, are shown in **Table 11**. In addition, this table shows the measured noise levels taken in 1991 as part of the Rispin Project EIR (City of Capitola, April 1991).

Table 11
Existing Average Leq Noise Levels (dBA)

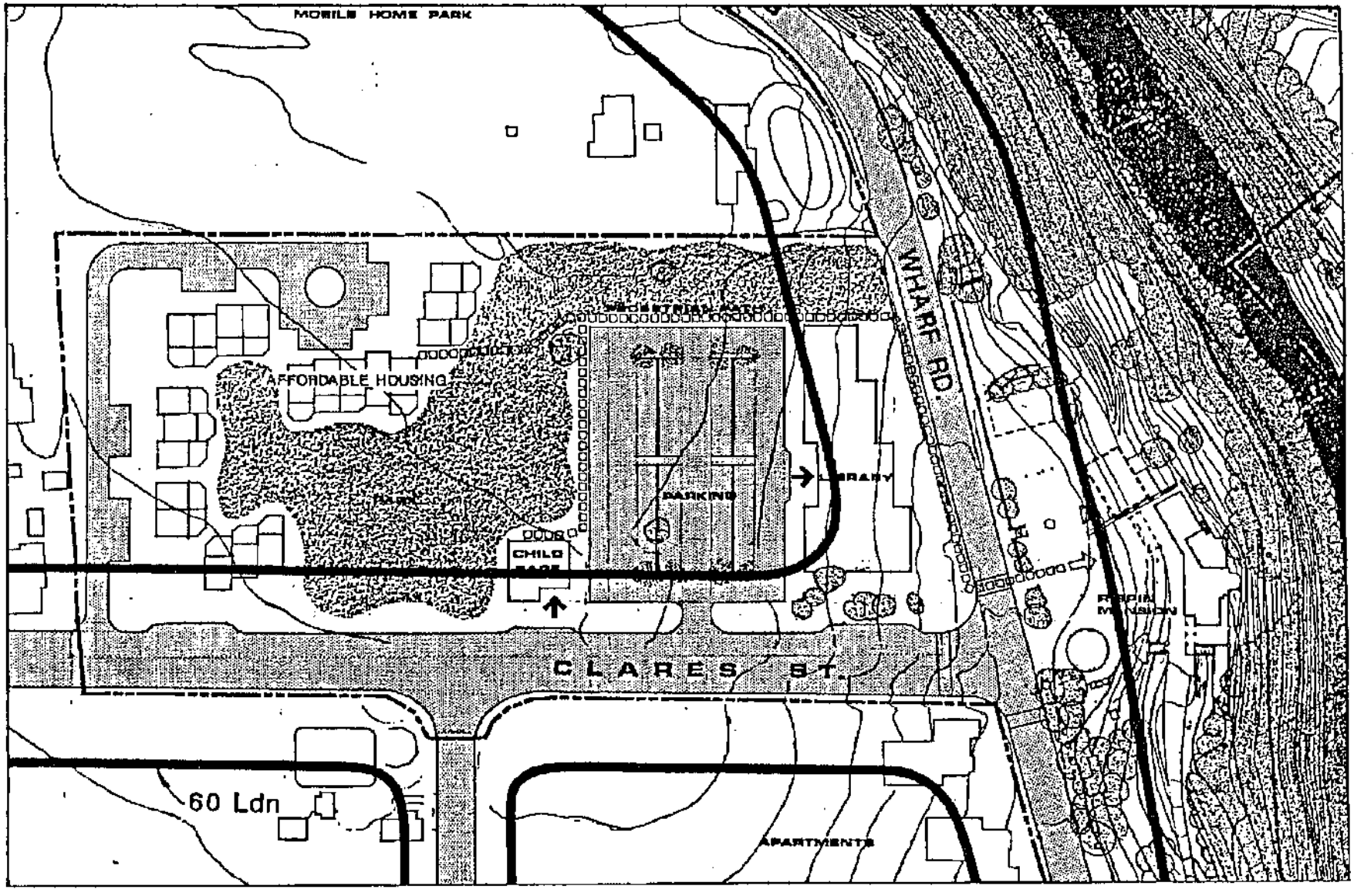
Monitoring #	Location	1990 survey[1]	1998 survey[2]
#1	at Rispin Mansion	51.6	52.1
#2	50 feet west of Wharf Road on north side of Clares Street	60.8	59.0
#3	50 feet north of Clares Street on the west side of Wharf Road	60.5	64.2
#4	50 feet east of Wharf Road near Highway 1	70.1	72.1

[1] Measurements by Jones & Stokes on Dec. 7-8, 1990 (City of Capitola, April 1991).
[2] Noise measurements by DD&A on May 1, 1998.
Please note: These noise levels (Leq) do not reflect the difference in Ldn or CNEL noise parameters because they are not time-averaged or time-weighted for an entire day.

The statistical noise descriptor, Leq, was recorded five times at each monitoring location for five-minute intervals. These measurements were performed to provide a comparison with previous noise studies conducted as part of the 1991 Rispin Project EIR, and supplemented by the 1995 Rispin Project Supplemental EIR.

The Leq shown in the table for each survey was comparable for monitoring locations #1, #2, and #4, and significantly higher for the measurement taken along Wharf Road at monitoring location #3. These increases are assumed to be due to increased traffic volumes on Wharf Road north of Clares Street. It should be noted that these numbers are shown in Leq because they were taken at discrete moments in time (short time intervals). Therefore, they do not reflect noise levels in Ldn or CNEL (time-averaged measurements), the parameters used in City of Capitola noise thresholds and guidelines.

Figure 4-14 shows 60 dBA Ldn noise contours based on modeling in the vicinity of the project site performed as part of the 1991 Rispin Mansion project. These contours show that under the no project alternative, the distance from the center of Wharf Road and Clares Street to the 60 dBA Ldn noise contour is approximately 75 feet. Based on the discussion of distance and traffic volume effects on sound levels above, the noise contours will not move to the extent that the Rispin Mansion site will be within the "normally unacceptable category." Specifically, a doubling of distance from the noise source (traffic on Wharf Road and Clares Street) will decrease the sound level by about 4.5 dBA if the ground is vegetated, and it takes a doubling of traffic volumes to increase the noise level by 3 dBA (the minimum perceptible increase). **Table 12** below shows that the existing volumes on Wharf Road have not increased by more than 20.5%. Therefore, the temporal increase in sound level is not perceptible based on this analysis.



N

Noise Contours ($60L_{dn}$) from the 1991 Rispin Project EIR

Figure 4-14

DENISE DUFFY & ASSOCIATES, INC.

Table 12 Weekday PM Peak Hour Traffic Volumes on Wharf Road November 1990 vs. May 2002		
	South of Clares Street	**North of Clares Street**
1990	662	863
2002	697	1,040
% increase	5.3%	20.5%

IMPACTS AND MITIGATION MEASURES

Standards of Significance

In accordance with the State CEQA Guidelines, and agency and professional standards, a project impact may be considered significant if the project would:

- expose people to severe noise levels or would not be compatible with ambient noise level standards; or
- substantially increase ambient noise levels in adjoining areas or in areas of sensitive receptors.

Operational Noise

Noise exposure at the Rispin Mansion project site. As described previously in this section and shown in **Figure 4-14**, 60 Ldn noise contours in the vicinity of the Rispin Mansion site were contained in the 1991 Rispin Project EIR. The "normally acceptable" noise level for all of the Rispin Mansion project buildings is 60 dBA Ldn and the distance to the 60 Ldn from the centerline of Wharf Road is shown on **Figure 4-14** as approximately 75 feet. Buildings and other uses within 75 feet of the centerline of Wharf Road will exceed the "normally acceptable" noise criteria. Therefore, the South End Building, the Rispin Conservatory, the well house, and the upper North End Guest Rooms are all within the "conditionally acceptable" category. They are not, however, considered in the "normally unacceptable" category (above 70 dBA Ldn) because, as described above, it would take a doubling of traffic volumes to increase the noise level by 3 dBA (an increase deemed "perceptible"). Until the traffic volumes are more than double the existing traffic volumes (which is not possible within the foreseeable future), these uses are not expected to be considered within the "normally unacceptable" category. The Mansion itself is outside of the 60 dBA Ldn noise contour (or less than 60 dBA Ldn), making it "normally acceptable". In addition, the thick concrete wall bordering Wharf Road on the project site, the change in topography, the minimal west facing fenestration on the Mansion, and the type of construction of the Mansion ensure continued consistency with the interior noise standard of 45 dBA Ldn within Rispin Mansion.

Impact: Exterior noise levels due to existing traffic along Wharf Road and Clares Street at the South End Building, the upper North End Guest Rooms, the well house, and the Rispin Conservatory would exceed the City of Capitola criteria of 60 dBA Ldn or CNEL for "normally acceptable" noise levels for lodging, motels, and hotels. In addition, the exterior noise levels at

other new structures may in the future exceed the 60 dBA Ldn or CNEL threshold. *This is a significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-59 All newly constructed buildings must be designed to attenuate noise inside the buildings as required for habitable structures within the 60 dBA Ldn noise contour. Noise insulation features selected shall be incorporated in the design to ensure that noise levels do not exceed 45 dBA Ldn in habitable rooms. Conventional construction with closed windows and a fresh air supply, or air-conditioning, will normally achieve this goal.

Off-site sensitive receptor exposure to project-related traffic noise. In addition to on-site impacts of development of the Rispin Mansion project, existing residential uses along 41st Avenue, Capitola Road, Clares Street and Wharf Road are exposed to traffic noise levels which exceed the criteria for residential land use of 60 dBA Ldn. It is expected that the increase in traffic due to the proposed Rispin Mansion project (see **Table 6** - Road Segment Level of Service Summary in **4.7 Traffic and Circulation**) will not significantly increase traffic volumes along any road segments. The maximum increase in traffic volumes due to project-related traffic would occur along Wharf Road and Clares Street, where the maximum increase in traffic volumes during peak hours is less than 5%. According to the discussion above, perceptible changes in noise levels require a 3-dB increase (which is caused by doubling traffic volumes). The increase in traffic volumes due to the Rispin project will cause an imperceptible increase in traffic noise levels compared to existing conditions. Because the noise increase will not be perceptible, this is considered a less-than-significant impact.

Off-site sensitive receptor exposure to on-site noise. Several proposed uses at the Rispin Mansion site may impact adjacent residences by creating nuisance noises. These uses include wedding and meeting activities (of 49 people or less in the Rispin Conservatory) that require outdoor-amplified music and microphones, or large outdoor gatherings. Amplified sounds and cumulative noises from people talking (unamplified) outdoors may adversely impact neighbors of the site to the south and west (along Wharf Road and Clares Street) and the residences located across Soquel Creek to the east. These noises will not be significant from a time-averaged perspective due to their short-term, irregular basis; therefore, they will not exceed noise thresholds (based on Ldn, or daily averages). However, this noise will potentially be audible to adjacent residents and could be considered a nuisance.

Chapter 5.24 of the Municipal Code requires that no owner, manager or operator of any business or establishment (except theaters) may arrange for or allow entertainment to be conducted on the premises without obtaining an entertainment permit. If the entertainment is entirely enclosed within a structure and cannot, at any time, be audible outside of that structure, the use need not obtain an entertainment permit. The City Council may impose any conditions reasonably related to the concerns described in the findings in Section 5.24.005 including such things as days and hours of operation and significant noise reduction measures.

Section 9.12.010 of the Municipal Code prohibits any person, firm or corporation from making, or permitting to make, any loud boisterous, irritating, penetrating or unusual noise. In addition, it prohibits a variety of activities that make "loud, penetrating, irritating, boisterous or unusual noise," within two hundred feet of any place regularly used for sleeping purposes between 10:00 p.m. and 8:00 a.m. Section 9.12.040 specifies that it is unlawful for any person without a city

permit to operate a loudspeaker, public address system or sound amplification system, or playing of a musical instrument except as follows:

- The operation of sound reproduction or broadcasting equipment within the dwelling shall be permitted provided that the reception shall not be amplified to a level which persons of ordinary sensibility located on another property or in another dwelling would find bothersome.

- The use of such equipment or musical instruments outside of dwelling houses between the hours of 9:00 a.m. and 9:00 p.m. on private property for the private entertainment of people shall be permitted provided it cannot be heard on any other property.

Impact: Rispin Mansion uses, such as weddings and meetings, would result in intermittent, short-term noise increases. This noise may be audible to adjacent residents and may be considered a nuisance. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-60 The applicant must obtain an entertainment permit from the City of Capitola pursuant to Chapter 5.24 of the Municipal Code that shall include the following conditions of approval, at a minimum:

- Hours of operation for weddings and large meetings must be restricted to 8:00 a.m. to 10:00 p.m. (consistent with Chapter 9.12 of the Municipal Code, the Noise Ordinance), although small corporate breakfast meetings may occur as early as 6:30 a.m.
- Hours of operation for amplified outdoor music/use of microphones shall be restricted to 8:00 a.m. to 9:00 p.m.

Construction Noise

Clearing and grading activities during construction would occur for a period of up to a year and will involve the use of heavy equipment on the site. Most diesel-powered heavy construction equipment, such as dump trucks and bulldozers, produces noise levels of 80-90 decibels at a distance of 50 feet. Other equipment, such as impact hammers, saws, and generators can create peak noise levels of 70-90 decibels at 50 feet. Typical noise levels and usage factors for construction equipment are listed in **Table 13**. The usage factors describe the percentage of a work day that a piece of equipment would typically be used (i.e., 0.2 usage factor means 20% of a work day). Construction equipment may be in operation less than 50 feet from the nearest residences for brief periods. Therefore, the maximum noise exposure of an unprotected location could be more than 90 dBA. Generally, property line fences would offer protection of 6 to 8 decibels depending upon their height and quality. Solid perimeter fences around the site early in the construction phase can offer noise protection where no property line fence exists. Construction noise will be intermittent and of limited duration at any given location. Construction noise will be greatest during grading activities where heavy equipment is used.

Table 13
Typical Construction Equipment Noise Levels

Equipment	Noise Level (in dBA at 50 ft) Without Noise Control	With Feasible Noise Control [1]	Usage [2]
Earthmoving			
Front Loaders	79	75	0.4
Backhoes	85	75	0.2
Dozers	80	75	0.4
Tractors	80	75	0.4
Scrapers	88	80	0.4
Graders	85	75	0.1
Trucks	91	75	0.4
Pavers	89	80	0.1
Materials Handling			
Concrete Mixers	85	75	0.4
Concrete Pumps	82	75	0.4
Cranes	83	75	0.2
Derricks	88	75	0.2
Stationary			
Pumps	76	75	1.0
Generators	78	75	1.0
Compressors	81	75	1.0
Saws	78	75	0.05
Impact			0.05
Jack Hammers	88	75	0.1
Rock Drills	98	80	0.05
Pneumatic Tools	86	80	0.2

Source: U.S. Environmental Protection Agency, "Noise form Construction Equipment and Operations, Building Equipment, and Home Appliances," December 1971.

[1] Estimate levels obtainable by selecting quieter procedures or machines and implementing noise control features requiring no major redesign or extreme cost.
[2] Percentage of time equipment is operating at noisiest mode in most used phase on site.

Temporary noise increases of 5 dBA (not time-averaged) would be experienced frequently during the heaviest construction periods for an area within about one block of the site. This does not signify a permanent increase (or an increase in the Ldn or CNEL); it would only be increased while construction is actively occurring at the site. Construction-related traffic to the site during some days could increase noise levels along Wharf Road and Clares Street by 5 dBA (not time-averaged) for certain periods of the day. For the adjacent residential properties, an increase in Ldn of 5 dB or more could occur during portions of the construction period.

Impact: Project construction will result in intermittent and short-term noise increases that will impact residents near the site. *This is a significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-61 The City shall require that the construction contractor implement noise control measures (Best Construction Management Practices) during project construction, as outlined below:

- Require use of construction equipment and haul trucks with noise reduction devices, such as mufflers, that are in good condition and operating within manufacturers' specifications.
- Require selection of quieter equipment (e.g., gas or electric equipment rather than diesel-powered equipment), proper maintenance in accordance with manufacturers' specifications, and fitting of noise-generating equipment with mufflers or engine enclosure panels, as appropriate.
- Prohibit vehicles and other gas or diesel-powered equipment from unnecessary warming up, idling, and engine revving when equipment is not in use and encourage good maintenance practices and lubrication procedures to reduce noise.
- Construct temporary plywood barriers around particularly noisy equipment or activities at appropriate heights.
- Locate stationary noise sources, when feasible, away from residential areas and perform functions such as concrete mixing and equipment repair off-site.
- Except under special circumstances approved by the City Building Official, limit construction activities to the normal working day between the hours of 8 a.m. and 7 p.m. Monday through Friday.

CUMULATIVE NOISE IMPACTS

See **5.0 CEQA Considerations**.

This page intentionally left blank.

4.9 AIR QUALITY

♦♦♦

INTRODUCTION

This section was prepared based on Monterey Bay Unified Air Pollution Control District (MBUAPCD) CEQA Air Quality Guidelines (October 1995, revised February 1997, August 1998, December 1999, September 2000, and September 2002), project characteristics, and vehicle trip generation estimates by Higgins Associates. Details of the air quality modeling analysis can be found in **Appendix F** of this EIR. The 1998 modeling was not redone for the 2000 Recirculated Draft EIR or this Revised Draft EIR based on the fact that potential air quality impacts are being reduced by vehicle fleet improvements over time, and the project has been reduced in size.

SETTING

Regional Climate, Topography and Meteorology

The project site is located in Santa Cruz County along the northern portion of the Monterey Bay coastal area. In Santa Cruz County, coastal mountains exert strong influence on the atmospheric circulation and result in generally good air quality. The primary controlling factor in the climate of the air basin is a semi-permanent high-pressure cell over the eastern Pacific Ocean. It is more dominant in the summer, triggering persistent west and northwest winds across the California coastline. Air descends in the Pacific High, creating a stable temperature inversion of hot air over a cooler coastal air layer. The onshore air current passes over the cool Pacific air layer to bring fog and relatively cool air into the coastal valleys. The warmer air aloft behaves like a lid to restrict vertical air movement.

The generally northwest-southeast orientation of mountainous ridges tends to restrict and channel the summer onshore air currents. Surface heating in the interior portion of the Salinas and San Benito Valleys creates a weak low pressure that intensifies the onshore airflow during the afternoon and evening. In the fall, the surface winds become weak, and the marine layer grows shallow, dissipating altogether on some days. The air flow is occasionally reversed in a weak offshore movement, and the relatively stationary air mass is held in place by the Pacific High pressure cell that allows pollutants to build up over a period of a few days. It is most often during this season that the north or east winds develop to transport pollutants from either the San Francisco Bay area or the Central Valley into the air basin. The air basin encounters its most significant air quality problems in late spring and fall when a combination of weak onshore winds and stable temperatures create an inversion that restricts the vertical and horizontal dispersion of pollutants.

Regulatory Setting

The project site is located within the North Central Coast Air Basin (NCCAB), one of fourteen statewide basins designated by the California Air Resources Board (CARB). This basin includes Monterey, Santa Cruz, and San Benito Counties. The Monterey Bay Unified Air Pollution Control District (MBUAPCD) is responsible for local control and monitoring of criteria air pollutants.

The MBUAPCD shares responsibility with CARB for ensuring that state and national ambient air quality standards are met within Santa Cruz County and the NCCAB. State law assigns local air districts the primary responsibility for control of air pollution from stationary sources while reserving to the CARB control of mobile sources. The MBUAPCD is responsible for developing regulations governing emissions of air pollution, permitting and inspecting stationary sources, monitoring air quality, and air quality planning activities.

As required by the California Clean Air Act, the MBUAPCD develops and implements an Air Quality Management Plan (AQMP). The 2000 AQMP for the Monterey Bay Region is intended to improve air quality through tighter industry controls, cleaner cars and trucks, cleaner fuels, and increased commute alternatives. Adopted Transportation Control Measures (TCMs) identified in the plan include the following:

- Improved Public Transit
- Area Wide Transportation Demand Management (TDM)
- Signal Synchronization
- New and Improved Bicycle Facilities
- Alternate Fuels
- Park and Ride Lots
- Livable Communities
- Selected Intelligent Transportation Systems
- Traffic Calming

Criteria Pollutants and Ambient Air Quality Standards

Potential sources of pollutants are categorized as stationary (i.e., industrial or institutional uses) or mobile (i.e., vehicular uses). Criteria pollutants are those contaminants that the federal Clean Air Act specifically regulates through the setting of National Ambient Air Quality Standards (NAAQS). NAAQS define contaminant levels that are acceptable for all segments of the public and which will have no long-term undesirable effects. Air quality standards also have been established at the state level. **Table 14** contains a complete list of air quality standards.

The types of criteria pollutants monitored by the MBUAPCD include ozone, particulate matter with diameter of 10 microns or less (PM_{10}), nitrogen dioxide, carbon monoxide, and sulfur dioxide is reported where the instrumentation is available. As State standards for ozone and PM_{10} are currently exceeded, these pollutants are of particular concern in the NCCAB.

The monitoring of ozone provides a measurement of the primary oxidant "smog" components, which are produced by complex chemical reactions involving reactive organic gases (ROG) and nitrogen oxide (NO_x) in the presence of sunlight. The primary sources of ROG within the NCCAB are motor vehicles, organic solvents, the petroleum industry and pesticides. The primary sources of NO_x are motor vehicles, power plant, mobile sources, manufacturing/industrial, and mineral processes (MBUAPCD, 1995).

Inhalable particulate matter, or particles less than 10 microns in diameter (PM_{10}), is a criteria pollutant. Particulate matter is classified as primary or secondary depending on its origin. Primary particles of PM_{10} are emitted directly, are the most commonly analyzed and modeled, have limited dispersion characteristics, and are considered localized pollutants. Secondary PM_{10} can be formed in the atmosphere through chemical reactions involving gases. Typical

sources of particulate matter include fugitive road dust, windblown dust, farming operations, wasteburning, construction, mobile sources, industrial processes and other sources.

In 1997, the U.S. Environmental Protection Agency adopted new national air quality standards for ground-level ozone and fine particulate matter. Implementation of the standards was delayed by a lawsuit. In May of 1999, the Court of Appeals ruled that setting the new public health standards for ozone and particulate matter was an improper delegation of legislative authority to the U.S. EPA. The decision was appealed to the Supreme Court, and on February 27, 2001 the Supreme Court unanimously ruled in favor of the EPA, clearing the way for implementation of the new standards. During the interim, CARB developed designations for the California air basins, calling for the MBUAPCD to be designated as an attainment area for the new 8-hour ozone standard. Designations for fine particulate matter of 2.5 microns or less in diameter ($PM_{2.5}$) will require more time, since a monitoring network has to be established and a minimum 3-year monitoring period will be required.

Carbon monoxide (CO) is heavily dependent upon vehicle emissions and weather. Other sources of carbon monoxide include fuel combustion in stationary sources and agricultural burning. Because local ventilation is good and traffic modest, CO is not monitored in the area, except in Salinas. Carbon monoxide, hydrocarbon and oxides of nitrogen emissions have been reduced dramatically by improved emission controls on new automobiles in recent years.

In addition to the criteria pollutants discussed above and listed in **Table 14**, Toxic Air Contaminants (TACs) are another group of pollutants of concern. Toxic Air Contaminants (TACs) are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation, and monitoring of TACs is relatively recent compared to that for criteria pollutants. Unlike criteria pollutants, TACs are regulated on the basis of risk rather than specification of safe levels of contamination.

Table 14
Federal and State Ambient Air Quality Standards

Pollutant	*Averaging Time*	*Federal Primary Standard*	*State Standard*
Ozone	8-Hour	0.08 PPM	--
	1-Hour	0.12 PPM	0.09 PPM
Carbon Monoxide	8-Hour	9.0 PPM	9.0 PPM
	1-Hour	35.0 PPM	20.0 PPM
Nitrogen Dioxide	Annual	0.05 PPM	--
	1-Hour	--	0.25 PPM
Sulfur Dioxide	Annual	0.03 PPM	--
	24-Hour	0.14 PPM	0.04 PPM
	1-Hour	--	0.25 PPM
PM_{10}	Annual Geometric	--	30 $\mu g/m^3$
	Annual Arithmetic	50 $\mu g/m^3$	--
	24-Hour	150 $\mu g/m^3$	50 $\mu g/m^3$
$PM_{2.5}$	Annual Arithmetic	15 $\mu g/m^3$	--
	24-Hour	65 $\mu g/m^3$	--
Lead	30-Day Avg.	--	1.5 $\mu g/m^3$
	Calendar Quarter	1.5 $\mu g/m^3$	--

PPM = Parts per Million
$\mu g/m^3$ = Micrograms per Cubic Meter
(Source: California Air Resources Board, January 1999.)

Attainment Status of the NCCAB

Under the Federal Clean Air Act, the NCCAB is designated a maintenance area for the federal 1-hour ozone Ambient Air Quality Standard (AAQS). The NCCAB was redesignated from a moderate nonattainment area to a maintenance area in 1997 after meeting the federal 1-hour ozone standard in 1990. The NCCAB is designated as an attainment area for the federal 8-hour ozone AAQS. Under the California Clean Air Act, the basin is a moderate nonattainment area for the state ozone AAQS. If the state AAQS is not exceeded more than three times at any monitoring station in the air basin, the NCCAB would become non-attainment-transitional. The NCCAB is designated as a nonattainment basin for the State PM_{10} AAQS. The NCCAB is an attainment basin or unclassified for all other AAQS.

Existing Ambient Air Quality

Ambient air quality in the NCCAB is monitored at the following monitoring stations: Salinas, Hollister, Carmel Valley, Santa Cruz, Monterey, Moss Landing, King City, Scotts Valley, Davenport, Watsonville, and Pinnacles (a National Park Service station). In Santa Cruz County, monitoring sites are located in Davenport, Watsonville, Scotts Valley, and Santa Cruz. Ozone is monitored at all four sites. From 1999-2001, no violations of the federal ambient air quality standards for ozone were recorded. During the same period, the more stringent state ozone standard was exceeded one day each at the Santa Cruz and Scotts Valley stations.

Particulate matter is monitored at the Davenport, Santa Cruz, and Watsonville sites; PM_{10} is monitored at all three sites and $PM_{2.5}$ is monitored in Santa Cruz. All national ambient air quality standards were met at the three sites. Six exceedances of the more stringent state standard were recorded in 1999 and 2001 in Davenport, but no violations of this standard were recorded at the other two sites. Other pollutants such as nitrogen dioxide, sulfur dioxide, and carbon monoxide are monitored only at the Davenport site. From 1999-2001, no violations of the federal and/or state ambient air quality standards for these pollutants were recorded.

Sensitive Receptors

Sensitive receptors in the vicinity of the project include a residential care facility and single-family and multiple-family residences surrounding the site.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

In accordance with the State CEQA Guidelines, MBUAPCD CEQA Air Quality Guidelines, and agency and professional standards, a project impact may be considered significant if the project would:

- result in a violation of federal or State ambient air quality standards;
- contribute substantially to an existing or projected air quality violation;
- expose sensitive receptors to substantial pollutant concentrations;
- result in the generation of emissions of 137 pounds per day for ROG or NO_x, 550 pounds per day of carbon monoxide or 82 pounds per day of PM_{10} due to long-term operations;

- result in short-term construction emissions of 82 pounds per day of PM_{10} or cause a violation of PM_{10} standards at existing sensitive receptors;
- create objectionable odors, alter air movement, moisture, temperature, or climate; or
- be inconsistent with the Air Quality Management Plan.

The project is consistent with the most recent Air Quality Management Plan (MBUAPCD, 2000) and would not exceed or approach emissions thresholds contained in the Plan. This is described in an AMBAG letter dated April 8, 1998 and included in **Appendix F** of this EIR. Based on discussion with Janet Brennan (MBUAPCD) in August of 2000, this letter is adequate to document that the project is consistent with the existing Air Quality Management Plan, which would not change for this Revised Draft EIR. In addition, no significant operational impacts due to PM_{10} emissions would result based on MBUAPCD thresholds (MBUAPCD, October 1995, revised February 1997, August 1998, December 1999, September 2000, and September 2002).

Operational (Indirect) Emissions

Estimates of project emissions for the Rispin Mansion project were prepared using the URBEMIS-7G program developed by the California Air Resources Board. In a worst-case analysis based on a 34-room project and MBUAPCD CEQA Guidelines, the following indirect operational emissions in pounds per day (lb/day) would occur: ROG -- 8.72 lb/day; NO_X – 7.11 lb/day; and PM_{10} – 3.56 lb/day. Since the project scale has been reduced to 25 units (or 28 rooms including three "suite" units with 2 bedrooms and 2 bathrooms each), the project emissions are considered well below MBUAPCD thresholds. The assumptions used to calculate these emissions are shown in **Appendix F** of this EIR.

The CALINE-4 computer model is used to calculate worst-case concentrations of carbon monoxide along roadway segments or intersections. The model is able to predict pollutant concentrations that would be experienced by receptors located within approximately 450 feet of a roadway. Intersections were selected for analysis based on MBUAPCD Guidelines as follows:

- Intersections or road segments that operate at LOS D or better that would operate at LOS E or F with the project's traffic, or
- Intersections or road segments that operate at LOS E or F where the volume-to-capacity (V/C) ratio would increases by 0.05 or more with the project traffic, or
- Intersections that operate at LOS E or F where delay would increase by 10 seconds or more with the project traffic.

Based on these criteria, no intersections required CALINE modeling under project conditions for the Rispin Mansion project.

Construction Emissions of PM_{10}

Construction of the proposed project would result in the short-term generation of particulate matter emissions (PM_{10}) caused primarily by clearing, excavation, and grading operations; construction vehicle traffic on unpaved ground; and wind blowing over exposed earth surfaces. Large particles would be of concern only as a soiling nuisance, but PM_{10} violations of the federal

and state 24-hour average standards on the project site may result if dust-suppression measures are not implemented.

Exhaust from on-site and off-site construction-related vehicles also contributes air pollutants. In addition, soil will be exported from the site (specifically, 1,013 cubic yards). Export of soil can result in increased PM_{10} emissions.

Construction activities on the site would occur over a period of unknown time. Grading and excavation activities would occur intermittently during the initial phase of construction on a particular project. The MBUAPCD's Guidelines indicate a potential significant impact could occur if a project generates 82 lbs per day or more of PM_{10} during construction on any given day. Up-to-date PM_{10} emission factors provided by the MBUAPCD indicate that up to 2.2 acres per day of grading and excavation or 8.1 acres per day of minimal earthmoving could occur without triggering the District's PM_{10} threshold of 82 lbs/day (assuming daily watering of site). The entire project site is only 6.5 acres, and since a very minimal amount of land disturbance is proposed at the site, grading and excavation would not occur on 2.2 acres of land area or more in a given day.

Impact: Project construction will result in a short-term, localized decrease in air quality due to dust generated during site preparation, construction, export of soil, and exhaust from construction vehicles. *This is a potentially significant impact that can be reduced to a less-than-significant level by implementing the following mitigation.*

Mitigation

R-62 Require implementation of construction practices to minimize exposed surfaces and generation of dust that include the following measures, at a minimum:

- Exposed earth surfaces shall be watered during clearing, excavation, grading, and construction activities. All construction contracts shall require watering in late morning and at the end of the day.
- Grading and other earthmoving shall be prohibited during high wind.
- Cover all inactive storage piles.
- Maintain at least 2 feet of freeboard for all loaded haul trucks.
- Throughout excavation activity, haul trucks shall use tarpaulins or other effective covers at all times for off site transport.
- Install wheel washers at the entrance to construction sites for all exiting trucks.
- Sweep streets if visible soil material is carried out from the construction site.
- Upon completion of construction, measures shall be taken to reduce wind erosion. Revegetation and repaving shall be completed as soon as possible.
- Post a publicly visible sign that specifies the telephone number and person to contact regarding dust complaints and who shall respond to such complaints, and take corrective action within 48 hours. The phone number of the Monterey Bay Unified Air Pollution Control District shall be visible to ensure compliance with Rule 402 (nuisance).

CUMULATIVE AIR QUALITY IMPACTS

Under cumulative and project conditions described in the 1998 DEIR, CALINE modeling was conducted at the Wharf Road/Clares Street and the 41st Avenue/Hwy. 1 southbound off-ramp intersections. The modeling indicates that no violations of either the 1-hour or 8-hour State or federal standards would result from cumulative traffic at these intersections (see **Appendix F** of this EIR for further details).

In addition, AMBAG staff consulted with MBUAPCD staff regarding consistency of the project, and MBUAPCD staff determined that the project is consistent with the AQMP.

Based on the above analysis and conclusions, the project will have a less-than-significant cumulative impact on air quality.

This page intentionally left blank.

4.10 PUBLIC SERVICES

♦♦♦

INTRODUCTION

This section describes the public services and utilities serving the existing site of the proposed Rispin Mansion project. This includes police and fire protection, water supply, and wastewater treatment. The existing setting for the water supply section was taken from the Notice of Preparation for the Supplemental Water Supply Project (Soquel Creek Water District, June 6, 2000) and from the Soquel Creek Water District website.

SETTING

Police Protection

The project site is located within the City of Capitola limits. The City of Capitola Police Department (Police Department) presently serves the site. The Police Department is located in the City Hall complex at 420 Capitola Avenue. The Police Department currently has 20 sworn personnel, including one chief, two lieutenants, and four sergeants. The patrol division is divided into two teams, each working four ten-hour days per week (http://www.ci.capitola.ca.us/). The Police Department's emergency response time to any part of the City, which includes the project site, is five minutes or less from when the officers are dispatched (Don Braunton, personal communication, May 1998).

Fire Protection

City of Capitola residents are provided with fire protection services through the Central Fire Protection District (District). The District serves a full-time population of approximately 49,500 people in a 29-square-mile area, including Capitola, Soquel, and Live Oak. The District currently has four fire station facilities. The closest station to the Rispin Mansion project site is the Capitola station located at 405 Capitola Avenue across from City Hall. The next closest station is the Soquel station located at 4747 Soquel Drive. The District has at least eight engines (a minimum of two at each station). Each fire station is staffed 24 hours a day by three career firefighters with the exception of the Live Oak station, which is staffed by four, including at least one firefighter/paramedic. The career staff is augmented by a paid-call force (formerly known as volunteers) of approximately 30 on an "on-call" basis (http://www.centralfpd.com/).

The Capitola station responded to 1,036 incidents in 2002, with an average response time of slightly over six minutes. The Soquel station responded to 771 incidents in 2002, with an average response time of about 5.11 minutes. For the entire District as of 2002, there were 3,672 incidents and the average response time was less than 5.11 minutes (Ibid.).

Water Supply

The Soquel Creek Water District (District), a nonprofit, local government agency, provides potable water service and water resource management to the project area. The District service area extends from west of 41st Avenue in Capitola to just south of La Selva Beach in Santa

Cruz County. The District encompasses seven miles of shoreline of Monterey Bay, and extends from one to three miles inland into the foothills of the Santa Cruz Mountains, essentially following the County Urban Services Line. The population of the District is approximately 45,000, with about 13,500 service connections to the District's water system. Ninety percent of the District's customers are residential, and there are no agricultural connections to the system. The City of Capitola is the only incorporated area within the District. Unincorporated communities include Aptos, La Selva Beach, Opal Cliffs, Rio Del Mar, Seascape, and Soquel (http://www.soquelcreekwater.com/navigation.htm).

The District currently purveys approximately 5,400 acre-feet per year (AFY) of water, all of which is developed from two ground water aquifer systems beneath the District. The Purisima Aquifer, a cemented sandstone aquifer that underlies the entire District, provides approximately two-thirds of the District's annual production (3,600 AFY) in the western portion of the District's service area, including Capitola, Soquel, and Aptos. The Aromas Red Sands Aquifer, a largely unconsolidated alluvial aquifer that underlies the eastern third of the District and extends easterly and southeasterly beneath the adjacent Pajaro Valley, provides the remainder (1,800 AFY) of the District's annual production in the eastern portion of the service area, including Rio del Mar, Seascape and La Selva Beach (Ibid.).

The District operates 17 production wells. Estimated production capacity of all wells is over 15 million gallons per day. The system encompasses approximately 130 miles of pipeline, and the 18 water storage tanks have a capacity of 7.5 million gallons (Ibid.).

The District's role as the local public water purveyor is the management of water resources in order to deliver a reliable supply of water to meet present and future needs in an environmentally sensitive and economically responsible way. Toward that end, the District began an active program of monitoring and interpreting ground water conditions in the early 1980's. A key part of that program is the regular measurement of ground water levels and quality in an extensive network of multiple-completion monitoring wells along the entire coastline of the District's service area. In the Purisima Formation, the multiple-completion monitoring wells were installed by the District to monitor individual layers of the formation in order to detect whether hydraulic conditions were conducive to the intrusion of sea water or, conversely, whether hydraulic conditions were sufficient to constrain any potential landward movement of sea water. In the extreme, the monitoring wells were also designed to detect any onset of seawater intrusion before it affected production wells further inland. In the Aromas Red Sands Aquifer, the multiple-completion monitoring wells were installed to monitor any movement of naturally occurring brackish- to saline-water beneath fresh ground water along the coast. In both aquifers, inland monitoring wells and production wells are also used to monitor ground water levels and quality in order to be able to define the direction of ground water flow, changes in ground water quality, etc.

In 1996, the District formalized its ongoing ground water management activities by adopting, in concert with the adjacent Central Water District, a formal ground water management plan under the auspices of AB3030. Included in the adopted ground water management plan are four goals for management of the basin, including:

- Continued development of water supply for overlying beneficial use (i.e., to meet existing and projected demands for municipal water supply);
- Avoidance of ground water overdraft and any associated undesirable effects;
- Prevention or control of seawater intrusion; and

- Preservation of ground water quality.

Beginning in the late 1980's, the presence of a pumping depression, including depressed coastal ground water levels (below sea level), was identified in the central part of the District's Purisima well field, in the vicinity of New Brighton Beach. Later, in the early 1990's, some apparent landward movement of the fresh/brackish groundwater interface in the Aromas Red Sands was detected despite consistently high (above sea level) ground water levels at and inland of the coast. Management of pumping in the Purisima Formation by the District has resulted in some recovery of coastal ground water levels, and they have now been seasonally above sea level in each year since the early 1990's. However, although ground water levels are seasonally above sea level, a supplemental water supply on the order of 600 AFY is needed to stabilize ground water levels and to protect the District's sole source of supply. There has been general stability in the position and quality of the fresh/brackish ground water interface in the Aromas Red Sands since the mid-1990's. However, the presence of seasonal coastal ground water levels below sea level in the Purisima Formation remains in conflict with the management goal of the District to protect its sole source of water supply against the possibility of sea water intrusion by maintaining coastal water levels above sea level as much as possible.

In light of the preceding ground water conditions and in order to plan for a sustainable water supply into the future, the District initiated a decision-making process to determine its future water supply needs and to select the best alternatives to meet those needs. This process is known as Integrated Resource Planning (IRP) and covers a 30-year period through buildout of the District's service area. A 24-member Public Advisory Committee (PAC), comprised of representatives from a variety of interest groups in the community, developed an IRP for the District's consideration through a consensus-based process. The PAC's IRP examined projected future water demands, potential savings from conservation, and alternatives for supplementing ground water supplies to achieve and maintain sustainable water supply. The key conclusion of the IRP process was that, without a supplemental source of water supply, the District would not be able to achieve its ground water management objectives of keeping coastal ground water levels above sea level while meeting existing and projected water demands.

To determine the District's future water supply needs, water demands were projected to 2030 (the year of estimated build out), using 1996 as a base year. The 1996 District pumping was approximately 5,480 AFY, while projected 2030 demand ranges from 6,800 AFY to 7,500 AFY. Water demand projections were estimated using a land-use-based approach and a parcel-based approach for development to determine high-end and low-end estimates, respectively. The high-end projections assume that new development will occur at the density range allowed by the County of Santa Cruz and City of Capitola General Plans, while the low-end demand projections assume that development will occur at lower densities based on parcel size.

Projected water savings that could be achieved over a 30-year period with a comprehensive conservation effort were also developed. Using the high-end total projected consumption of 7,500 AFY, it was determined that approximately 650 AFY of reduced demand is achievable. The 650 AFY of projected demand reduction was deducted from total projected demands in order to determine the supplemental supply need. Consequently, the District estimates that a supplemental water supply of up to 2,000 AFY is needed to stabilize existing coastal ground water levels and meet projected increases in water demand.

The PAC evaluated the various water supply alternatives, and made recommendations on supplemental supply options the District should consider. The compilation of the PAC's findings and recommendations was presented in the IRP. The District summarized the PAC's findings and recommendations in newsletters that were sent to all of its customers, and a public forum was held on September 8, 1999 to receive comments on the PAC's IRP. Based on the findings and recommendations contained in the PAC's IRP and public response to that document, combined with subsequent information that either a regional or local desalination project may be feasible, the SCWD Board of Directors directed that three supplemental supply alternatives be evaluated further, including a surface water project, local desalination, and regional desalination.

Regarding local delivery of water to the project site, an existing 12-inch water main located along Wharf Road from West Walnut to Clares Street has adequate capacity to supply new development, and the District continues to supply water to new development.

Wastewater Treatment

The project site is within the Santa Cruz County Sanitation District (SCCSD), which provides wastewater service to the City of Capitola (along with Live Oak, Soquel, and Aptos). The District's customers generate approximately 5-6 million gallons per day (mgd) of wastewater, which is transported from the District's Lode Street plant to the regional wastewater treatment plant at Neary Lagoon, which is owned and operated by the City of Santa Cruz. The design capacity of the plant is 17 mgd of wastewater, while the current average flow is approximately 12 mgd. The District has treatment capacity rights of 8 million gallons per day in the City of Santa Cruz wastewater treatment plant (http://www.dpw.co.santa-cruz.ca.us/sanitation.htm).

IMPACTS AND MITIGATION MEASURES

Standards of Significance

In accordance with the State CEQA Guidelines, and agency and professional standards, a project impact may be considered significant if:

- the project would require additional fire or police protection staff, equipment and/or facilities to maintain acceptable response levels;
- the project would substantially increase consumption of limited potable water supplies, encourage activities which result in the use of large amounts of water or use water in a wasteful manner;
- project water demand exceeds capacity of the water supply or infrastructure system; or
- project wastewater flows exceed wastewater line or treatment plant capacity, contribute substantial increases in flows to existing impacted wastewater lines or require substantial expansion of wastewater collection or treatment facilities.

Police Protection

Due to the current condition of the Mansion and surrounding area, the Police Department must respond to many calls regarding trespassing, break-ins, vandalism, drug and alcohol use, etc.

at the Rispin site. According to a letter from the City of Capitola Chief of Police (see **Appendix G**), the Police Department responded to over 150 calls at the property in 2002. However, that number does not include the dozens (and hundreds over the years) of self-initiated visits that are not recorded through police dispatch. Consequently, the documented numbers of police visits to the property are conspicuously low, and thereby underestimate the actual costs of police service associated with the Rispin site. Therefore, any restoration and redevelopment on the Rispin Mansion site is likely to decrease the number of calls to which the Police Department must respond and the associated costs to the City. In his letter, the Chief of Police states that, in his opinion, the proposed improvements would either eliminate or certainly mitigate most of his public safety concerns for the property.

The Police Department has the ability to serve the proposed project without significant adverse impacts to the department's level of service and without hiring additional police officers (Don Braunton, personal communication, May 1998). However, adequate traffic controls should be provided to minimize accidents, safety impacts and related calls. Traffic controls are discussed in **4.7 Traffic and Circulation** in this EIR.

Fire Protection

Due to the current condition of the Mansion and surrounding area, the Central Fire Protection District must respond to many calls regarding arson fires, vandalism, trespassing, and break-ins at the Rispin site. According to a letter dated April 29, 2003 from the District Fire Chief (see **Appendix G**), the Capitola Police Department responded to over 144 calls and Central Fire responded to five arson incidents at the property over a period of two years. He states:

> "The threat and risk of fire to the citizens and neighboring homes and the community is very real. The concern for public safety and potential exposure to safety personnel is significant. This presents the additional potential exposure to increased liability and worker's compensation claims...We feel that the best solution for the public as well as the District is the renovation of the Rispin Mansion, which will create a structure and surrounding area that is both a benefit to the public and a safe environment for the community as well as safety personnel."

With implementation of the project, a likely result of the elimination of the threats listed above (e.g., vandalism and break-ins) would be a reduction in the need for fire protection for arson and vandalism-related fires, which is a beneficial impact; the project would also not result in a need for additional fire staff or facilities. In addition, the service capabilities of the District would not be adversely affected. The proposed project is located in a central part of the City of Capitola so response times would not be significantly increased (Bruce Clark, Fire Chief, personal communication, June 18, 2003).

The Rispin Mansion project will have access via the existing driveway from Wharf Road, which is proposed to be improved within its existing geometry, not widened. The District's current fire apparatus will not negotiate the existing road widths on the project site (see letter in **Appendix G**). In addition, 150 feet is the maximum distance the City's fire apparatus can be from a building to function (Section 902.2.1 of the Fire Code). The Rispin Conservatory, South End Building, well house, west facing side of Rispin Mansion and the adjacent new structures are within 150 feet of Wharf Road. However, the east side of the Rispin Mansion building (facing

Soquel Creek) is not within 150 feet of Wharf Road or any other adequate access road or driveway.

In a letter to the City Manager dated February 6, 2003 (attached to the District's NOP response letter in **Appendix A**), the Fire Chief outlined nine reasons why he has grave concerns regarding the Rispin Mansion, including structural problems, combustible debris around the Mansion, impacts on emergency response services, and potential impacts on the surrounding habitat during suppression of a fire.

Impact: Adequate emergency access for fire protection to the east side of the Rispin Mansion is not available. Also, the Fire Chief has outlined nine reasons why the Rispin Mansion site, as it currently exists, constitutes a significant fire hazard threat to the community and safety personnel. *These are significant impacts that can be reduced to a less-than-significant level with implementation of the following mitigation. [Note: public services mitigation (and related design elements) must not conflict with, and should be done in coordination with, mitigation measures to protect monarch butterfly habitat and riparian vegetation in **4.4 Biological Resources**, as well as mitigation measure R-46 in **4.5 Cultural Resources**.]*

Mitigation

R-63 To enable the District to respond to fires, medical emergencies, and protect adjacent habitat areas and the community, a smaller and more maneuverable fire apparatus is required. Prior to occupancy, the project applicant shall purchase for the District a quick-attack (Type 4) fire engine that meets the specifications and design factors required by the District.

R-64 The Mansion shall be equipped with fire and smoke detection system and notification equipment, as per the Uniform Fire Code/Central Fire Protection District Adopted Standard and Amendments.

R-65 The Mansion shall be equipped with built-in fire suppression equipment such as fire sprinklers, hood and duct fire suppression equipment and related protection devices, as per the current Fire Code adopted by the District.

R-66 The area around the Mansion is a wooded area with highly combustible eucalyptus trees and dead debris. The area adjacent to the Mansion shall have a defensible fire zone and proper clearances, based on consultation and approval by the District.

R-67 Wet stand pipes or fire hydrants shall be installed at the north and south ends of the Rispin Mansion building to provide adequate fire flow water to the east side of the building, including the vegetation on the steep slopes between the building and Soquel Creek, based on consultation and approval by the District.

R-68 The remodel of the Mansion shall be completed with seismic and earthquake protection standards for occupancy use.

R-69 Fire and paramedic rescue access and egress into and within the site and buildings shall be identified for emergency responses to the Mansion.

R-70 Emergency services and on-going fire prevention inspections for fire and life safety code compliance shall be required.

R-71 The current taxation of the Mansion and the proposed RDA expansion properties generate no tax revenue for the fire/paramedic and prevention services currently required for the Mansion. Future development will require an agreed-to revenue mechanism for the services required to protect the new development of the Mansion.

R-72 All buildings shall comply with all current, applicable codes, standards, and ordinances.

Water Supply

The proposed Rispin Mansion project will increase water supply demand by up to approximately 6.2 AFY of potable water (not including landscaping, since the onsite well may be used to supply this water; see **Project Description**). Conservative estimation of site uses based on the site plans and conservative assumptions for water use rates were used to develop a worst-case water use scenario, as shown in **Table 15** below.

Table 15
Projected Annual Water Demand

Site Use	Use size (Square feet = sf)	Water Use Factor Type	Water Use Factor*	Water Use in acre-feet per year (AFY)
Rispin Mansion project				
South End Building, North End Guest Rooms, Rispin Pavilion, Rispin Mansion, Well House	Approx. 14,600 sf.	Motel/hotel	0.256 gpd/sf	(3,738 gpd) 4.2 AFY
Rispin Conservatory	1,950 sf	Meeting hall	0.00053 AFY/sf	1.0 AFY
Kitchen (Rispin Conservatory)	49 seats	Restaurant	0.02 AFY/seat	1.0 AFY
Total				**6.2 AFY**

* Water use factors were taken from recent project EIRs for Santa Cruz County, as recommended by Soquel Creek Water District Staff (Jeff Gailey, Engineering Manager, personal communication, August 15, 2000).

Based on this estimate, projected water demand due to the Rispin Mansion project is approximately 0.1% of SCWD system-wide average water supply. Based on discussion with SCWD staff, there is no moratorium on hook-ups; however, new water connections must be approved by the SCWD (Jeff Gailey, Engineering Manager, personal communication, May 2003).

Impact: Given the overall water supply constraints in the area, the project's additional water usage would exceed capacity of the existing water supply. *This is a significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation, including compliance with SCWD's "zero-impact" program (see NOP response letter in **Appendix A**).*

Mitigation

R-73 The applicant shall apply for water connection approval ("will serve" letter) from the SCWD.

R-74 The number and size of all water meters shall be determined by SCWD.

R-75 The final design shall satisfy all conditions for water conservation required by SCWD at the time of application for service (as detailed in their water efficiency checklist package), including the following:

- Plans for a water efficient landscape and irrigation system that meet SCWD's conservation requirements;
- All interior plumbing fixtures shall be low-flow and all applicant-installed water-using appliances (e.g., dishwashers, clothes washers, etc.) shall have the EPA Energy Star label;
- Inspection by SCWD staff of the completed project for compliance with all conservation requirements prior to commencing water service.

R-76 In compliance with SCWD's "zero-impact" program, the development shall be required to bear the cost of retrofitting existing structures within SCWD's service area with low water use fixtures to achieve a level of water use reduction commensurate with the project's projected water use (hence the "zero impact") as determined by SCWD.

Wastewater Treatment

The Santa Cruz County Sanitation District submitted a response letter to the NOP (see **Appendix A**), which requested that the EIR address potential downstream capacity problems and mitigations, permit requirements and fees, and source control measures that SCCSD staff will identify during the plan review process. Subsequently, SCCSD submitted another letter (see **Appendix A**) that identified some general issues that SCCSD will consider in their review of the project. Their comments are not specific at this time because the submittal plans did not show the configuration of the plumbing layout, seating capacity and hours of operation of the kitchen/food service areas, how often the Rispin Conservatory will be used, and other pertinent information. A complete set of proposed building plans showing the bathrooms, kitchens and any other septic demand, is required before the septic capacity requirements and specific source control requirements can be determined. SCCSD will require installation of interior grease trap(s) and/or exterior grease interceptors and a sampling manhole. Also, SCCSD will require an on-site investigation for unabandoned septic systems and related piping, and an investigation to determine if structures are currently connected to the public sewer. The remaining general issues that SCCSD identified in their letters are addressed below.

Wastewater treatment plant capacity. Approximately 90 percent of the maximum projected water demand estimated for the project would become wastewater. The estimated wastewater flows of 4,980 gpd would not exceed the capacity of the wastewater treatment plant. The regional wastewater treatment plant has a design capacity of 17 mgd, of which the SCCSD is allowed 8 mgd. The District's customers generate approximately 5-6 mgd. The increase of 4,980 gpd is much less than the available capacity and, therefore, the impact on wastewater treatment capacity is less-than-significant.

Proposed pump station. Currently, there is no available pump station for the Rispin Mansion project site, so the applicant is proposing to install a private station on the site. The planned station would be to the south of the main Mansion building and would pump the wastewater to the gravity wastewater lines along either Clares Street or Wharf Road.

Impact: If not properly designed or maintained, the pump station proposed by the Rispin Mansion project may overflow during peak flow events or power outages, thereby causing contamination of Soquel Creek. *This is a potentially significant impact that can be reduced to a less-than-significant level by using adequate engineering design and with implementation of the following mitigation.*

Mitigation

R-77 The pump station design shall be a duplex-type which is comparable to current public pump station standards. In addition, the pump station design shall comply with current standards and requirements regarding emergency overflow systems including, but not limited to, the following: power outage alarms, auxiliary energy source (natural gas), and worst-case capacity requirements. Operation and maintenance procedures for the pump station shall be established to maintain reliability. The pump station design and operations/maintenance procedures shall be reviewed and approved by the SCCSD.

Connections to local wastewater lines. The project applicant must install all necessary sewage conveyances to connect with existing wastewater systems, and comply with the Uniform Plumbing Code, which is part of the City of Capitola Building Department permit review. Based on discussion with SCCSD staff, the gravity line along Wharf Road may be near capacity or of a degraded condition. No known capacity or condition problems exist in the wastewater line along Clares Street. However, the SCCSD reserves the right to reevaluate downstream conditions at the time of wastewater permit application. In addition, the location of the Rispin Mansion force main should be marked to help prevent future road or utility construction from damaging the lateral (Drew Byrne, personal communication, May 1998).

Impact: There is a potential for the increased wastewater flows to exceed capacity of the existing wastewater lines in the project vicinity or to degrade the system to an unacceptable condition. In addition, future construction in the area may damage the force main. *This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

R-78 The applicant shall obtain a "will serve" letter which requires payment of permit fees[1] and a capacity study in order to comply with SCCSD requirements for connecting to the existing wastewater system in the project vicinity. In addition, the applicant shall pay for infrastructure improvements required to accommodate the increased wastewater flows generated by the project.

R-79 The location of the Rispin Mansion force main shall be marked to prevent future damage to the line.

CUMULATIVE WATER SUPPLY IMPACTS

In 1999, the SCWD's Public Advisory Committee released an Integrated Resource Planning document to project future water demands, potential savings from conservation, and

[1] The current fee schedule requires payment of a fee equivalent to $12 multiplied by the estimated number of gallons of sewage discharged per day of average daily flow.

alternatives for supplementing ground water supplies to achieve and maintain a sustainable water supply. In June of 2000, the SCWD released a Notice of Preparation for an Environmental Impact Report for their Supplemental Water Supply Project. Although the specific source of water has not been approved, the project's goals are to avoid impacts due to lack of water resources and indirect impacts from overuse of existing supply sources.

Impact: Given that the SCWD is actively planning for water supply improvements but has not developed specific funded programs, cumulative water demand could exceed available water supply. *This is a potentially significant cumulative impact that can be reduced to a less-than-significant level with implementation of the following mitigation.*

Mitigation

C-10 Until programs are defined, the SCWD will continue to require new development to provide low-flow fixtures and water-conserving landscaping to reduce water consumption levels of urban development and minimize the impacts of new cumulative growth. The project shall incorporate water conservation features in accordance with SCWD requirements.

C-11 The City supports the District's efforts to develop a regional plan and to require low-flow fixtures and water-conserving landscaping of new development. To help mitigate potentially significant cumulative water supply impacts, the City will participate in the integrated plan as requested and assist with implementation of feasible recommendations that may be adopted by the SCWD, which may include various water supply improvements and funding mechanisms, such as fees, on new development.

5.0 CEQA CONSIDERATIONS

♦♦♦

SIGNIFICANT AND UNAVOIDABLE IMPACTS

For the purpose of this section, significant and unavoidable impacts are those effects of the project that would affect either natural systems or other community resources, and cannot be mitigated to a less-than-significant level. In most cases, mitigation measures are recommended, but implementation of those mitigation measures would not reduce the impact to a less-than-significant level. The following significant and unavoidable impacts were identified:

- project and cumulative impacts to monarch butterfly overwintering habitat (ESHA);
- project and cumulative impacts on existing deficiencies at the 41st Avenue/Clares Street intersection;
- cumulative impacts on 41st Avenue north of Clares Street and 41st Avenue north of Highway 1;
- cumulative impacts on Capitola Road segments east and west of 46th Avenue; and
- cumulative impacts on Wharf Road north of Clares Street.

GROWTH INDUCEMENT

Section 15126.2 (d) of the CEQA guidelines requires that growth-inducing aspects of a project be discussed in an EIR. This discussion should include consideration of ways in which the project could directly or indirectly foster economic or population growth in a surrounding area. Projects that could remove obstacles to population growth (such as a major public service or infrastructure expansion) must also be considered in this discussion. According to CEQA, it must not be assumed that growth in any area is necessarily beneficial, detrimental or of little significance to the environment.

The proposed project represents an infill project, that is, it is proposed within a developed urban area. The proposed land use type and density are consistent with the General Plan designation for the site. The proposed project does not contain any residential components and therefore would not directly contribute to regional population growth. In addition, the project would not result in population growth-inducing effects, as it would not create demand for new housing or introduce new public services or infrastructure to an unserviced area. As a visitor-serving development, the proposed Rispin Mansion project would indirectly foster economic benefits in the City of Capitola by increasing the provision of visitor-serving nightly accommodations and wedding/meeting facilities, as well as providing primary employment.

CUMULATIVE IMPACTS

Section 15355 of the CEQA Guidelines defines cumulative impacts as "...two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." An evaluation of cumulative impacts is required by CEQA when they are significant, but need not be as detailed as the discussion of project impacts.

In the case of the proposed project, cumulative impacts could result from the project impacts in combination with other recently approved and pending development in Capitola or other areas nearby. According to the CEQA Guidelines (Section 15130), discussion of cumulative impacts in an EIR may be accomplished using one of two methods.

The first method, the list method, consists of preparing a list of past, present, and reasonably anticipated future projects that have produced, or are likely to produce, cumulative impacts. The list is to be followed by a summary of such individual projects' expected environmental effects and an analysis of all the projects' cumulative impacts, with an examination of reasonable options for mitigating or avoiding such effects. The second method uses "...a summary of projects contained in an adopted general plan or related document that is designed to evaluate regional or areawide conditions, provided that such documents are referenced and made available for public inspection at a specified location."

Cumulative Development

Using the list method, **Table 16** identifies projects under consideration within the project vicinity and future potential development on vacant lands within the City of Capitola (City of Capitola, February and May 1998). **Figure 5-1** identifies the locations of the cumulative projects in the list. There is no time frame associated with General Plan "buildout" and, therefore, there is no specific time frame associated with development of these projects. According to the Housing Element of the City of Capitola General Plan, the buildout number of dwelling units in Capitola is 5,664. The Clares Street area has the capacity for an additional 12 residential units. In the Bay Avenue/Highway 1 area, approximately 80,000 square feet of new retail and/or office uses could be accommodated. A 40-room hotel could occur at the Village Theater site. At Bay and Capitola Avenues, a 5,000 square foot new commercial use is assumed. Other potential future development projects are also shown in **Table 16**.

To supplement the above list of cumulative projects, information from AMBAG's Final 1997 Regional Population and Employment Forecasts, published in October 1997 (**Table 17**), is presented.

The geographic scope of the cumulative analysis is generally the City of Capitola and the local surrounding communities, as appropriate. In some instances, such as air quality and biotic resources, a larger more regional impact area is considered to be the geographic extent of the evaluation. For air quality, the regional extent is the North Central Coast Air Basin that includes Monterey, Santa Cruz and San Benito Counties. For biological resources, Santa Cruz County is generally the geographic extent.

Land Use and Planning

No significant land use impacts are expected in the City of Capitola if the proposed project and all other cumulative projects are consistent with land use designations, intended development patterns, and population and housing goals and policies in the City of Capitola's General Plan. The General Plan addresses land use and cumulative development goals at a policy level with one of its main goals to promote a logical, compatible land use scheme for the community. Therefore, if projects are consistent with the General Plan, they would not be expected to create nor contribute to significant cumulative impacts.

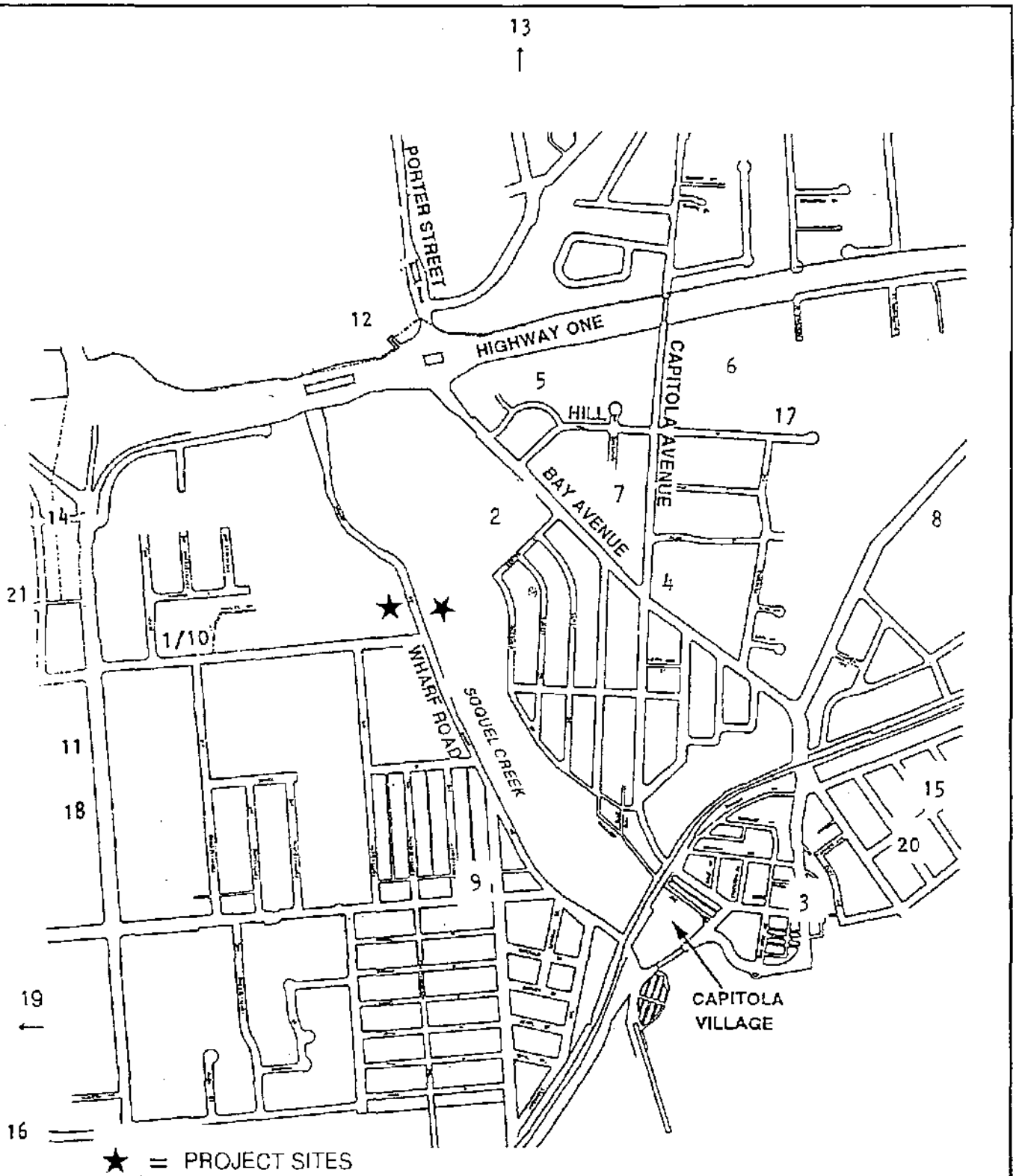
Table 16
Cumulative Projects

Projects	Zoning	Single Family Residential (units)	Multi-family Residential (units)	Commercial (square feet)	Other
1. Clares St. Area	RM-M		12		
2. Bay Avenue / Highway 1	CC			80,000 retail/ office	
3. Village Theater Site	CV				40 hotel rooms
4. Bay/Capitola Avenues	CN			5,000 retail	
5. Hill Street	CC				20 motel rooms
6. Kennedy/Rosedale Area	IP				40,000 s.f. warehouse/ industrial
7. Capitola Avenue	CH			5,000 office	
8. East Capitola Area		13	4		
9. Capitola Road Area	R-1, CC		12	4,000 retail	
10. Clares St. Area	RM-M		12		
11. 41st Avenue Area	CC	12	30	20,000 retail	56-room hotel
12. O'Neill Ranch				7,500 office	Community Park
13. Holiday Corners				6,000	50-room motel
14. Gross Road Area	R-1	2			
15. El Salto/Escalona Gulch	AR	3			
16. 38th Ave./Brommer	RM-M	12			
17. Rosedale Area	RM-M		4		
18. Alameda Ave.	RM-H		6		
19. Clares/Capitola Rd.	RM-H	25			
20. Depot Hill/El Camino Medio	R-1	10			
21. Deanes Lane Area	R-1	5			
TOTALS		82	80	127,500	166 guestrooms 40,000 s.f. indust.

Table 17
Final 1997 AMBAG Regional Population Forecasts

Census Tract	1995 Estimate	2000	2005	2010	2020
1216 (pt)	200	200	200	200	200
1217 (pt)	5,052	5,402	5,658	5,758	5,858
1218	5,523	5,570	5,642	5,667	5,692
TOTAL	10,775	11,172	11,500	11,625	11,750

Source: AMBAG, 1997 Regional Population and Employment Forecast for Monterey, San Benito and Santa Cruz County, Draft Final Report, October 1, 1997.



N

Location of Cumulative Projects

Figure 5-1

ALTERNATIVES ANALYSIS

Alternative 1: The No Project Alternative

Description

The No Project Alternative is required by CEQA, and assumes that no change to the existing condition of the Rispin Mansion site would occur. There would be no immediate new development on the site, no restoration to any of the existing structures or landscape features, and no habitat enhancement/adaptive management. The site would remain an attractive nuisance, and would continue to be degraded, blighted, and vandalized.

Under the General Plan, the Rispin site is designated for a public facility/visitor serving use. Permissible uses for the area include, but are not limited to hotels, motels, hostels, campgrounds, food and drink service establishments, public facilities, public beaches, public recreation areas or parks, and related rental and retail uses. If General Plan conditions are upheld, it is likely that the site would be developed in the future. Specifically, the General Plan allows for public facility or visitor serving uses at the Rispin site, and because the City of Capitola has very little undeveloped land remaining in its City limits, some future use of the site would be expected if the City of Capitola desires the associated economic and social benefits.

Environmental Impacts

Under the No Project Alternative, the environmental impacts associated with the proposed development and renovation of the site included in this EIR would be avoided for an undefined period of time; on this basis, the No Project Alternative may be considered environmentally superior to the proposed project. However, as discussed in this EIR, most of the potentially significant impacts can be reduced to a less-than-significant level through the implementation of specified mitigation measures.

It is important to note that existing visual blight due to the deterioration and vandalism of the Mansion and other site features would still exist with this alternative. In addition, it can be reasonably assumed that there are existing drainage issues that adversely impact the steelhead population within Soquel Creek and, with the numerous trespassing violations on the property, many other impacts may adversely affect onsite and adjacent resources. Also, as discussed in Dr. Arnold's report (see **Appendix C**), the monarch overwintering habitat would continue to be degraded, as no habitat enhancement, management and maintenance, or future monitoring of the habitat would occur. As a result, Dr. Arnold anticipates that habitat conditions would continue to deteriorate, perhaps to such a degree that the site would eventually no longer be suitable as overwintering habitat for the monarch.[1] Potential future development under the General Plan would result in similar impacts if the scale and design of any future proposed development are similar to the proposed project.

[1] A few of the acacia trees, which grow along Wharf Road at the Rispin Mansion site, were trimmed as a result of damage incurred by a winter storm in November 2002. Work crews from the City of Capitola performed the trimming of these trees for safety reasons. Although Dick Arnold has only seen photographs of the situation, he suspects it has created a gap in the windscreen that these mature acacia trees had previously afforded Roost Areas A and B. Even though this incident may have a detrimental effect on the overwintering monarchs, it underscores the need for a long-term monitoring and maintenance plan at the Rispin Mansion to properly protect and enhance the butterfly's overwintering habitat there (Dick Arnold, Ph.D.).

Attainment of Project Objectives

If this alternative were chosen, none of the project objectives for Rispin Mansion would be met. Further, the beneficial effects provided by the proposed project, including habitat enhancement and preservation, public access, historical preservation, tax revenues, reduction in public service calls and maintenance, and creation of employment opportunities, should be considered in this evaluation.

Alternative 2: Alternative Site Configuration (25-Unit Rispin Redevelopment Plan)

Description

This alternative includes the following (see attached site plans, floor plans, elevations and other materials):

- restoration of the Rispin Mansion (13 rooms) and grounds similar to the proposed project;
- construction of 12 North End Guest Rooms and the Rispin Pavilion at the north end of the Mansion;
- construction of the Rispin Conservatory in the northern portion of the site;
- restoration and expansion (approximately 300 square feet) of the well-house as an interpretive center (will also contain security office/quarters; no construction below the well-house is proposed);
- reconstruction of the historic Rispin aviary;
- reconstruction of the driveway south of the Mansion similar to the proposed project;
- installation of a wrought iron fence along south end of site to property line;
- construction of a valet kiosk (which will also house refuse bins for the library and ZEV parking) in the joint-use parking lot at the Clares/Wharf site (no parking spaces are proposed south of the Mansion); and
- realignment of the pedestrian and bike pathway (about 40 feet to the north) that leads from Wharf Road to the Peery Park Bridge over Soquel Creek.

The renovation of the Mansion would be required to follow the Secretary of Interior's Standards and Guidelines during renovation and any future remodeling or new construction to prevent impacts to historic resources. All of the landscape enhancements, preservation and conservation easements, habitat management and monitoring, and all operational guidelines that were described as part of the proposed project, would also be included in this alternative. As Dr. Arnold noted in his report (see **Appendix C**), only three unhealthy or structurally defective oak trees would be removed, none of which are monarch roost trees. These three trees, which are also proposed for removal under the proposed project, are located in the northern portion of the site between Wharf Road and the Rispin Conservatory.

The Rispin Pavilion is a glass-covered area over the existing laundry room. The Rispin Pavilion will include the kitchen facility for the Mansion (the kitchen space in the Mansion in the proposed project is converted into room space in this alternative), a gas-burning fireplace, tables and chairs, and will be used for morning and afternoon food and beverage services and for afternoon wine for hotel guests. This facility will be open to the public for small groups on a reservation system, which will allow the Rispin/library parking lot to be switched to valet mode when necessary.

Only the reconstructed aviary would be located in the southern portion of the property, and it would be operated as a butterfly house, which is a resource-dependent use. Another resource-dependent use, the restored well house/interpretive center will be primarily used as a gathering place for the historical and monarch butterfly tours. As Dr. Arnold noted in his report (**Appendix C**), since the public will enter the site through the restored well house/interpretive center, controlled access of the general public will provide additional protection for the monarch's primary overwintering area (i.e., from fire, vandalism, etc.) and avoid disruption of any roosting butterflies. The hours of operation of the tours will be restricted so as not to conflict with other uses, including parking demand. The interpretive center, which has a small outdoor seating space, will offer beverages and snacks.

The realigned Rispin-Peery trail will have a historical observation point with an informational plaque located there. The realignment falls within City requirements as long as ADA-compliant access along the entire pathway is maintained (see memo from Steven Jesberg, Director, Capitola Public Works Department, in **Appendix G**). The Rispin Mansion, with the Rispin-Peery trail and bridge, could be connected to the intended Capitola bikeways trail now in the planning stage. Users of these public recreational facilities could also go on the historical and monarch butterfly tours offered at the Rispin Mansion.

Environmental Impacts

Under this alternative, given that the level of development is comparable and has been shifted almost entirely to the northern portion of the site, potential impacts related to water quality and stormwater run-off would be expected to be approximately the same (though the overall amount of grading would be less than with the proposed project), and the relevant mitigation measures prescribed for the proposed project must be implemented to reduce them to a less-than-significant level.

Potential biotic impacts would be reduced due to the elimination of the South End Building and parking spaces south of the Mansion, and since no construction below the well house is proposed. Potential impacts to the redwood and cypress south of the project site would be eliminated as this area would not be disturbed for construction under this alternative. Indirect impacts to the riparian vegetation and Soquel Creek to the east of the Mansion may still occur. All relevant mitigation measures for biological impacts in this EIR would be required to ensure that biological resources are not significantly impacted.

Any development or use of the site south of the Mansion, even resource-dependent development, has the potential to affect the monarch butterfly overwintering habitat, so habitat enhancement plans and mitigation measures prescribed for the proposed project must be implemented to reduce this potential impact to a less-than-significant level. As such, Alternative 2 would not result in a significant and unavoidable impact with respect to ESHA. As stated in his report (see **Appendix C**), Dr. Arnold considers Alternative 2 to be the environmentally superior alternative to the proposed project for several reasons. First, the reconstructed aviary is the only structure that will be placed in the southern portion of the site that functions as the monarch's primary overwintering habitat at the Rispin site. The proposed location and size of the aviary should not require any safety pruning or tree removal, as it is sited closer to Wharf Road than the roost trees. Second, visitor and staff use of the aviary and primary overwintering habitat can easily be controlled during periods when monarchs are roosting at the Rispin site. Access for visitors who come to see overwintering monarchs will be controlled as they will need to go through the interpretive center. Third, the vast majority of the project under Alternative 2 will occur in the northern portion of the site, away from the primary overwintering habitat at the

Rispin site. Finally, even upon completion of the project and during its operation, overwintering monarchs may still obtain some nectar and water in the northern portion of the site, because the proposed landscaping and other habitat enhancement throughout the site with plants that support the butterfly, plus management of the primary overwintering habitat, should offset any adverse temporary impacts that occur in the northern portion of the Rispin site.

Potential impacts to cultural and historic resources would be reduced due to the elimination of the South End Building. Also, reconstruction of the historic Rispin aviary would be a benefit. Bruce Judd of Architectural Resources Group recently reviewed documents provided by the applicant reflecting the plans for this alternative. In his letter (see **Appendix D**), he states unequivocally: "I am pleased to be able to recommend the design as it now exists without hesitation. The reduction in the number of rooms, their location and the reduced size of the Conservatory all fit with and respect the historic Rispin Mansion building. In addition, you have clearly spent considerable effort to avoid the butterfly habitat areas and the sloped areas to the east." If changes to the Mansion and gardens and any new construction are required to meet the Secretary of Interior's Standards and Guidelines, they would be considered less-than-significant impacts.

Potential aesthetic impacts would be less from the west (Wharf Road and Clares Street) due to the elimination of the South End Building, but may be increased from the Rispin-Peery trail and across Soquel Creek due to more construction north of the Mansion. With renovation and rehabilitation of the Mansion, it is assumed that the view of the site from all public and private viewpoints would be improved. The relevant mitigation measures prescribed for the proposed project must be implemented to reduce potential aesthetic impacts to a less-than-significant level.

Given a comparable level of development, potential traffic and circulation impacts would be approximately the same, including those impacts identified as significant and unavoidable. In the same respect, potential noise, air quality and public services impacts would be approximately the same. The relevant mitigation measures prescribed for the proposed project must be implemented to reduce these potential impacts to a less-than-significant level.

Attainment of Project Objectives

The formal historical and monarch butterfly tour program operated through the interpretive center would be a public access benefit. Protection and enhancement of the monarch butterfly habitat would be better served due to the elimination of the non-resource dependent uses on the south side of the site. The amount of open space would be increased with the elimination of the South End Building. All other project objectives for the Rispin Mansion project are achieved at or near the same level as the proposed project.

Alternative 3: Rispin Mansion Bed and Breakfast

Description

This alternative would include a reduced amount of visitor-serving uses at the site, and no meeting or wedding uses. The restored Rispin Mansion and grounds would be used as a bed and breakfast with guestrooms only within the Mansion itself. Assuming that the proposed project maximizes the number of units within the Mansion, this alternative could include up to 13 guest rooms. The site would be accessed by the reconstructed driveway south of the

Mansion, similar to the proposed project. Public access would be provided to the grounds and the Mansion. Minimal new construction would occur; the South End Building, the Rispin Conservatory, the North End Guest Rooms, the Rispin Pavilion, and the parking improvements would be eliminated. The well house would receive a façade renovation only. The renovation of the Mansion would be required to follow the Secretary of Interior's Standards and Guidelines during renovation and any future remodeling or new construction to prevent impacts to historic resources. Habitat enhancement, management and monitoring activities to benefit the monarch butterfly's overwintering habitat would not be implemented under this alternative.

Environmental Impacts

Under this alternative, potential impacts on water quality would be expected to be reduced due to less disturbance of land (and related erosion impacts), and the conversion of pervious to impervious surfaces would be reduced, causing less increase in stormwater run-off from the site. The relevant mitigation measures prescribed for the proposed project must be implemented to reduce these potential impacts to a less-than-significant level.

Potential biotic impacts would be reduced due to the elimination of the South End Building and parking spaces south of the Mansion, and since no construction below the well house is proposed. Impacts to oak trees in the area of the Rispin Conservatory, and potential impacts to the redwood and cypress south of the project site, would be eliminated as these areas would not be disturbed for construction under this alternative. Indirect impacts to the riparian vegetation and Soquel Creek to the east of the Mansion may still occur. All relevant mitigation measures for biological impacts in this EIR would be required to ensure that biological resources are not significantly impacted.

As stated in Dr. Arnold's report (see **Appendix C**), without the proposed habitat management, maintenance, and monitoring activities, the condition of the monarch's overwintering habitat at the Rispin Mansion will likely continue to deteriorate. Eucalyptus and acacia trees are notorious for dropping limbs or blowing over during storm events, which results in swift and dramatic changes at overwintering habitat sites. Since Alternative #3 does not include the habitat enhancement, management and monitoring program, such changes in the habitat would go undetected and uncorrected, and would be detrimental for the monarch's long-term use of the Rispin site.

Potential impacts to cultural and historic resources would be reduced substantially due to less new construction. If changes to the Mansion and gardens and any new construction are required to meet the Secretary of Interior's Standards and Guidelines, they would be considered less-than-significant impacts. Therefore, this alternative reduces the significant impacts on the Historic District cited for the proposed project.

Potential aesthetic impacts would be less from across Soquel Creek, from the Rispin-Peery trail, and from the west (Wharf Road and Clares Street) due to less new construction. With renovation and rehabilitation of the Mansion, it is assumed that the view of the site from all public and private viewpoints would be improved. Compared to the proposed project, there would be less need for safety and access lighting, and therefore light and glare impacts would be reduced. The relevant mitigation measures prescribed for the proposed project must be implemented to reduce potential aesthetic impacts to a less-than-significant level.

Potential traffic and circulation impacts would be reduced substantially compared to the proposed project. Cumulative LOS deficiencies on Highway 1 would remain; however, the

project's contribution to this and all other cumulative impacts would be substantially reduced. In the same respect, potential noise, air quality and public services impacts would be reduced. In terms of noise, there would no longer be a potential noise nuisance impact on nearby sensitive receptors due to use of the site for events and weddings. Mitigation measures for any remaining noise, air quality, and public services impacts that exceed the thresholds of significance as described in this EIR would still be required to reduce impacts to a less-than-significant level.

Attainment of Project Objectives

Public access would remain as with the proposed project. Protection of the on-site biological resources might be better served due to the lower level of development, but the funding mechanism for habitat enhancement, management and monitoring that the proposed project includes would be greatly reduced, to the point that these activities to benefit the monarch butterfly's overwintering habitat would not be implemented. The future owner could achieve historical certification, and obtain Historic Investment Tax Credits with appropriate rehabilitation plans. The objective of maintaining open space would be achieved to a greater level than with the proposed project. No special event uses would be available for the public at the site or in the gardens. This alternative would likely reduce the ability of the project to meet the objective of creating a stable/profitable economic investment for the project applicants. Moreover, the City would not achieve the objective of getting the best possible economic return to the level that they would with the proposed project. The objective of increasing high-level visitor-serving days to the City would be attained, however to a lesser degree than the proposed project.

Alternative 4: Reduced Scale Alternative

Description

The reduced scale alternative would reduce the new development on the Rispin Mansion site compared to the proposed project. The South End Building guest units would be placed at the area immediately north of the Rispin Gardens in place of the Rispin Conservatory. Therefore, meetings or events proposed in the Rispin Conservatory, such as weddings for up to 49 people, would not be possible (although smaller meetings may be accommodated within the Mansion itself). The number of units of overnight accommodations would remain the same (28 guest rooms). The site would be accessed by the reconstructed driveway south of the Mansion, similar to the proposed project. The parking spaces and well house uses would remain the same. The Rispin Pavilion and nearby tent structure would be eliminated. The renovation of the Mansion would be required to follow the Secretary of Interior's Standards and Guidelines during renovation and any future remodeling or new construction to prevent impacts to historic resources. Habitat enhancement, management and monitoring activities to benefit the Monarch butterfly's overwintering habitat would not be implemented under this alternative.

Environmental Impacts

Under this alternative, potential impacts on water quality would be expected to be reduced due to less disturbance of land (and related erosion impacts), and the conversion of pervious to impervious surfaces would be reduced, causing less increase in stormwater run-off from the site. The relevant mitigation measures prescribed for the proposed project must be implemented to reduce these potential impacts to a less-than-significant level.

Potential biotic impacts would be reduced compared to the proposed project due to reducing uses on the south end of the site in the monarch overwintering habitat. The potential impacts on the redwood and cypress trees south of the former South End Building location would be eliminated. Tree removal and indirect impacts to oak trees at the former Rispin Conservatory site, now the site of the relocated South End Building guest units, would still occur. Indirect impacts to the riparian vegetation and Soquel Creek to the east of the Mansion may still occur. All relevant mitigation measures for biological impacts in this EIR would be required to ensure that biological resources are not significantly impacted. It should be reiterated, however, that all portions of the project site in the coastal zone that may provide for continued utilization of the site by monarchs are considered to be within ESHA, and any non-resource dependent development that could adversely affect this ESHA, such as the well house uses and parking spaces, would constitute a significant and unavoidable impact.

As stated in Dr. Arnold's report (see **Appendix C**), since the surface parking would be located in the southern portion of the project site, the potential for adverse impacts to the monarch and its overwintering habitat remain. Also, without the proposed habitat management, maintenance, and monitoring activities, the condition of the monarch's overwintering habitat will likely continue to deteriorate.

Potential impacts to cultural and historic resources would be reduced due to less new construction. If changes to the Mansion and gardens and any new construction are required to meet the Secretary of Interior's Standards and Guidelines, they would be considered less-than-significant impacts. Therefore, this alternative reduces the significant impacts on the Historic District cited for the proposed project.

Potential aesthetic impacts would remain essentially the same from across Soquel Creek, from the Rispin-Peery trail, and from Wharf Road and Clares Street. The project would still be considered to be a visual improvement compared to the existing site conditions. The relevant mitigation measures prescribed for the proposed project must be implemented to reduce potential aesthetic impacts to a less-than-significant level.

Potential traffic and circulation impacts would be reduced compared to the proposed project. Cumulative LOS deficiencies on Highway 1 would remain; however, the project's contribution to this and all other cumulative impacts would be reduced. In the same respect, potential noise, air quality, and public services impacts would be reduced. In terms of noise, there would no longer be a potential noise nuisance impact on nearby residential areas due to use of the site for events and weddings. Mitigation measures for any remaining noise, air quality, and public services impacts that exceed the thresholds of significance as described in this EIR would still be required to reduce impacts to a less-than-significant level.

Attainment of Project Objectives

If this alternative were adopted, some of the project's objectives would be attained, however, not to the degree as would be achieved with the proposed project. Specifically, eliminating the Rispin Conservatory and replacement with the relocated guest units would eliminate the wedding component of the project and greatly reduce the meeting component. This reduction in use or function of the site will reduce the extent of achievement of the stated project objectives relating to stable/profitable economic investment for the applicants, and providing a meeting/wedding/multi-use facility for the public. Protection of the on-site biological resources might be better served due to the lower level of development, but the funding mechanism for habitat enhancement, management and monitoring that the proposed project includes would be

reduced, to the point that these activities to benefit the monarch butterfly's overwintering habitat would not be implemented. The objective of maintaining open space would be achieved to a greater level than with the proposed project. The other project objectives for the Rispin Mansion project are all achieved at or near the same level as the proposed project.

The Environmentally Superior Alternative

CEQA requires that an environmentally superior alternative to the proposed project be specified. In general, the environmentally superior alternative would minimize adverse impacts on the project site and surrounding environment while achieving the basic objectives of the project. Under the No Project Alternative, the environmental impacts associated with the proposed development and renovation of the site included in this EIR would be avoided for an undefined period of time; on this basis, the No Project Alternative may be considered environmentally superior to the proposed project. However, the No Project Alternative does not satisfy any of the project objectives and, when the No Project Alternative is the environmentally superior alternative, another environmentally superior alternative must be identified [CEQA Guidelines Section 15126.6 (e)(2)]. **Table 18** provides a comparison of the impacts among the alternatives in order to identify an environmentally superior alternative among the evaluated options.

Table 18
Summary of Impacts of Project Alternatives

	Proposed Project	Alt. 1: No Project	Alt. 2: Alternative Site Config.	Alt. 3: Bed and Breakfast	Alt. 4: Reduced Scale
	Signifi-cance	Signifi-cance	Signifi-cance	Signifi-cance	Signifi-cance
Geology and Soils	SM	NA	SM	SM	SM
Hydrology and Water Quality	SM	NA	SM	SM	SM
Biological Resources – monarch habitat/ESHA	SU	NA	SM	SM	SU
Biological Resources – riparian vegetation/steelhead	SM	NA	SM	SM	SM
Biological Resources – special-status species	SM	NA	SM	SM	SM
Cultural Resources	SM	NA	SM	SM	SM
Historical Resources	SM	NA	SM	SM	SM
Visual Resources	SM	NA	SM	SM	SM
Traffic and Circulation	SM/SU	NA	SM/SU	SM/SU	SM/SU
Noise	SM	NA	SM	SM	SM
Air Quality	SM	NA	SM	SM	SM
Public Services	SM	NA	SM	SM	SM

LS = Less than significant impact
SM = Potentially significant but reduced to less-than-significant with mitigation
SU = Significant and unavoidable
NA = No impacts will occur in the short-term; long-term impacts depend upon future proposals

All of the other alternatives discussed in this EIR may be considered environmentally superior in some respects, but generally involve environmental, social, and economic trade-offs.

The alternative with the fewest and least severe environmental impacts is Alternative 1, the No Project Alternative. With implementation of Alternative 1, however, none of the project

objectives would be accomplished. Moreover, it is important to note that existing visual blight due to the deterioration and vandalism of the Mansion and other site features would still exist with this alternative. In addition, it can be reasonably assumed that there are existing drainage issues that adversely impact the steelhead population within Soquel Creek and, with the numerous trespassing violations on the property, many other impacts may adversely affect onsite and adjacent resources. Also, as discussed in Dr. Arnold's report (see **Appendix C**), the monarch overwintering habitat would continue to be degraded, as no habitat enhancement, management and maintenance, or future monitoring of the habitat would occur. As a result, Dr. Arnold anticipates that habitat conditions would continue to deteriorate, perhaps to such a degree that the site would eventually no longer be suitable as overwintering habitat for the monarch.

Though most of the impacts for the other three alternatives are still classified as potentially significant, it is important to note the following: 1) the impact level is generally reduced in comparison with the proposed project (see discussion under each alternative above); and 2) they can be reduced to a less-than-significant level with implementation of relevant mitigation.

Alternatives 2 and 3 would not have a significant and unavoidable impact with respect to monarch overwintering habitat ESHA. Alternative 2 would have less severe impacts than the proposed project, and would achieve all of the basic project objectives at or near, and in some cases above, the level of the proposed project. Alternative 3 would have less severe impacts than Alternatives 2 and 4, and would achieve some of the basic project objectives, but to a lesser extent than Alternatives 2 and 4, and the proposed project. Alternative 4 would have less severe impacts than Alternative 2 and the proposed project, and would achieve most of the basic project objectives, but to a lesser extent than Alternative 2 and the proposed project.

Alternatives 3 and 4 appear to have less severe impacts than Alternative 2; however these alternatives may not be considered to be economically feasible or preferable. More importantly, under Alternatives 3 and 4, without the proposed habitat management, maintenance, and monitoring activities, the condition of the monarch's overwintering habitat will likely continue to deteriorate, perhaps to such a degree that the site would eventually no longer be suitable as overwintering habitat for the monarch. Based on the above analysis, its ability to reduce significant and unavoidable impacts, and achievement of the basic project objectives, and as concurred by Dr. Arnold (see **Appendix C**), the environmentally superior alternative is Alternative 2.

7.0 REFERENCES

♦♦♦

REPORT PREPARATION

CITY OF CAPITOLA

Patrizia Materassi, Community Development Director
Anthony J. "Bud" Carney, AICP -- Rispin Planning Consultant to City of Capitola

DENISE DUFFY & ASSOCIATES, INC.

Denise Duffy, Principal
Jeff Foster, Project Manager
Dave Keegan, Associate Biologist/Deputy Project Manager
Alison Imamura, Technical Assistance
Paola Villacres, Assistant Planner
Dan Vorhies, Graphics
Dianne Rossi, Production Coordination

CONSULTANTS

Architectural Resources Group, Bruce Judd, FAIA, Historical Consultant
Ecosystems West, Bill Davilla, Biological Resources Surveys
Elizabeth Bell, Monarch Butterfly Evaluation
Entomological Consulting Services, Ltd., Richard A. Arnold, Ph.D., Monarch Consultant
Higgins Associates, Keith B. Higgins and Dan Takacs, Traffic Analysis
Historic Preservation Associates, Enid T. Sales, Historical Evaluation
James P. Allen & Associates, Maureen Hamb, Consulting Arborists
Nolan Associates, Jeff Nolan, Geological Evaluation

PERSONS CONTACTED

Joe Akers, Akers & Associates Civil Engineering
Richard A. Arnold, Entomological Consulting Services, Ltd.
Ron Beardslee, Applicant
Fred Braun, City of Capitola Department of Public Works
Don Braunton, (former) Police Chief, City of Capitola Police Department
Janet Brennan, Monterey Bay Unified Air Pollution Control District
Laura Brown, Soquel Creek Water District
Drew Byrne, Santa Cruz County Sanitation District
Bruce Clark, Fire Chief, Central Fire Protection District
Steade Craigo, Senior Restoration Architect, California State Office of Historic Preservation
Richard Ehle, Jr., Police Chief, City of Capitola Police Department
Jeff Gailey, Soquel Creek Water District
Steven Jesberg, Director, City of Capitola Department of Public Works
Bruce Judd, Architectural Resources Group

Todd Muck, Association of Monterey Bay Area Governments
Dianne Romeo, Santa Cruz County Sanitation District

BIBLIOGRAPHY

Advisory Council on Historic Preservation. October 1986. *36 CFR Part 800: Protection of Historic Properties- Working with Section 106.*

Akers & Associates. October 2002. *Grading and Drainage Calculations for the Rispin Mansion Project.*

Arnold, Richard A. (Ph.D.). November 12, 2002. *Re: Rispin Mansion in Capitola, CA, EIR Issues Pertaining to the Monarch Butterfly.* Entomological Consulting Services, Ltd.

Association of Monterey Bay Area Governments (AMBAG). 1997. *1997 Regional Population and Employment Forecast.*

Bancroft, H.H. 1964. *California Pioneer Register and Index, 1542-1848.* Extracted from Bancroft's The History of California. (Reprinted 1990) Baltimore, MD: Clearfield Company.

Barber, Dave. August 11, 1983. *The Rispin Mansion: Estate of Siege.* Santa Cruz Express.

Beardslee, R. and Floyd, D. *Re: Architectural, Landscaping, Civil Engineering and Operating Modes for the Inn at the Rispin Mansion Relating to the Monarch Butterfly Season.* Letter to the City of Capitola.

Beardslee, R. and Floyd, D. *Re: Monarch Butterfly Enhancement Program for the South End of the Rispin Mansion Property.* Letter to Dick Arnold (Ph.D.), Entomological Consulting Services.

Beardslee, R. and Floyd D. *Re: Progress Prints and Commentary for Rispin Mansion Restoration Project.* Letter to Dick Arnold (Ph.D.), Entomological Consulting Services.

Bell, E.A. and Dayton, J.J. 1991. *Overwintering monarch butterfly survey on the Rispin Mansion Site.* Report to Jones & Stokes Associates, Inc. Sacramento, CA. 12 pp.

Bell, E.A. 1997. *Master plan recommendations for preserving the Monarch butterfly overwintering habitat at the Lode Street Eucalyptus grove (Moran Lake) in Santa Cruz, CA.* 8 pp.

Bell, E.A. April 9, 1998. *The Monarch Butterfly Overwintering Habitat at Rispin Mansion: Habitat Utilization and Assessment of Impacts from Development Proposed by Beardslee Development Association.*

Bell, E.A. April 17, 2000. *The Monarch Butterfly Habitat at Rispin Mansion: An Updated Evaluation.*

Breschini G.S., T. Haversat, and R.P. Hampson. 1984. Secondary (subsurface) archaeological testing of a portion of CA-SCR-168, at Highway Wharf Road, Capitola, Santa Cruz County, California. On file at Northwest Information Center of California Archaeological Inventory, Sonoma State University, Rohnert Park, CA. Unpublished report.

Breschini G.S., and T. Haversat. 1989. Report on subsurface archaeological investigations at CA-SCR-168(APN 030-194-59) Capitola, Santa Cruz County, California. On file at Northwest Information Center of California Archaeological Inventory, Sonoma State University, Rohnert Park, CA. Unpublished report.

Brower, L.P. 1985. *New perspectives on the migration ecology of the Monarch butterfly, Danaus plexipplus L.* In: Univ. Texas Contributions in Marine Science (supplement) 27: 748-785.

Brower, L.P. and Malcolm, S.B. 1989. *Endangered Phenomenon.* Wings 14 (2): 3-9.

Bryant, Mary. August 10, 1991. *Rispin.* The Mid County Post.

California Coastal Commission. *Guidelines for Blufftop Development.*

California Coastal Commission. February 22, 2001. *Comments on Recirculated Draft EIR for Rispin Mansion.*

California, State of, Department of Fish and Game. 1996. *California Natural Diversity Database - Rare Find*, Sacramento, CA.

California, State of, Department of Fish and Game. 2002. *California Natural Diversity Database Report on Monarch butterfly overwintering sites in Santa Cruz County, CA.* Sacramento, CA.

California, State of, Office of Planning and Research. April 1994. CEQA and Historical Resources - CEQA Technical Advice Series.

California Native Plant Society, 1996. *Electronic Inventory of Rare and Endangered Plants. Sacramento, CA.*

California State Water Resources Control Board. 1994. *Water Quality Assessment.*

Calvert, W.H. and L.P. Brower. 1982. *The importance of forest cover for the survival of overwintering Monarch butterflies (Danaus plexippus* L., Danaidae). Journal of the Lepidopterists; Society 35:216-225.

Capitola, City of. September 1989 with the most recent amendment May 1996. *City of Capitola General Plan and Local Coastal Program.*

Capitola, City of. April 1991. *Rispin Project Draft Environmental Impact Report (EIR).*

Capitola, City of. April 1995. *Rispin Project Draft Supplemental EIR.*

Capitola, City of. June 1995. *Rispin Project Final Supplemental EIR.*

Capitola, City of. February and May 1998. *Capitola Crossing Draft EIR* and *Response to Comments* documents.

Capitola, City of. December 2000. *Recirculated Draft Environmental Impact Report for the Rispin Mansion and Mini-Park Projects.*

Capitola, City of. Website at http://www.ci.capitola.ca.us/

Capitola, City of. *Zoning Ordinances.*

Cartier, R. 1978. Subsurface, secondary, archaeological evaluation of 04-SCR-168. On file at Northwest Information Center of California Archaeological Inventory, Sonoma State University, Rohnert Park, CA. Prepared for Environmental Science Associates, Foster City, CA. Unpublished report.

Cartier, R. 1980. Archaeological evaluation of APN 30-191-14, Santa Cruz County. On file at Northwest Information Center of California Archaeological Inventory, Sonoma State University, Rohnert Park, CA. Unpublished report.

Central Fire Protection District of Santa Cruz County. March 1998. *Standard Design and Specifications, Access Road Requirements.*

Central Fire Protection District of Santa Cruz County. Website at http://www.centralfpd.com/

Cherubini, P. 1984. *An environmental assessment of the impact of the proposed Rispin Mansion subdivision on the monarch butterfly overwintering habitat.* Integrated Land Services, Capitola, CA.

Clark, Donald T. 1986. *Santa Cruz County Place Names.* Santa Cruz: Santa Cruz Historical Society.

Conservation Committee of the Santa Cruz County Group of the Sierra Club. January 31, 2001. *Questions regarding the Draft Environmental Impact Report for the Rispin Mansion.*

Davis, P. 2002. *Shadow study for the South End Building at Rispin Mansion.*

Dayton, J.J. October 30, 2001. *Letter addressed to Anthony J. Carney, City of Capitola.* 3 pp.

Dayton, J. J. and Bell, E. A. 1985. *Monarch Butterfly monitoring study at Natural Bridges and Moran Lake, Santa Cruz California, 1984-85.* Report to Harvey and Stanley Associates, Inc. Alvise, CA. 52 pp.

Ecosystems West. May 13, 1998. *Assessment of Biological Resources on the Rispin Mansion and Public Library in Capitola, California.*

Ecosystems West. September 7, 2001. *Delineation and Assessment of Riparian Habitat on the Rispin Mansion Parcel in Capitola.*

Federal Register Part IV Protection of Historic and Cultural Properties, Volume 44 No 21, page 6074.

Federal Register Part IV - Volume 48 No 190 - General Standards for Historic Preservation Projects, page 44737.

Habitat Restoration Group, John Stanley & Associates. 1990. *Soquel Creek Lagoon Management and Enhancement Plan.*

Harvey and Stanley Associates. October 1980. *Map of Soquel Creek.*

Higgins Associates. May 1998. *Traffic Analysis for Rispin Mansion EIR.*

Higgins Associates. September 16, 2002. *Traffic Analsyis for the Inn at Rispin Mansion.*

Historical Preservation Associates, Enid T. Sales. May 1998. *Historical Evaluation of the Rispin Mansion Project.*

Hoover, M. B., H. E. Rensch, E. G. Rensch, and W.N. Abeloe. 1990. *Historic Spots in California.* Fourth edition, revised by Douglas E. Kyle. Stanford, CA: Stanford University Press.

Institute of Transportation Engineers (ITE). 1997. *Parking Generation Manual, 2nd Ed.*

Institute of Transportation Engineers (ITE). 1997. *Trip Generation Manual, 6th Ed.*

Integrated Land Services. 1984. *Draft environmental impact report for a proposed 14 residential lot subdivision on the site of the Rispin Mansion in the City of Capitola, California.* Capitola, CA. Prepared for Mr. Howard Dysle, applicant, Capitola, CA.

J. V. Lowney & Associates. January 1991. *Preliminary Geotechnical Investigation for Rispin Project Capitola.*

James P. Allen & Associates. May 8, 1998. *Preliminary Overview of the Rispin Mansion and Public Library Sites: Potential Impacts to Trees.*

Jones, T. 1987. *Phase I: Extended archaeological survey report for a proposed interchange reconstruction project at Bay Avenue/Porter Street interchange on Highway 1 in Capitola, Santa Cruz County.* On file with Caltrans, District 4, San Francisco, CA. Unpublished report.

Koch, Margaret. 1973. *Santa Cruz County: Parade of the Past.* Santa Cruz: Western Tanager Press.

Krocker, A. L. 1976. *Handbook of the Indians of California.* Dover Publications, Inc. New York, NY.

Lane J. 1983. *Impact on monarch butterflies at Rispin Mansion, Capitola, CA.* Integrated Land Services, Capitola, CA.

Leong, K. L. H. 1990. *Microenvironmental factors associated with the winter habitat of the monarch butterfly (Lepidoptera: Danaidae) in central California.* Ann. Entomol. Soc. Am. 83 (5): 906-910.

Leong, K. L. H., D. Frey, G. Brenner, S. Baker, and D. Fox. 1991. *Use of multivariate analysis to characterize the monarch butterfly (Lepidoptera: Danaidae) winter habitat.* Ann. Entomol. Soc. Am. 84 (3): 263-267.

Levy, R. 1978. *Handbook of North American Indians.* Vol. 8. Smithsonian Institution. Washington, D. C.

Lewis, N. September 16, 2002. *Tree Preservation Report, Site Location: Rispin Mansion.* 19 pp. & photographs.

Lydon, Sandy and Carolyn Swift. 1979. Soquel Landing to Capitola-by-the-Sea. Local History Studies Vol. 22. Cupertino, CA: California History Center.

M. Jacobs & Associates. 1984. *Soils Report for the Rispin Project.*

McAlester, Virginia and Lee McAlester. 1986. *A Field Guide to American Houses.* New York: Alfred A. Knopf.

Miscellaneous Newspaper Clippings
- 1927 Rispin Home is Offered to President for Summer Use. April 10.
- c1931 S. F. Syndicate will buy Rispin Capitola Tracts.
- 1941 Order of Poor Clares in New Home; Former Rispin Estate.
- 1979 Restoring the Rispin Mansion.
- c1984 Battle over the old Rispin Mansion. County Mobile News.
- c1991 New Life for old mansion. San Jose Mercury News.

Monterey Bay Unified Air Pollution Control District. 1991. *1991 Air Quality Management Plan for the Monterey Bay Region.*

Monterey Bay Unified Air Pollution Control District. 1994. *1994 Air Quality Management Plan for the Monterey Bay Region.*

Monterey Bay Unified Air Pollution Control District. October 1995 (and revised February 1997, August 1998, December 1999, September 2000, and September 2002). *CEQA Air Quality Guidelines.*

Monterey Bay Unified Air Pollution Control District. 2000. *2000 Air Quality Management Plan for the Monterey Bay Region.*

Nagano, C.D. and J. Lane. 1985. *A survey of the location of monarch butterfly (Danaus plexippus L.) Overwintering roosts in the State of California, U.S.A.*: first year 1984-85. Report to the World Wildlife Fund - US. 108 pp.

National Trust for Historic Preservation. 1992. *Reviewing New Construction Projects in Historic Areas - Information Series # 62 1992.*

Nolan Associates. April 2, 1998. *Proposed North End Units, Rispin Mansion Project.*

Pacific Legacy. 1995. *Extended Archaeological Survey for the Peery Bike and Pedestrian Path and Bridge Project, City of Capitola, Santa Cruz County, California.* Written by Janet P. Eidsness, prepared for Jones & Stokes Associate, Sacramento, California.

Pacific Legacy, letter to Ms. Stephanie Strelow, March 6, 1996.

Pacific Legacy, letter to Mr. Augie Dent, May 23, 1996.

Parkin, W.P. and Wittwer, J. January 31, 2001. *Re: Recirculated DEIR for Rispin Mansion and Mini-Park Projects.*

Peak & Associates. 1977. *Santa Cruz regional wastewater treatment system project.* On file at the Northwest Information Center of the California Archaeological Inventory, Sonoma State University, Rohnert Park, CA. Unpublished report.

Perez, Crisostomo N. 1996. *Land Grants in Alta California.* Rancho Cordova: Landmark Enterprises.

Rivers. 1991. *National Register of Historic Places Registry Nomination Form for The Rispin Mansion District - February 6, 1991.*

Rowe & Associates. 1986. *City of Capitola architectural survey.* Prepared for City of Capitola. Capitola, CA.

Rowland, Leon. 1980. *Santa Cruz, the Early Years: the Collected Historical Writings of Leon Rowland.* Santa Cruz: Paper Vision Press.

Sakai, W. H., C. D. Nagano, A. V. Evans, J. Schrumpf, J. Lane, and M. Monroe. 1989. *The wintering colonies of the monarch butterfly (Danaus plexippus L.: Nymphalidae: Lepidoptera) at Angel Island State Park, Marin County, California during the fall and winter of 1987/88.* Report to the California Department of Parks and Recreation.

Santa Cruz News
1919a. New $200,000 Concrete Hotel to be Built on Site of Old at Capitola. August 5.
1919b. Definite Plans on New Capitola Hotel Being Made. September 18.
1926. Why H. Allen Rispin Came to Capitola. June 15.
1969. Rispin Home again given reprieve. June.

Santa Cruz County, Recorder's Office Official Records

Santa Cruz County Regional Transportation Commission. September 1994. *1994 Santa Cruz County Regional Transportation Plan.*

Santa Cruz County Regional Transportation Commission. June 1996. *1996 Santa Cruz Congestion Management Program.*

Santa Cruz County Sanitation District. Website at http://www.dpw.co.santa-cruz.ca.us/sanitation.htm

Soquel Creek Water District. Website at http://www.soquelcreekwater.com/navigation.htm

Swift, Carolyn
1993a. The Sisters of Poor Clare. The Mid County Post, July 27.
1993b. H. Allen Rispin, the Rispin Mansion and the Lost Rispin Photos. The Mid County Post, October 19.
1994. RispinCThe Man and His Mansion. Santa Cruz County History Journal. No. 1:43-48.
1996. New Stuff about Capitola Pioneer. The Mid County Post , July 23.
1998a. The Dry Years, Part I. The Mid County Post.
1998b. The Dry Years, Part II: Capitola's Day of Wine and Roses. The Mid County Post, January 6.

The Monarch Project. 1992. *Conservation and management guidelines for preserving the monarch butterfly migration and monarch overwintering habitat in California.* Proceedings from the Esalen Conference, October 1991.

U.S. Department of the Interior, National Park Service. 1990. *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings.*

U.S. Department of the Interior, National Park Service. 1990. *Secretary of The Interior's Guidelines for Architectural and Engineering Documentation. Historic American Building Survey/Historic American Engineering Record Standards.*

U.S. Department of the Interior, U.S. Fish and Wildlife Service. 1993. Department of the Interior, Fish and Wildlife Service 50 CRF Part 17, Endangered and Threatened Wildlife and Plants: Review of Plant Taxa for Listing as Threatened or Endangered. Federal Register 58(188): 51144-51190.

U.S. Soil Conservation Service, 1980. *Soil Survey of Santa Cruz County.*

Urban Land Institute. 1983. *Shared Parking.*

Urquhart, F.A. and N.R. Urquhart. 1977. *Overwintering areas and migratory routes of the monarch butterfly (Danaus plexippus, Lepidoptera: Danaidae) in North America with special reference to the western population.* Can. Ent. 109: 1583-89.

Urquhart, F.A. 1960. *The Monarch Butterfly.* University of Toronto Press. 361 pp.

Verado, Jennie D. and Denzil Verado. 1987. *Santa Cruz County: Restless Paradise: An Illustrated History*. Northridge, CA: Windsor Publications, Inc.

This page intentionally left blank.

APPENDIX A

NOP and NOP Responses

This page intentionally left blank.

STATE OF CALIFORNIA · PETE WILSON, *Governor*

Governor's Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814

DATE: December 16, 1997

TO: Reviewing Agencies

RE: INN AT RISPIN MANSION AND CAPITOLA BRANCH LIBRARY
SCH# 97121056

Attached for your comment is the Notice of Preparation for the INN AT RISPIN MANSION AND CAPITOLA BRANCH LIBRARY draft Environmental Impact Report (EIR).

Responsible agencies must transmit their concerns and comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of this notice. We encourage commenting agencies to respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

KATHLEEN MOLLOY
CITY OF CAPITOLA
420 CAPITOLA AVE
CAPITOLA, CA 95010

with a copy to the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the review process, call at (916) 445-0613.

Sincerely,

ANTERO A. RIVASPLATA
Chief, State Clearinghouse

Attachments

cc: Lead Agency

S = sent by lead agency
X = sent by SCH

SCH# _____

Resources Agency

- [X] Nadell Gayou
  Resources Agency
  1020 Ninth Street, Third Floor
  Sacramento, CA 95814
  916/327-1722 Fax 916/327-1648
- [ ] Nicole Leirla
  Dept. of Boating & Waterways
  1629 S Street
  Sacramento, CA 95814
  916/445-6281 916/327-7250
- [ ] Elizabeth A. Fuchs
  California Coastal Commission
  45 Fremont Street, Suite 1970
  San Francisco, CA 94105-2219
  415/904-5200 Fax 415/904-5400
- [ ] Reed Holderman
  State Coastal Conservancy
  1330 Broadway, Suite 1100
  Oakland, CA 94612
  510/286-1015 Fax 510/286-0470
- [ ] Keren Yowell
  Dept. of Conservation
  801 K Street, MS-24-02
  Sacramento, CA 95814
  916/445-8733 Fax 916/324-0948
- [ ] Allen Robertson
  Dept. of Forestry & Fire Protection
  1416 Ninth Street, Room 1516-24
  Sacramento, CA 95814
  916/657-0300 Fax 916/653-8957
- [X] Hans Kreutzberg
  Office of Historic Preservation
  P.O. Box 942896
  Sacramento, CA 94296-0001
  916/653-9107 Fax 916/653-9824
- [X] Environmental Review
  Dept. of Parks and Recreation
  P.O. Box 942896
  Sacramento, CA 94296-0001
  916/653-0538
- [ ] Environmental Review
  Reclamation Board
  1416 Ninth Street, Room 1623
  Sacramento, CA 95814
  916/327-1531 Fax 916/327-1600
- [ ] Steve McAdam
  S.F. Bay Conservation & Dev't. Comm.
  30 Van Ness Avenue, Room 2011
  San Francisco, CA 94102
  415/557-3686 Fax 415/557-3767
- [ ] Nadell Gayou
  Department of Water Resources
  1020 Ninth Street, Third Floor
  Sacramento, CA 95814
  916/327-1722 Fax 916/327-1648

Health & Welfare

- [ ] Kim Dinh
  Dept. of Health
  601 N. 7th Street, PO Box 942732
  Sacramento, CA 94234-7320
  916/323-6111 Fax 916/327-6092

Fish and Game - *Regional Offices*

- [ ] Richard L. Elliott, Regional Manager
  Department of Fish and Game
  601 Locust
  Redding, CA 96001
  916/225-2363 Fax 916/225-2381
- [ ] Ryan Broddrick, Regional Manager
  Department of Fish & Game
  1701 Nimbus Road, Suite A
  Rancho Cordova, CA 95670
  916/358-2900 Fax 916/358-2912
- [X] Brian Hunter, Regional Manager
  Department of Fish and Game
  P.O. Box 47
  Yountville, CA 94599
  707/944-5518 Fax 707/944-5563
- [ ] George Nokes, Regional Manager
  Department of Fish and Game
  1234 East Shaw Avenue
  Fresno, CA 93710
  209/445-6132 Fax 209/445-6607
- [ ] Department of Fish and Game
  Environmental Services
  330 Golden Shore, Suite 50
  Long Beach, CA 90802
  310/590-5132 Fax 310/590-5192

Independent Commissions/Agencies

- [ ] California Energy Commission
  1516 Ninth Street, MS-15
  Sacramento, CA 95814
  916/654-3944
- [X] Native American Heritage Comm.
  915 Capitol Mall, Room 364
  Sacramento, CA 95814
  916/653-4082 Fax 916/657-5390
- [ ] Martha Sullivan
  Public Utilities Commission
  505 Van Ness Avenue
  San Francisco, CA 94102
  415/703-2011 Fax 415/703-1965
- [X] Betty Silva
  State Lands Commission
  100 Howe Avenue, Suite 100-S
  Sacramento, CA 95826
  916/574-1872 Fax 916/574-1885
- [ ] Gerald R. Zimmerman
  Colorado River Board
  770 Fairmont Avenue, Suite 100
  Glendale, CA 91203-1035
  818/543-4676 Fax 818/543-543-4685
- [ ] Tahoe Regional Planning
  Environmental Review
  P.O. Box 1038
  Zephyr Cove, NV 89448
  702/588-4547 Fax 702/588-4527
- [ ] Thomas Ottoman
  Office of Emergency Services
  P.O. Box 29998
  San Francisco, CA 94129
  415/666-9100
- [ ] Debby Eddy
  Delta Protection Commission
  P.O. Box 530
  Walnut Grove, CA 95690
  916/776-2290 FAX 776-2293

Department of Transportation
District Contacts

- [ ] Linda Evans
  Caltrans, District 1
  1656 Union Street
  Eureka, CA 95501
  707/445-6412 Fax 707/445-5569
- [ ] Local Development Review
  Caltrans, District 2
  P.O. Box 496073
  Redding, CA 96049-6073
  916/225-3133 Fax 916/225-3146
- [ ] Jeff Pulverman
  Caltrans, District 3
  703 B Street
  Marysville, CA 95901
  916/327-3859 Fax 916/323-7669
- [ ] Phillip Badal
  Caltrans, District 4
  P.O. Box 23660
  Oakland, CA 94623-0660
  510/286-5578 Fax 510/286-5513
- [X] Lawrence Newland
  Caltrans, District 5
  50 Higuera Street
  San Luis Obispo, CA 93401
  805/549-3683 Fax 805/549-3077
- [ ] Marc Birnbaum
  Caltrans, District 6
  P.O. Box 12616
  Fresno, CA 93778-2616
  209/448-4088 Fax 209/488-4101
- [ ] Stephen J. Buswell
  Caltrans, District 7
  120 South Spring Street
  Los Angeles, CA 90012
  213/897-4429 Fax 213/897-4358
- [ ] Harvey Sawyer
  Caltrans, District 8
  P.O. Box 231
  San Bernardino, CA 92402
  909/383-4808 Fax 909/383-7934
- [ ] Robert Ruhnke
  Caltrans, District 9
  500 South Main Street
  Bishop, CA 93514
  619/872-0689 Fax 619/872-0678
- [ ] Dana Cowell
  Caltrans, District 10
  P.O. Box 2048
  Stockton, CA 95201
  209/948-7906 Fax 209/948-7906
- [ ] Lou Salazar
  Caltrans, District 11
  P.O. Box 85406, MS 5-5
  2829 Juan Street
  San Diego, CA 92186-5406
  619/688-6002 Fax 619/688-2511
- [ ] Aileen Kennedy
  Caltrans, District 12
  2501 Pullman St
  Santa Ana, CA 92705
  714/724-2219 Fax 714/724-2592

Business, Transportation, & Housing

- [ ] Sandy Hesnard
  Caltrans - Division of Aeronautics
  P.O. Box 942874
  Sacramento, CA 94274-0001
  916/654-5314 Fax 916/227-9093
- [ ] Alice Huffaker
  California Highway Patrol
  Office of Special Projects
  Planning and Analysis Division
  2555 1st Ave.
  Sacramento, CA 95818
  916/657-7222 Fax 916/452-3151
- [ ] Ron Helgeson
  Caltrans - Planning
  P.O. Box 942874
  Sacramento, CA 94274-0001
  916/653-9966 Fax 916/653-0001

State and Consumer Services

- [ ] Robert Sleppy
  Dept. of General Services
  400 R Street, Suite 5100
  Sacramento, CA 95814
  916/324-0214 Fax 916/322-3987

California Environmental Protection Agency

- [ ] Mike Tollstrup
  Air Resources Board
  2020 L Street
  Sacramento, CA 95815
  916/322-8267 Fax 916/322-[illegible]382
- [ ] Jeanie Blakeslee
  Calif. Waste Management Board
  8800 Cal Center Drive
  Sacramento, CA 95826
  916/255-4164 Fax 916/255-4071
- [ ] Wayne Hubbard
  State Water Resources Control Board
  Division of Clean Water Programs
  P.O. Box 944212
  Sacramento, CA 94244-2120
  916/227-4408 Fax 916/227-4549
- [ ] Phil Zentner
  State Water Resources Control Board
  Division of Water Quality
  P.O. Box 944213
  Sacramento, CA 94244-2130
  916/657-0912 Fax 916/657-2388
- [ ] Mike Falkenstein
  State Water Resources Control Board
  Division of Water Rights
  901 P Street, 3rd Floor
  Sacramento, CA 95814
  916/657-1377 Fax 916/657-1485
- [ ] Dept. of Toxic Substances Control
  CEQA Tracking Center
  400 P Street, Fourth Floor
  P.O. Box 806
  Sacramento, CA 95812-0806
  916/324-1019 Fax 916/324-1788

Regional Water Quality Control Board

- [ ] NORTH COAST REGION (1)
  5550 Skylane Blvd., Suite A
  Santa Rosa, CA 95403
  707/576-2220 Fax 707/523-0[illegible]
- [ ] SAN FRANCISCO BAY REGION (2)
  2101 Webster, Suite 500
  Oakland, CA 94612
  510/286-1255 Fax 510/286-1[illegible]
- [X] CENTRAL COAST REGION (3)
  81 Higuera Street, Suite 200
  San Luis Obispo, CA 93401-54[illegible]
  805/549-3147 Fax 805/543-039[illegible]
- [ ] LOS ANGELES REGION (4)
  101 Centre Plaza Drive
  Monterey Park, CA 91754-2156
  213/266-7556 Fax 213/266-760[illegible]
- [ ] CENTRAL VALLEY REGION (5)
  3443 Routier Road, Suite A
  Sacramento, CA 95827-3098
  916/255-3000 Fax 916/255-3015
  - ○ Fresno Branch Office
    3614 East Ashlan[illegible]
    Fresno, CA [illegible]
    209/445-5116 [illegible]
  - ○ Redding Branch Office
    415 Knollcrest Drive
    Redding, CA 96002
    916/224-4845 Fax 916/224-48[illegible]
- [ ] LAHONTAN REGION (6)
  2501 Lake Tahoe Boulevard
  South Lake Tahoe, CA 96150
  916/542-5400 Fax 916/544-2271
  - ○ Victorville Branch Office
    15428 Civic Drive, Suite 100
    Victorville, CA 92392-2359
    619/241-6583 Fax 619/241-73[illegible]
- [ ] COLORADO RIVER BASIN REGION (7)
  73720 Fred Waring Drive, #100
  Palm Desert, CA 92260-2564
  619/346-7491 Fax 619/341-6820
- [ ] SANTA ANA REGION (8)
  3737 Main Street, Suite 500
  Riverside, CA 92501-3339
  714/782-4130 Fax 909/781-6288
- [ ] SAN DIEGO REGION (9)
  9771 Clairemont Mesa Blvd., Suite B
  San Diego, CA 92124-1331
  619/467-2952 Fax 619/571-6972

- [ ] OTHER: _____
- [ ] OTHER _____

SCH 5/9/97

STATE OF CALIFORNIA – THE RESOURCES AGENCY PETE WILSON, *Governor*

CALIFORNIA COASTAL COMMISSION
CENTRAL COAST AREA OFFICE
725 FRONT STREET, SUITE 300
SANTA CRUZ, CA 95060
(408) 427-4863
HEARING IMPAIRED: (415) 904-5200

January 8, 1998

Kathleen Molloy
Community Development Director
City of Capitola
420 Capitola Avenue
Capitola, 95010

Subject: Notice of Preparation of EIR for "The Inn at Rispin Mansion"; Comments

Dear Ms. Molloy:

Thank you for forwarding the NOP for the Inn at Rispin Mansion for Commission staff comments. We reviewed the Denise Duffy & Associates Work Program attached to the NOP as Appendix One. The Duffy and Associates Work Program appears to cover all the issue areas.

The Commission staff is particularly interested in the long term protection of riparian and monarch butterfly habitat resources on this site. Experience at Escalona Gulch suggests that protection of monarch habitat is difficult in proximity to development. Both the location/intensity of development to reduce the potential for impacts and a long term program of monitoring, management, and maintenance that is, perhaps, the responsibility of the developer may be appropriate. We strongly recommend that the DEIR explore mitigation measures to assure long term protection of these habitats.

Regarding procedures, the project site falls at least partially within the Coastal Zone and the development will require a coastal development permit. Since the site is within an Area of Deferred Certification, that is, the Local Coastal Program for the site has not been certified by the Coastal Commission, the Coastal Commission rather than the City of Capitola would process the future coastal development permit for the development. Alternatively the City could submit an amendment to the Local Coastal Program which, if certified, would result in transfer of permit jurisdiction to the City. Please feel free to call to discuss these issues.

Very truly yours,

LEE OTTER
DISTRICT CHIEF PLANNER

JOY CHASE
COASTAL PLANNER

RISPIN.DOC

STATE OF CALIFORNIA — BUSINESS, TRANSPORTATION AND HOUSING AGENCY PETE WILSON, Governor

DEPARTMENT OF TRANSPORTATION
50 HIGUERA STREET
SAN LUIS OBISPO, CA 93401-5114
TELEPHONE: (805) 549-3111
TDD (805) 549-3259

January 12, 1998

5-SCr-1-14.86
NOP for B& B Hotel &
Branch Library
SCH # 97121056

Kathleen Molloy
Community Development Director
City of Capitola
420 Capitola Avenue
Capitola, CA 95010

Dear Ms. Molloy:

Caltrans District 5 Staff has reviewed the above-referenced Notice of Preparation (NOP) for the Inn at Rispin Mansion B & B /Hotel, and the Capitola Branch Library projects. It appears that the proposed development could have transportation related impacts to State Route (SR) 1. Consequently, Caltrans requests that a thorough traffic analysis be included as part of the Draft Environmental Impact Report (EIR). This study should include an analysis of all potential impacts to State Route 1. The following is a partial list of items this study should include:

1. An accurate site and vicinity map. Please include plans showing all existing and proposed points of ingress and egress.
2. A description of existing geometrics and levels of service including mainline portions of Route 1.
3. The proposed project's A.M. and P.M. peak hour analysis and trip distribution. All traffic data (counts, etc.) must not be more than two years old.
4. An operational analysis of the proposed project with and without mitigation.
5. A cumulative analysis per *CEQA Guidelines 15130*.
6. All analysis must be conducted using the *1994 Highway Capacity Manual*, except for weave analysis which should use the Caltrans *1995 Highway Design Manual*.
7. A thorough discussion of traffic impact mitigation measures including recommendations for funding mechanisms and financial responsibilities. This study should also discuss potential traffic impact fees for the proposed project. Please provide potential funding vehicles available within the local or regional government that will ensure that traffic impact fees will be used along State Route 1.

7. Please add the following intersections to the list discussed in task 1 on page 12 of the NOP:
   a. Bay Ave./SR 1
   b. 41st Ave./SR 1

8. An encroachment permit must be obtained before any work can be conducted within the Caltrans right-of-way. Please be advised that prior to obtaining an encroachment permit, all design plans must be reviewed by this office accompanied by an approved environmental document. Biological and archaeological surveys must specifically address impacts in the state right-of-way. Should you have further questions regarding encroachment permits, please contact Mr. Steve Senet, Permits Engineer, at (805) 541-3152

Caltrans staff is available if the City or the project proponent wishes to discuss this project. We would also appreciate the opportunity to review the traffic study prior to its release in the DEIR.

Thank you for your consideration of our comments on this proposed project. If you have any questions, please contact me at (805) 549-3131.

Sincerely,

Charles Larwood

Charles Larwood
District 5
Intergovernmental Review Coordinator

CDL:cd/
cc: C Belsky, SCH
N. Papadakis, AMBAG
L. Wilshusen, SCCRTC
File, S. Chesebro, S. Strait, L. Dolling, J Gonzalez,

MONTEREY BAY
Unified Air Pollution Control District
serving Monterey, San Benito, and Santa Cruz counties

AIR POLLUTION CONTROL OFFICER
Douglas Quetin

24580 Silver Cloud Court • Monterey, California 93940 • 408/647-9411 • FAX 408/647-8501

Kathleen Molloy
Community Development Director
420 Capitola Avenue
Capitola, CA 95010

SUBJECT: NOP FOR THE INN AT RISPIN MANSION AND THE CAPITOLA BRANCH LIBRARY

Dear Ms. Molloy:

Staff has reviewed the NOP and has the following comments:

1. Direct and indirect source emissions from all proposed activities should be quantified and assessed.

2. If project or cumulative traffic would significantly affect an intersection or roadway at LOS D or below, dispersion modeling should be undertaken to determine if carbon monoxide concentrations would violate ambient air quality standards at sensitive receptor locations.

3. Project PM_{10} construction emissions should be quantified. If emissions would exceed 82 lbs/day, the project would have a significant impact on air quality. However, PM_{10} modeling could be undertaken to verify or dispute this findings per the District's CEQA Air Quality Guidelines.

4. Mitigation measures should be identified for any significant impacts on air quality. The EIR should quantify the emission reduction effectiveness of each measure, identify the agency(ies) responsible for implementation and monitoring, and conclude whether mitigation measures would reduce impacts below significance levels.

5. Project consistency with the 1994 Air Quality Management Plan for the Monterey Bay Region should be addressed. Consistency is used by the District to determine a project's cumulative impact on regional air quality (i.e., ozone levels). AMBAG should be contacted for a formal consistency determination, which should be included in the DEIR.

The District's CEQA Air Quality Guidelines can be used to help prepare the air quality analysis. If you have any questions, please do not hesitate to call,.

Sincerely,

Janet Brennan
Supervising Planner
Planning and Air Monitoring Division

cc: Nicolas Papadakis, AMBAG

NOTICE OF PREPARATION

To:

Subject: **Notice of Preparation of a Revised Draft Environmental Impact Report**

Lead Agency:
Agency Name: City of Capitola Community Development Department
Street Address: 420 Capitola Avenue
City/State/Zip: Capitola, CA 95010

Consulting Firm (if applicable):
Firm Name: Denise Duffy & Associates
Street Address: 947 Cass Street, Suite 5
City/State/Zip: Monterey, CA 93940

Contact: Patrizia Materassi (831) 475-7300 or Bud Carney (831) 688-3168

The City of Capitola will be the Lead Agency and will prepare a Revised Draft Environmental Impact Report (Revised Draft EIR) for the project identified below. We would like to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the Revised Draft EIR when considering your permit or other approval for the project.

The project description, location, and a brief summary of the potential environmental effects are contained in the attached materials. No Initial Study has been prepared for the project.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but ***not later than 30 days*** after receipt of this notice.

Please send your response to Patrizia Materassi/Bud Carney at the address shown above. We will need the name for a contact person in your agency.

Project Title: Rispin Mansion Project

Project Location: Capitola *City (nearest)* Santa Cruz County *County*

Project Description: The Rispin Mansion project consists of two separate but related actions: (1) the amendment of the Redevelopment Plan for the existing Capitola Redevelopment Project to add the Rispin Mansion property and adjacent library and municipal parking lot to the Project area; and (2) the updated development proposal for the Rispin Mansion submitted by the developer in 2001/2002. The Rispin Mansion development proposal includes development of the Inn at Rispin Mansion, renovation of the Mansion and grounds, improvements to the adjacent parking lot at the Clares Street and Wharf Road library, and establishment of a habitat enhancement/adaptive management program to preserve and protect adjacent and on-site biological resources.

Date _____ Signature _____
Title _____
Telephone _____

NOTICE OF PREPARATION
OF A
REVISED DRAFT ENVIRONMENTAL IMPACT REPORT
FOR THE
RISPIN MANSION PROJECT

The City of Capitola will prepare a Revised Draft Environmental Impact Report (Revised Draft EIR) for the Rispin Mansion project. The City of Capitola would like your input regarding the scope and content of the environmental information to be addressed in the Revised Draft EIR. Please note that this Revised Draft EIR may be used by your agency when considering approvals for this project.

The project description, location, and a brief summary of potential environmental effects are attached.

According to State law, your response must be sent at the earliest possible date, but not later than 30 days after receipt of this notice. Please send your response, including identification of a contact person, to the following address:

City of Capitola
Community Development Department
420 Capitola Avenue
Capitola, CA 95010
Attn: Patrizia Materassi/Bud Carney
Phone: (831) 475-7300

PROJECT DESCRIPTION AND PROPOSED SCOPE FOR THE REVISED DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE RISPIN MANSION PROJECT

Introduction

The purpose of an Environmental Impact Report (EIR) is to inform decision makers and the general public of the potential environmental effects of a proposed project. The environmental review process is intended to provide public agencies with the environmental information required to evaluate a proposed project to determine whether it may have a significant effect on the environment, to establish methods for reducing adverse environmental impacts, and to consider alternatives prior to approval.

The City of Capitola will prepare a Revised Draft EIR for the proposed Rispin Mansion project, which will include the following, as required by the California Environmental Quality Act (CEQA):

- a summary of the project;
- a project description;
- a description of the existing environmental setting, potential environmental impacts, and mitigation measures;
- project alternatives; and
- a discussion of environmental impacts, which will attempt to identify:
  - a) any significant environmental effects which cannot be avoided if the project is implemented;
  - b) any significant irreversible and irretrievable commitment of resources;
  - c) the growth-inducing impacts of the proposed project;
  - d) effects found not to be significant; and
  - e) cumulative impacts.

EIR Process

A Notice of Preparation (NOP) for the EIR was circulated on December 16, 1997 to State, regional, and local agencies and to interested community organizations and individuals after the developer filed a development application. A 30-day comment period on the NOP provided agencies, organizations and individuals the opportunity to identify issues and/or concerns that should be addressed during the preparation of the Draft EIR. On November 20, 1998, the City distributed a Draft EIR to interested responsible and trustee agencies, groups, organizations, and individuals for a public review period through January 4, 1999. The City received 10 comment letters. A response to comments document was prepared in March 1999 and included an assessment of the Developer's Mitigated Project that was submitted in January 1999. In March and April of 1999, during public hearings on the project, the developer revised the plans several times to respond to comments by the Planning Commission, Rispin Steering Committee, and members of the public. Based on the changes in the plans and changes in circumstances, the City chose to recirculate the EIR so that the public and decision-makers could clearly understand the project proposed at that time. The Recirculated Draft EIR was distributed on December 18, 2000 for a public review period through January 31, 2001. The City received 11 comment letters, one (1) letter from the State Clearinghouse acknowledging compliance with CEQA review requirements, and two (2) additional

letters from the State Clearinghouse for transmittal of comment letters received from state agencies after the close of the state review period. In November 2001, based on comments received and changes in the plans, the City again chose to recirculate a revised EIR to allow the public and decision-makers to clearly understand the most recent proposed project. This Revised Draft EIR is based upon the most recent version of the plans.

Project Location and Description

The proposed Rispin Mansion project sites consist of approximately 6.5 acres of land located along the eastern side of Wharf Road and an approximately ½-acre paved area located across Wharf Road, west of the Mansion site. The Rispin Mansion site is bounded by Soquel Creek to the east, open space to the north, a multiple-family residential development to the south, and a residential care facility, multiple- and single-family residences, and the parking lot/library site to the west. Across Soquel Creek, there are also single-family residences. Access to both of the sites is provided via the 41st Avenue exit off of Highway 1, Clares Street and Wharf Road. The proposed project sites, which are currently owned by the City, are located in the City of Capitola in Santa Cruz County. The sites are located west of Soquel Creek and south of Highway 1. Figure 3-1 shows the locations of the sites.

The Rispin Mansion project consists of two separate but related actions: (1) the amendment of the Redevelopment Plan for the existing Capitola Redevelopment Project to add the Rispin Mansion property and adjacent library and municipal parking lot to the Project area; and (2) the updated development proposal for the Rispin Mansion submitted by the developer in 2001/2002. The Rispin Mansion development proposal includes development of the Inn at Rispin Mansion, renovation of the Mansion and grounds, improvements to the adjacent parking lot at the Clares Street and Wharf Road library, and establishment of a habitat enhancement/adaptive management program to preserve and protect adjacent and on-site biological resources.

This project requires architectural and site review, a conditional use permit, coastal development permit, zone change, General Plan text amendment (policy changes), Capitola Redevelopment Plan amendment, permanent conservation easements or deed restrictions to maintain public access, and potentially other related entitlement actions. Current zoning for the Rispin Mansion site is AR/VS/R (Automatic Review, Visitor-Serving, Residential). [The joint-use parking lot site is designated as PF F/P (Public Facility — Parks, Open Space, and Facilities).] The Rispin Mansion site would be re-zoned to PD (Planned Development).

Pursuant to Public Resources Code Section 21090, this Revised Draft EIR will serve as a project EIR for the proposed amendment to the Capitola Redevelopment Plan. The proposed amendment would: (1) add the Rispin Mansion property and adjacent library and municipal parking lot to the existing Capitola Redevelopment Project area, and (2) make various revisions to existing limitations in the Redevelopment Plan related primarily to financing, including time limits on incurring indebtedness, receipt of tax increment and the effectiveness of the redevelopment plan.

Environmental Issues

The following key environmental issues are proposed to be addressed, in addition to all other elements required by CEQA. If there are additional topics, analysis or other content that your agency would like evaluated, please indicate this in a letter of response to the NOP.

- **Land Use and Planning:** The EIR will evaluate the consistency of the project with relevant plans and policies, including but not limited to, the City of Capitola General Plan, Zoning Ordinance, Local Coastal Program, and other plans/policies.

- **Geology and Soils:** The EIR will describe the geotechnical and geological constraints of the site and potential impacts.

- **Hydrology and Water Quality:** The EIR will describe existing hydrological information, the proposed new or altered drainage characteristics, and will evaluate potential water quality impacts.

- **Biological Resources:** The EIR will describe the existing biological resources on and adjacent to the site, and will evaluate potential impacts on special-status plant and wildlife species and protected habitat types.

- **Cultural Resources:** The EIR will describe the cultural and historical characteristics of the project site, and will examine potential impacts on the Rispin Mansion, which is listed on the National Register of Historic Places.

- **Aesthetics:** The EIR will describe the existing visual setting of the project area and will evaluate potential visual effects of the project.

- **Traffic and Circulation:** The traffic analysis in the EIR will describe existing conditions and will determine the potential traffic impacts of the project on the key intersections, roadway segments, and freeway segments in the vicinity of the site. Project access, internal circulation, parking and traffic safety will also be discussed.

- **Noise:** The EIR will describe the existing noise setting, noise sources, and sensitive receptors in the project vicinity, and will evaluate potential noise impacts from project construction and operation.

- **Air Quality:** The EIR will describe the regional air quality setting, standards and attainment status, and sensitive receptors in the project vicinity, and will examine potential air quality impacts from project construction and operation.

- **Public Services:** The EIR will describe the public services and utilities serving the project site and will evaluate potential impacts and benefits related to these public services.

- **CEQA Considerations:** In accordance with CEQA requirements, cumulative impacts and growth inducement will be analyzed.

- **Alternatives:** In accordance with CEQA, the EIR needs to address a reasonable range of alternatives to the project that could feasiblely obtain most of the basic project objectives and that are capable of eliminating significant adverse impacts of the project, or reducing them to a level of insignificance, even if those alternatives would not fully attain the project objectives or would be more costly. All alternatives will be discussed both quantitatively (to the extent possible) and qualitatively in terms of their impacts and their effectiveness in addressing identified significant adverse project impacts. This section will identify and discuss the project deemed to be *environmentally superior* per the requirements of CEQA § 15126.6 (e)(2). This evaluation will be based on a comparative analysis of the identified alternatives.

Central Fire Protection District
of Santa Cruz County

930 17th Avenue
Santa Cruz, CA 95062
Phone (831) 479-6842
Fax (831) 479-6847
Fax (831) 479-6848

March 24, 2003

Denise Duffy & Associates
947 Cass Street, Suite 5
Monterey, CA 93940

Dear Mr. Carney:

This letter is in response to the **Notice of Preparation of a Revised Draft Environmental Impact Report # 7002 0460 0003 8423 2603**, received by Central Fire Protection District of Santa Cruz County.

In response to the Environmental Impact Report of the Rispin Mansion, the District has specific concerns in regarding fire and life safety. The Rispin Mansion currently poses a threat to public and firefighter safety. (Please see the attached letter to the City of Capitola dated February 6, 2003.

The following mitigation measures will need to be addressed in the revised Environmental Impact Report. These measures are to ensure that the recognized standards of fire and life safety are fully met:

1. The mansion shall need to be equipped with fire and smoke detection system and notification equipment, as per the Uniform Fire Code/ Central Fire Protection District Adopted Standard and Amendments.

2. The mansion will be equipped with built-in fire suppression equipment such as fire sprinklers, hood and duct fire suppression equipment and related protection devices as per the current Fire Code adopted by Central Fire Protection District.

3. The area around the mansion is a wooded area with highly combustible eucalyptus trees and dead debris. The area adjacent to the mansion shall have a defensible fire zone and proper clearances.

4. Proper fire hydrants with the required fire flow for fire protection to the structure and surrounding areas shall be required.

5. The remodel of the mansion will need to be completed with seismic and earthquake protection standards for occupancy use.

6. Fire and paramedic rescue access and egress will need to be identified for emergency responses to the mansion.

7. Emergency services and on-going fire prevention inspections for fire and life safety code compliance, will be required.

8. The current taxation of the mansion and the proposed RDA expansion properties generate no tax revenue for the fire/paramedic and prevention services currently required for the mansion. Future development will require an agreed-to revenue mechanism for the services required to protect the new development of the mansion.

Bud, any further information regarding the revised environmental impact draft report on the Rispin Mansion, proposed design and or usages of the proposed mansion will need to be presented through the plan review process.

Thank you for you time, consideration and assistance in this project draft proposal.

Sincerely,

Bruce Clark

Bruce Clark, Fire Chief

Attachment

Central Fire Protection District
of Santa Cruz County

930 17th Avenue
Santa Cruz, CA 95062
Phone (831) 479-6842
Fax (831) 479-6847
Fax (831) 479-6848

February 6, 2003

FILE COPY

Mr. Richard Hill, City Manager
City of Capitola
420 Capitola Avenue
Capitola, CA 95010

Dear Mr. Hill,

As you are aware, the Central Fire Protection District over the years has responded to numerous fire calls in the area of the Rispin Mansion at 2000 Wharf Road and within the mansion itself.

The mansion is a prime target for arson fires as well as vandalism. Although the City of Capitola has tried to secure the premises with fencing, trespassing continues to be an on-going problem.

As the Fire Chief for this District I have grave concerns regarding the Rispin Mansion for the following reasons:

- The interior walls, floors and ceilings of this historical landmark have rotted posing a hazard for anyone who ventures into it. In an emergency situation our crews are themselves subject to these hazardous conditions. During the Worchester Fire of 2001 six firefighters lost their lives searching for people rumored to be in that deteriorated and abandoned structure.
- The structure is noncompliant with current fire and life safety codes.
- The current passageways provide no emergency access or egress.
- The fencing itself prohibits easy access to the structure which causes a costly delay in rendering services during an emergency.
- There is no built-in fire protection system which would mitigate some of the current problems with the mansion.
- The area surrounding the mansion is heavily wooded with highly combustible eucalyptus trees and much debris. When ignited this type of fuel can easily spread to the surrounding residences within a very short

span of time. From this you can understand why the trespassing and vandalism issues are of great concern not only for public safety, but also for the safety of our firefighters.

- Emergency responses to the mansion are important, yet they also impact fire and paramedic services to the rest of the community each time an incident occurs.

- We live in an unstable area with regard to earthquakes. Another seismic event such as the one in 1989 could very well cause a collapse of the structure.

- Protection of life and property is the mission statement of Central Fire Protection District; however, there will always be an environmental impact to the surrounding area when these services are rendered. I refer to the animals, native plants and habitat of certain species which could be adversely affected during the suppression phase.

Central Fire Protection District is recommending either the replacement or remodel of the mansion, which would include the installation of a modern fire protection system, in order to protect this historical landmark from a devastating fire. In so doing the risk to the community and our firefighters is greatly reduced.

The above concerns and suggestions are based on my thirty years of fire service experience. I believe it is essential as the Fire Chief of this District that I do all I possibly can to avoid a potentially catastrophic disaster. With your help, I believe we can work together to ameliorate this current situation.

Thank you for your time and consideration of this matter. Please give me a call so we can arrange a meeting to further discuss this issue. It is my hope that the Rispin Mansion can be made safe and by so doing preserve this vital part of the community for years to come.

Respectfully,

Bruce Clark

Bruce Clark, Fire Chief

BC/sds

Attachments:
Incident/Arson Reports

cc: Central Fire Protection District Board of Directors
Fire District Legal Counsel
Risk Management Contractor

Santa Cruz County Sanitation District

701 OCEAN STREET, SUITE 410, SANTA CRUZ, CA 95060-4073
(831) 454-2160 FAX (831) 454-2089 TDD: (831) 454-2123

THOMAS L. BOLICH, DISTRICT ENGINEER

March 26, 2003

PATRIZIA MATERASSI/BUD CARNEY
CITY OF CAPITOLA COMMUNITY DEVELOPMENT
DEVELOPMENT DEPARTMENT
420 CAPITOLA AVENUE
CAPITOLA, CA 95010

SUBJECT: NOTICE OF PREPARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT (EIR)
RISPIN MANSION PROJECT
APN: 35-031-32 & -37, 35-042-30

Dear Ms. Materassi,

This letter is in response to your request for the District's views for the scope and content of the proposed EIR. The draft EIR should address potential downstream capacity problems and mitigations, permit requirements and fees, and source control measures that the District staff will identify during this process.

Thank you for requesting our input on the draft EIR and notification for this proposed project. We have attached a copy of the District's sewer facilities adjacent to the proposed project. Please contact me at (831) 454-2160 if you have questions during the preparation of this report.

Yours truly,

THOMAS L. BOLICH
District Engineer

By: Rachel Lather

Rachél Lather
Sanitation Engineer

DR/af:341
attachment

c: DENISE DUFFY & ASSOCIATES ✓
947 CASS STREET, STE 5
MONTEREY, CA 93940

Santa Cruz County Sanitation District

701 OCEAN STREET, SUITE 410, SANTA CRUZ, CA 95060-4073
(831) 454-2160 FAX (831) 454-2089 TDD: (831) 454-2123

THOMAS L. BOLICH, DISTRICT ENGINEER

May 1, 2003

JEFF FOSTER
DENISE DUFFY & ASSOCIATES
500 DAMONTE RANCH PARKWAY, SUITE 929
RENO, NEVADA 89521

SUBJECT: RISPIN MANSION DRAFT EIR
APN: 35-371-01 & 02

Dear Mr. Foster:

The information that you submitted dated April 2, 2003, regarding the proposal to renovate the Rispin Mansion, allowed us to identify some general issues that the District will consider in our review of this project. These issues include but are not limited to:

1. Adequacy of downstream sewer mains' capacity and mitigation measures.

2. Installation of interior grease trap(s) and/or exterior grease interceptors and sampling manhole (See attached Figs. SS-16, SS-17, SS-18, and SS-20).

3. Installation of a duplex pump (private) with adequate reserve capacity and the requirement of an on-site, natural gas generator.

4. On-site investigation for unabandoned septic systems and related piping.

5. Investigation to determine if structures are currently connected to the public sewer.

6. Permit fees (see attached fee schedule).

As discussed in a phone conversation, we are unable to be more specific in our comments without enough information to calculate estimated water usage. Typically, we would be able to base our calculations from a plumbing plan, seating capacity and hours of operation of the restaurant/food service areas, how often the wedding pavilion will be used and other pertinent information.

As more information is provided to the District, the better we will be able to provide you with more specific information. Additional issues may be added based upon future information provided by you, the city of Capitola, and/or a private developer.

Please submit complete and final information to assist us for the permit process, capacity study and source control requirements when it is available. You may contact us for additional information regarding the permit process at (831) 454-2160 or Source Control requirements at (831) 465-7439.

Yours truly,

THOMAS L. BOLICH
District Engineer

By: zRachél Lather

Rachél Lather
Sanitation Engineer

DR:abc/630

Attachments

c: City of Capitola
Jo Fleming, Water and Wastewater

SIZING SPECIFICATIONS FOR

EXTERIOR GREASE INTERCEPTOR

Exterior Concrete Grease Interceptors shall be sized according to the following formula:

For Restaurants: Interceptor size in gallons = seating capacity x 4.5 gallons x 2.5 hours x hour factor
Interceptor size in liters = seating capacity x 17 liters x 2.5 hours x hour factor

(4.5 = gallons used per seat per hour) (2.5 = hours of retention required for grease separation.)
(17 = liters used per seat per hour)

Example: 120 seats x 4.5 gallons x 2.5 hours x 2.0 hour factor = 2700 gallons
120 seats x 17 liters x 2.5 hours x 2.0 hour factor = 10,200 liters

The next larger standard size interceptor shall be used when the above calculation yields an intermediate size.

HOUR FACTOR = increase in size to compensate for hours of operation.		
1 hour = 1.02	9 hours = 1.28	17 hours = 1.82
2 hours = 1.04	10 hours = 1.35	18 hours = 1.86
3 hours = 1.06	11 hours = 1.42	19 hours = 1.89
4 hours = 1.08	12 hours = 1.50	20 hours = 1.92
5 hours = 1.11	13 hours = 1.58	21 hours = 1.94
6 hours = 1.14	14 hours = 1.65	22 hours = 1.96
7 hours = 1.18	15 hours = 1.72	23 hours = 1.98
8 hours = 1.23	16 hours = 1.77	24 hours = 2.00

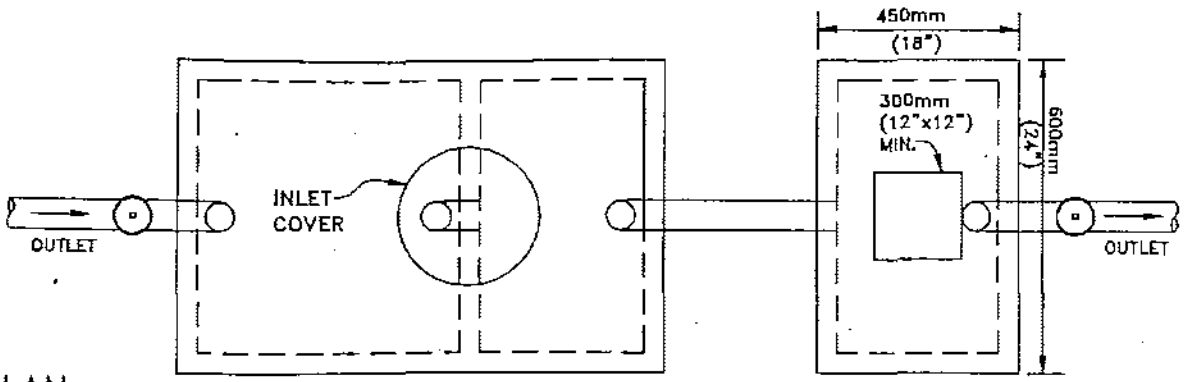
For Hospitals: Interceptor size in gallons = No. beds x 4.5 gallons x 2.5 hours x hour factor
Interceptor size in liters = No. Beds x 17 liters x 2.5 hours x hour factor

For Bed and Breakfast Inns:

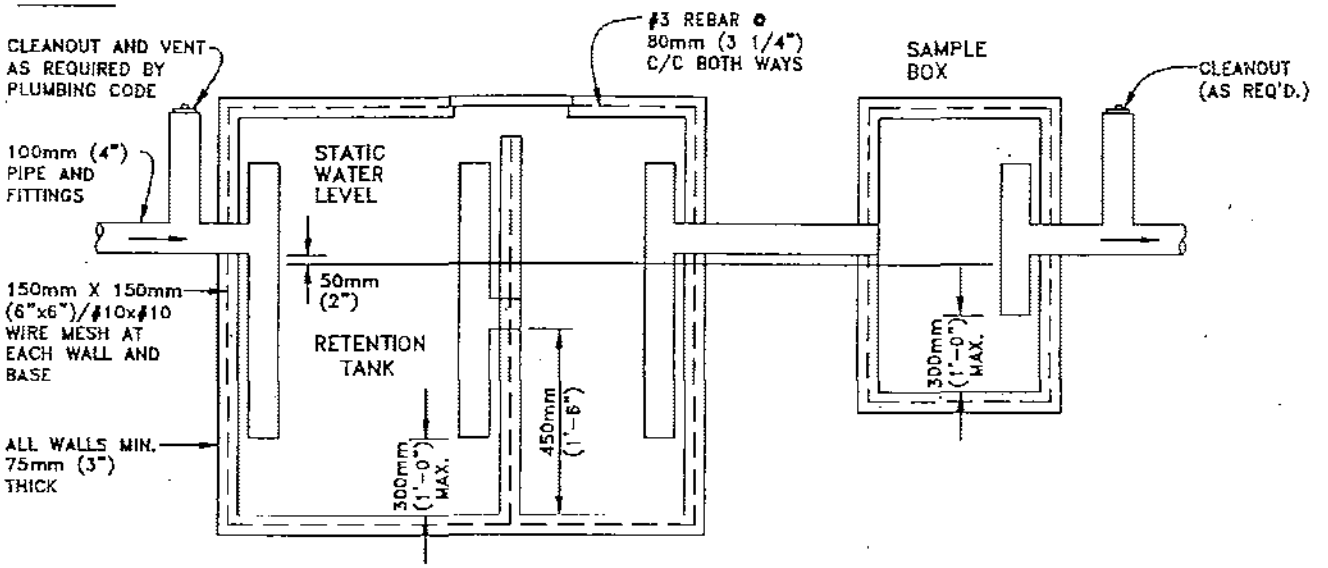
Pretreatment devices (grease interceptors or grease traps) shall be required for Bed and Breakfast Inns with six (6) or more rooms.

Exterior grease interceptors are required for any size Bed and Breakfast Inns offering full menu service.

The minimum size exterior concrete interceptor allowed is 1325 liters (350 gallons) for all applications.



PLAN



SECTION

NOTES

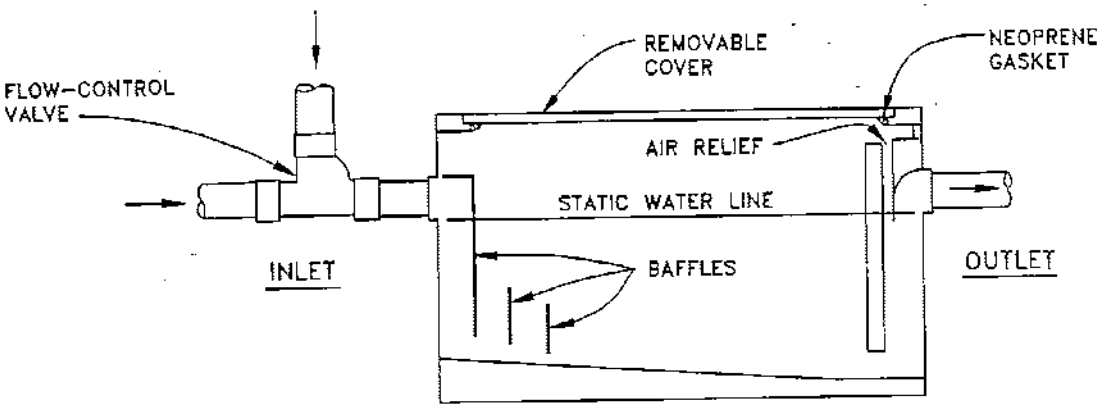
1. Size and details of the grease interceptor shall be approved by the District Engineer prior to installation.
2. Secure necessary permits from the Building Department and check location and structural requirements before beginning installation of the grease interceptor.
3. All covers shall be tight-fitting, removable, easily-accessible, and supplied with a gasket type seal.
4. The interceptor shall be located and installed outside of the building and shall be constructed in such a manner as to exclude the entrance of surface water, and storm or rain water. Tanks must be set level.
5. Grease interceptor or forming for grease interceptor shall be installed prior to the time of rough plumbing inspection. For inspection of grease interceptor call (831) 454-2160, 24 hours prior to installation or concrete pour.
6. Precast structures of equivalent capacity may be installed.
7. Toilet facilities are prohibited from flowing through the interceptor.
8. A running trap and cleanout may be required if odors from venting become excessive.
9. If water is present at excavated depth, then a minimum of 75mm (3 inches) of drain rock shall be laid in the bottom of the trench prior to setting the tank.

REV. 9-98

EXTERIOR GREASE INTERCEPTOR

FIG. SS-17

TYPICAL GREASE TRAP DETAIL



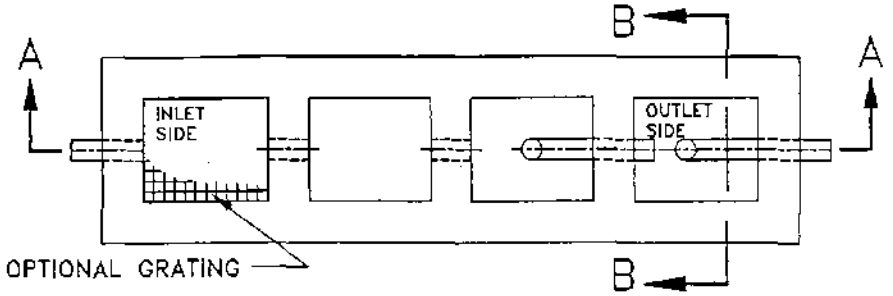
SPECIFICATIONS FOR INTERIOR TYPE GREASE TRAPS

TYPE FOOD SERVICE	SERVING	MIN. SIZE REQUIRED	FIXTURES TO TRAP*
Dairy Stand & Food Stand	Dairy products, hamburgers, fries	45kg (100#)	Pot Sink(s) & Janitorial Sink
Hamburger Stand	Hamburger, fries, sandwiches	45kg (100#)	"
Fish & Chips	Take out	32kg (70#)	"
Pizzeria	Pizza & drinks	32kg (70#)	"
Hot Dog Stand	Hot dog, kraut	32kg (70#)	"
Donut Shop & Bakery	Donuts, coffee, milk, tea	45kg (100#)	"
Delicatessens	Meats, cheeses, sandwiches, salads	45kg (70#)	"
Sandwich Shops	Sandwiches, salads, soups	45kg (70#)	"
Ice Cream Services	Ice cream	45kg (70#)	"
Espresso Bars	Coffee & steamed milk	45kg (70#)	"
Frozen Yogurt (Low Fat Included)	Yogurt	45kg (70#)	"

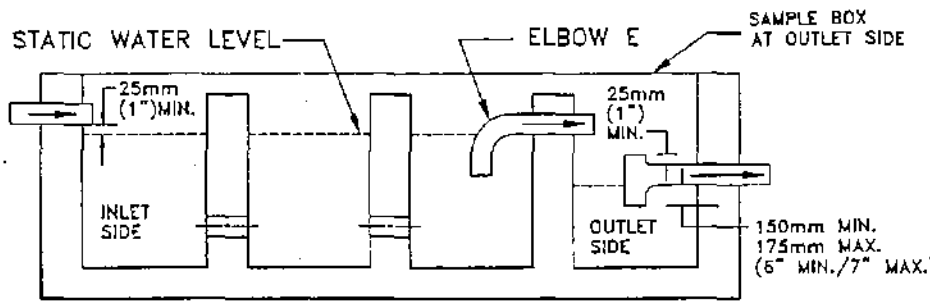
NOTES:

1. Toilet facilities are prohibited from flowing through grease trap.
2. Installation pursuant to District requirements, manufacturer's recommendations, and U.P.C.
3. A plumbing permit must be obtained from the Building Department.
4. *Under no circumstances shall an automatic dishwasher ever be connected to a trap (inter

INTERIOR GREASE TRA
FIG. SS-18



PLAN VIEW



SECTION A–A

SECTION B–B

TYPICAL CLARIFIER DETAIL

NOTES

1. Secure necessary permits from the Building Department and/or the Sanitation District and check location and structural requirements before beginning installation of clarifiers.
2. Size and details of clarifiers shall be approved by the District Engineer. Refer to Figure SS–19.
3. Clarifier or forming for clarifier shall be installed prior to the time of the rough plumbing inspection. Call 454–2160 for inspection of clarifier 24 hours prior to installation or concrete pour.
4. Inlet box shall be covered with a removable iron plate or grill as specified. The other compartments and the sample box shall be covered with a removable, tight fitting, solid metal plate.
5. Waterways of compartments can be made using a 75mm (3") by 100mm (4") slot or by installing pipe fittings of equal diameter to that of the outlet pipe. Keep waterways below bottom of "Elbow E."
6. Allow no surface, storm or rain water to enter the clarifier at any time.
7. Clarifier may be constructed in two separate parts providing that waste flows through all boxes.
8. Outlet from clarifier shall be properly vented per U.P.C. standards.
9. All lines shown shall be 100mm (4") minimum.

REV 9–98

STANDARD CLARIFI
FIG. SS–20

sewer connection permits issued on or ...y 27, 1987, for each new senior residen-..., specifically constructed for low-income ...ior citizens, and for those particular affordable housing units specifically constructed for ownership by below-average-income households (as qualified on a case-by-case basis by the board of directors) within those categories as defined by the county planning department, twenty-five percent of the base charge described in subsection A of this section, plus one hundred sixty-five dollars per fixture unit, where the number of fixture units exceeds twelve, as determined and defined under the 1997 Uniform Plumbing Code, Table 7-3. Any such senior or below-average affordable residential facilities beyond seventy-five units per year would be subject to further review and approval by the board of directors.

2. The board has the authority to issue an interest-free loan, on such terms and conditions it deems reasonable, to the owners of affordable rental housing projects, provided that a condition of such loan include a provision that the loan is paid back in full if the project is refinanced or sold to a third party before the loan is paid in full to the district. The board may elect to record a deed of trust with the county recorder's office as a lien against the property.

C. For each new commercial and industrial facility or parcel, twelve dollars multiplied by the estimated number of gallons of sewage discharged per day of average daily flow; provided, however, that the connection charge shall be not less than three thousand dollars; and provided further, that in the case of industrial facilities or parcels, in the event that the quality of waste discharge by an industrial facility or parcel is of such a character that it will impose a more than normal maintenance and operation burden on the district works, the amount of the connection charge beyond the above base charges for such industrial facility or parcel shall be determined by the board.

D. For each residential swimming pool or spa, two hundred dollars where "residential" is defined as not more than four dwelling units. For each commercial or multiresidential swimming pool, six hundred dollars where "multiresidential" is defined as five or more dwelling units.

E. For each residential or commercial facility which existed within the district prior to October 3, 1972, fifty percent of the normal fee. (Ord. 98 §2, 2000; Ord. 74 §1, 1992: Ord. 59 §1, 1987; Ord. 58 §1(part), 1987: Ord. 56 §1, 1987; Ord 53 §1, 1986; Ord. 52 §1(part), 1986: Ord. 47 §1, 1984; Ord. 32 §1(part), 1981: Ord. 18 §1(part), 1977: Ord. 4 §2.2, 1973)

SOQUEL CREEK WATER DISTRICT

Board of Directors
Daniel F. Kriege, President
John W. Beede, Vice President
Bruce Daniels
Dr. Bruce Jaffe
Dr. Thomas LaHue

Laura D. Brown, General Manager

April 14, 2003

City of Capitola
Community Development Department
420 Capitola Avenue
Capitola, CA 95010

Attn: Patrizia Materassi/Bud Carney

Post-it® Fax Note 7671 | Date 4/30/03 | # of pages 2
To Bud Carney | From P. Materassi
Co./Dept. | Co.
Phone # 688-3168 | Phone #
Fax # | Fax #

Subject: Response to Notice of Preparation of a Revised Draft Environmental Impact Report for the Rispin Mansion Project

Dear Ms. Materassi and Mr. Carney:

Thank you for providing the Soquel Creek Water District with the Notice of Preparation for the subject project. We wanted to take this opportunity to advise you that the Board of Directors of Soquel Creek Water District will soon be considering conditions for approving new water services that could require specific design considerations for the Rispin Mansion Project in order to limit water use and detain storm water runoff for the purpose of groundwater recharge. At this time, we do not know exactly what these requirements may be; however, listed below are guidelines for addressing water use and hydrological issues in the EIR:

1. The final design should satisfy all conditions for water conservation required by the Soquel Creek Water District at the time of application for service including the following:
   a) Plans for a water efficient landscape and irrigation system that meet the District's conservation requirements;
   b) All interior plumbing fixtures shall be low-flow and all Applicant-installed water-using appliances (e.g. dishwashers, clothes washers, etc.) shall have the EPA Energy Star label;
   c) Inspection by District Staff of the completed project for compliance with all conservation requirements prior to commencing water service.
2. The number and size of all water meters are to be determined by Soquel Creek Water District.
3. This development may be required to bear the cost of retrofitting existing structures with low water use fixtures to achieve a level of water use reduction as determined by the District.
4. This project appears to be located within the County's groundwater recharge area. Limitations and requirements addressing storm water runoff and groundwater recharge may also be conditions of receiving water service.

The EIR should be sensitive to the impacts of the project both in terms of water demand and reduced groundwater recharge associated with impervious groundcover. Mitigation measures should be employed to have essentially zero impact in both of these areas.

City of Capitola
Attn: Patrizia Materassi/Bud Carney
April 14, 2003
Page 2

I hope this response is helpful to you. Please contact the District's Conservation Coordinator, Christopher Regan, if you need more information.

Sincerely,
SOQUEL CREEK WATER DISTRICT

Laura D. Brown

Laura D. Brown
General Manager

Cc: Christopher Regan, Soquel Creek Water District Conservation Coordinator
Jeffrey Gailey, Soquel Creek Water District Engineering Manager

APPENDIX B

Grading Quantities and Drainage Calculations

This page intentionally left blank.

AKERS & ASSOCIATES - CIVIL ENGINEERING

830 BAY AVE. STE. E CAPITOLA, CA. (831) 475-6557

BY: JA DATE: 10/30/07 SUBJECT: **THE INN AT RISPIN MANSION** SHEET 1 OF 1

GRADING

A. South End Building & Pathway	Cut 610 cy
B. Garage, Parking & Security Office	Cut 640 cy
C. Rispin Pavilion	Fill 410 cy
D. North Terrace Units	Cut 133 cy
E. Pathways on site	Cut 40 cy
Total	Cut 1423 cy Fill 410 cy
Net Change Export	**1013 cy**

CHANGE IN IMPERMEABLE SURFACES

	Remove	New Coverage
A. South End Building		2510 sf
B. Garage, Parking & Security Office		1555 sf
C. Rispin Pavilion		1964 sf
D. North Terrace Units		1380 sf
E. Pathways on site		2535 sf
Remove Existing Concrete & Paving	3919 sf	
	3919 sf	9944 sf
Net change Impermeable Surface	**+6025 sf**	

All other new walks to be brick or DG.
All decks or boardwalks to be permeable surfaces

830 BAY AVE. STE. E CAPITOLA, CA. (831) 475-6557

BY: JA DATE: 10/25/02 SUBJECT: **RISPIN MANSION** SHEET 1 OF 1

DRAINAGE CALCULATIONS

Drainage Areas

Existing Impervious Areas			Existing Impervious Areas to be Removed			New Impervious Areas to be Added		
Ex.Bldg	4948	sf	Ex. Paving	2888	sf	New Build.	6732	sf
Ex. Walk	10452	sf	Ex. Conc.	1031	sf	New Park.	677	sf
Ex. Paving	7088	sf				New Walks	2535	sf
Ex. Found.	2466	sf						
Misc. Conc	2243	sf						
Total	27197	sf	Total	3919	sf	Total	9944	sf
or	0.62	Ac.	or	0.09	Ac.	or	0.23	Ac.

Design Values

Run off Formula Q=CaCiA Ca = (Antecedent Moisture Factor) Ca= 1.0 (10 yr.) ; 1.1 (25 yr.) & 1.25 (100 yr.)
C= (Run off Coefficient) Impervious Areas=0.90; Pervious Areas=0.35
i= (Rainfall Intensity) For P60 (County Fig. SD-6)10 yr. storm and 10 min. Duration i=2.1
For 15 min. Duration i=1.8
i=2.1x1.2=2.52 (25 yr. Storm) and I=2.1x1.49=3.13 (100 yr. Storm) for 10 min. Duration
A= area in acres

Design of Required Detention

From County Curve A (Fig. SD-5) using P60=1.5 and C=.9 Required Storage for added Impervious Areas= 1900 cf per acre.

Required storage = 1900(0.23-.09) = 266 cf (For 10 yr. Storm)

Site Runoff Calculations

Total Area of Site to Water Level = 207,489 sf or 4.76 Ac.

25 year storm	Predevelopement	A1=0.62 C=0.9	CA=	0.56	
		A2=4.76-0.62 C=.35	CA=	1.45	Q=Ca(sumCA)I
			Sum	2.01	Q=1.1(2.01)2.52= 5.57 cfs
	Post Developement	A1=0.62+.23-.09=0.76 C=.9	CA=	0.68	
		A2=4.76-0.76= 4.00 C=0.35	CA=	1.40	
			Sum	2.08	Q=1.1(2.08)2.52=5.76 cfs

Increase runoff 25 yr. Storm = 5.76-5.57 = **0.19** cfs

100 year storm

Increase runoff 100 yr. Storm = 0.19(1.25/1.1)(1.49/1.2) = **0.28** cfs

APPENDIX C

Riparian Delineation Report, Monarch Butterfly Reports, Tree Preservation Report, and Interim Management Plan

This page intentionally left blank.

September 17, 2001

Anthony Carney
City of Capitola
Community Development Department
420 Capitola Avenue
Capitola, CA 95010

Subject: Delineation and Assessment of Riparian Habitat on the Rispin Mansion Parcel in Capitola, California

Dear Mr. Carney:

As requested, we have conducted an updated biological field survey and characterization of riparian habitat on the 6.5 acre Rispin Mansion site located on the eastern side of Wharf Road. The objective of this updated assessment was primarily to complete an inventory and mapping of all trees on the Rispin Mansion site between the edge of Soquel Creek and Wharf Road and based on this information, to define and delineate the edge of the riparian habitat on the surveyor-level topographic base map of the parcel. The firm of Joe L Akers Civil Engineers conducted the tree inventory and mapping during July 2001. All trees greater the 6 inches in diameter at breast height were marked and surveyed using theodolitic laser reference from established known reference points on the site. All trees were measured for diameter and identified to the best of their ability to species. Individual trees were then mapped on the topographic base dated February 1997. Ecosystems West biologist Bill Davilla and Roy Buck conducted a field surveys during August 2001 to verify the accuracy of the tree mapping and to correct or assign, when necessary, the species identification of each tree mapped. In addition, a few additional trees were added to the map, particularly adjacent to the stream on the east side of the parcel and north of the footbridge over Soquel Creek. We also characterized the habitats on the parcel and delineated the edge of the riparian habitat on the Akers' base map.

Jones and Stokes Associates as part of the Rispin Project Draft EIR biologically characterized the Rispin Mansion property in 1991. During the course of their investigations they characterized the habitats on the Rispin Mansion parcel as riparian, redwood groves, eucalyptus grove and horticultural plantings. The riparian habitat was more specifically delineated as coast live oak riparian forest on the parcel. This mapping closely-approximates the area identified as riparian corridor by Harvey and Stanley Associates, Inc. (October 24, 1980).

HABITAT CHARACTERIZATION

The Rispin Mansion parcel is characterized by a staircase of terraces with steep slopes between the terraces. The parcel is heavily wooded with the exception of the flat, open pad above the mansion to the west. This area is characterized by bare, compacted ground with a fringe of coast live oaks (*Quercus agrifolia*). The habitats on the mansion parcel are best characterized as blue gum groves, redwood stands, coast live oak woodland, alder-sycamore riparian forest, and horticulture/ruderal. Physiographically the vegetation structure is best characterized by slope position and exposure. Habitats observed on the parcel include the:

Slope north of mansion, west of Soquel Creek. The vegetation of this area is diverse, and includes native species, weedy non-natives, and escaped horticultural species. There is an open tree canopy comprised of a variety of both native species, including coast live oak (*Quercus agrifolia*), bigleaf maple (*Acer macrophyllum*), redwood (*Sequoia sempervirens*), California buckeye (*Aesculus californica*), and California bay (*Umbellularia californica*), and non-native species, including pittosporum (*Pittosporum* sp.) and plum (*Prunus* sp.). Shrubs are abundant but unevenly distributed in this habitat. Poison-oak (*Toxicodendron diversilobum*) is the only abundant native shrub. The invasive non-native shrub French broom (*Genista monspessulana*) is also abundant. Most of the other shrubs present are horticultural escapes. The understory is largely dominated by vines and vine-like plants, including the native Pacific blackberry and the non-natives greater periwinkle, English ivy, and perennial sweet pea (*Lathyrus latifolius*). Locally in the understory, vines are absent or nearly so; these areas are dominated primarily by weedy non-native grasses and herbs, including hare barley (*Hordeum murinum* ssp. *leporinum*), rattlesnake grass (*Briza maxima*), dogtail grass (*Cynosurus echinatus*), prickly lettuce (*Lactuca serriola*), hairy cat's-ear (*Hypocharis radicata*), and sheep sorrel (*Rumex acetosella*).

Slope south of mansion, west of Soquel Creek. This area is largely dominated by the non-native tree blue gum (*Eucalyptus globulus*). Species diversity is low in the understory, which is largely dominated by greater periwinkle and English ivy, with scattered poison-oak, small individuals of the non-native tree silver wattle (*Acacia dealbata*), and horticultural shrubs.

Floodplain terrace southeast of mansion, west of Soquel Creek. This area may once have supported a riparian forest similar to that on the east side of the creek, but its vegetation composition has been greatly altered by disturbance and the invasion (or planting) of non-native trees. Plus the parcel slopes abruptly into the stream corridor and providing little exposed flood plain. The riparian forest is characterized by a moderately dense tree canopy primarily consisting of the native riparian species red alder (*Alnus rubra*), box elder (*Acer negundo* var. *californicum*), California sycamore, and shining willow (*Salix lucida* ssp. *lasiandra*) and the non-native species blue gum, silver wattle, and pittosporum. The understory is largely dominated by a dense cover of Pacific blackberry, cape-ivy, greater periwinkle, and English ivy, with scattered

poison-oak. Bracken fern is moderately abundant, and a considerable amount of the native, moisture-loving fern ally giant horsetail (*Equisetum telmateia* ssp. *braunii*) occurs locally near the edge of the stream.

RIPARIAN DELINEATION

As indicated above, the portions of the Rispin Mansion parcel have been classified and previously mapped as riparian habitat primarily coast live oak riparian forest (Jones and Stokes 1991). In addition portions of the property are mapped as Soquel Creek Riparian Corridor (Harvey and Stanley Associates, Inc. 1980). As designated, development in the riparian corridor on that portion of Soquel Creek between Highway 1 and the lagoon in Capitola Village must follow those conditions as stipulated under City of Capitola Ordinance No. 677, Subsections B., C., and G. of Section 17.95.030. In particular, these conditions stipulate a thirty-five foot setback from the outer edge of riparian vegetation for all new development. Based on this updated analysis, we still believe that the FEMA Floodplain and Floodway Boundary depicted on the site plan map (1997) approximates the upper edge of riparian habitat on the Rispin Mansion Parcel. Species observed below this boundary line are riparian dependent species including red alder, shinning willow, California sycamore and California box elder. All these species were rooted below the 20-foot contour. Based on the location of these species we conservatively delineated the edge of the riparian habitat at approximately the 20-foot contour as shown on Sheets 1 and 2 of the Rispin Mansion Restoration Project Plans dated February 1997 as amended in August 2001.

The slopes above the 20-foot contour line are steep and hardened comprised of siltstone and sandstone. Marine terrace deposits underlie the majority of the property with the exception of the edge of the creek and are estimated to be up to 40 feet thick (Denise Duffy and Associates 1998). The habitats above the flood plain boundary support species and structure typical of canyon slopes above large stream courses. In this area the habitats transition from a narrow riparian dependent plant community to a mixed canyon woodland community of bay, buckeye, coast redwoods into a coast live oak woodland and ultimately a coast live oak savanna habitat remnant on the old coastal marine terraces typical of the Live Oak area.

Coast live oak riparian habitat is typically a narrowly, homogenous structured community comprised of a dense band of coast live oak along intermittent stream corridors. They primarily occur in the inter Coast Ranges surrounded by oak savanna. Tree density and the narrow corridor is a reflection of stream ground water availability and a shallow slope and banks. Coast live oak on this portion is not directly supported by stream flow or stream ground water associated with Soquel Creek.

As presently proposed the new developments would be primarily outside the City of Capitola's 35 foot recommended riparian vegetation setback. Although no direct impacts to riparian vegetation are proposed, indirect impacts from erosion or slope slippage from developments on the steep slopes above the creek may occur. All Ordinance conditions

should be followed including landscaping compatibility, erosion control, and development setbacks. Retention of the existing mature tree vegetation will continue to provide buffered protection of the riparian habitat along Soquel Creek near the Rispin Mansion parcel.

Sincerely,

Bill Davilla
Principal/Plant Ecologist

Denise Duffy and Associates. 1998. Draft Environmental Impact Report for the Rispin Mansion, Mini-Park and Library Projects SCH#97121056. Prepared for the City of Capitola, California.

Jones and Stokes Associates. 1991. Rispin Project Draft Environmental Impact Report (EIR). Prepared for the City of Capitola, California.

Richard A. Arnold, Ph.D.
President

Entomological Consulting Services, Ltd.

104 Mountain View Court, Pleasant Hill, CA 94523 • (925) 825-3784 • FAX 827-1809
bugdctr@home.com • www.ecaltd.com
New email address: bugdctr@attbi.com

17 April 2003

Mr. David S. Keegan, Wildlife Biologist
Denise Duffy & Associates, Inc.
947 Cass Street, Suite 5
Monterey, CA 93940

RE: Rispin Mansion in Capitola, CA
EIR Issues Pertaining to the Monarch Butterfly

Dear Dave:

This letter reports the findings of my review of various pertinent documents, site plans, landscaping plan, and alternatives proposed in the Revised Draft Environmental Impact Report or Revised DEIR (Denise Duffy & Associates, Inc. 2003) for the proposed project at the Rispin Mansion in Capitola, CA. My comments are restricted primarily to issues dealing with the use of the Rispin Mansion site as overwintering habitat for the Monarch butterfly (*Danaus plexippus*). In addition, background information on the overwintering habitat for the Monarch and recommendations for project planning are provided, the latter based on the four alternative projects that are presented in the Revised DEIR.

Background Information on the Monarch Butterfly and its Overwintering Habitat.

Due to its nearly worldwide distribution and annual migration behavior, the Monarch butterfly is one of the best known insects in the world. Its annual migrations to California and central Mexico are legendary. However, this phenomenon is threatened due to loss of habitat in areas favored by the butterfly for spending the winter months.

Monarchs cannot survive the colder winter months of most parts of North America. For this reason, Monarch butterflies travel to their overwintering areas during the fall months of each year. Monarchs that live west of the Rocky Mountains migrate to coastal areas of California, while those that live east of the Rockies travel to a few sites in the mountains of Central Mexico. In coastal California, overwinter roosting sites range from northern Baja California to southern Mendocino County. Although most overwinter roosting sites in California are usually located within 0.5 to 1 mile of the coast (Weiss et al. 1991, Nagano and Lane 1985), roosts have been found as far inland as Bakersfield in Kern County (Davenport 1983), Saline Valley in Inyo County (Nagano and Lane 1985), and Fairfield in Solano County (Fadem and Shapiro 1979). Along the Santa Cruz coastline, there are several locations of Monarch overwintering habitat between Moore Creek just north of the City of Santa Cruz and Watsonville (Nagano and Lane 1985; California Natural Diversity Data Base 2002).

In California, clustering behavior begins once migrating Monarchs reach their overwintering sites in the fall. The terminology used to describe overwintering habitats used by the Monarch has been variously described in the entomological literature; however, the duration of residence is often used to differentiate the types of Monarch wintering habitats:

a) sites that support clusters of wintering Monarchs for a few days to about a month are referred to as temporary habitats; and
b) sites that host clusters of wintering Monarchs for about one to six months are referred to as overwintering habitats, and can be further subdivided into two subcategories, namely:
    1) part-term overwintering sites, which generally support wintering Monarch populations from October into December; and
    2) full-term overwintering sites, which support wintering Monarch populations for the entire season from October through February (in most years).

Additionally, four types of roost areas and temporary habitats are generally recognized, including:

a) refuge areas, which provide temporary protection from inclement weather and/or convenient areas to roost overnight while migrating;
b) bivouac areas, which host populations of migrating Monarchs for a few days to several weeks;
c) autumnal roost areas, which generally host Monarchs throughout the month of October and often into November, and are usually associated with fall-blooming composites, English Ivy, and other sources of fall nectar favored by the Monarch; and
d) mid-winter roost areas, which host Monarchs from about mid-December through February in habitats with a series of sequentially occupied roost areas.

In the fall months, typically in September and October, numerous, generally small temporary aggregations are formed, especially in areas where nectar plants are plentiful near the coast. Monarchs at many of these sites disperse to part-term or full-term overwintering sites as nectar sources, air temperature, and day length decrease. Some sites may serve as overwintering sites one year and temporary sites another year, or a mixture of the two. Occasionally, previously utilized overwintering sites and/or temporary sites are abandoned for one or more seasons as a natural phenomenon.

Overwintering sites are characterized by groves of trees of mixed height and diameter, and frequently with an understory of brush. Often there is a small clearing within a stand of trees, or formed by a combination of the trees and surrounding topography, to provide shelter for the butterfly. These overwintering sites protect the butterfly from prevailing on-shore winds and freezing temperatures, plus exposure to the sun (as further described below). The vegetation serves as a thermal "blanket" which moderates extreme weather conditions (Calvert and Brower 1982). At some locations, topographic features as well as nearby buildings or other man-made structures may provide some protection as well (Dayton 2002).

Recent research has demonstrated that forest canopy structure is a primary determinant of microclimatic conditions in forest stands, and is undoubtedly an important factor in the

Monarch's selection of particular locations as overwintering sites (Bell 1997; Leong 1990; Sakai et al. 1989; Weiss et al. 1991). Many of the best overwintering sites provide a heterogeneous mixture of habitat conditions and resultant microclimatic conditions that assist the Monarchs to survive seasonal changes in climatic conditions during the winter. For example, overwintering habitat sites must provide wind protected roost locations (usually tree branches that are 15-50 feet above ground), with buffered temperatures, relatively high humidity, and filtered sunlight throughout the fall and winter months. As weather conditions and exposure to sunlight vary over the winter months, high habitat heterogeneity at an overwintering site permits the Monarch roosts to satisfy their thermoregulatory needs by moving from tree to tree in response to changes in weather conditions. Thus during the early part of the overwintering period (October – November), when daily temperature maxima are relatively high, Monarchs tend to cluster in locations that provide brief morning insolation, with mid-day and afternoon shade. Later in the season (December – February), when temperature maxima are lower, they tend to roost in trees that receive afternoon sunlight. Trees surrounding roost locations, known as windbreak or buffer trees, provide both wind protection and ameliorate microclimatic conditions near the roost trees.

A number of part-term and full-term overwintering habitat sites in coastal California are located in groves of introduced trees. Favored trees for Monarch roosts include, Blue Gum *(Eucalyptus globulus),* River Gum *(E. camaldulensis),* Monterey Pine *(Pinus radiata),* and Monterey Cypress *(Cupressus macrocarpa),* although a number of other native and introduced species of trees are also utilized (Lane 1993). Clusters typically form between about 15 and 50 feet above ground, but have been observed as low as 6 feet and as high as 75 feet.

As described by The Monarch Project (1993) and the previously cited researchers, several characteristics of an overwintering habitat site are important to the Monarch butterfly, namely:

a) trees that provide suitable roost, wind protection, and shade;
b) on-site or nearby plants that flower and produce nectar to sustain adult Monarchs during their overwintering period; and
c) suitable sources of water.

Within the overwintering habitat, roost areas include the trees (i.e., the roost trees) on which the Monarchs gregariously cluster, plus the surrounding trees (i.e., primary and secondary windbreak trees), which protect the roost trees from winds by a combination of their spatial configuration and density. To emphasize this point, The Monarch Project (1993) stated, "because windbreak trees are so important, local ordinances protecting "Monarch trees" (i.e., roost trees) can frequently be ineffectual in that the trees providing wind protection are ignored in the process. If sufficient habitat is not protected, including trees that Monarchs are never seen clustering on, the site could as easily be destroyed as if the center of the grove were removed."

At some overwintering habitat sites, topography can also provide wind protection. Gullies, canyons, creek drainages, and the lee sides of hills are the types of areas in which Monarchs will roost, if the appropriate tree cover is present. For this reason, the roost area includes not only the trees on which the Monarchs cluster, but also any surrounding trees, topographic features, and other features (including man-made) in a full 360° around the roost trees, that act as windbreaks as well as provide dappled sunlight and shading for the limbs and trees on which the Monarchs roost. Although the butterflies are inactive on colder, rainy, or

foggy days, they will fly from the roost trees on warmer, sunny days to obtain the water and nectar that is needed to sustain them through the winter. Thus, an on-site or a nearby source of water and an abundance of fall and winter-blooming nectar plants are also important factors in determining where the butterflies will roost. Monarchs can obtain water from natural or man-made bodies of water, runoff from sprinklers, and dew on vegetation (Nagano and Lane 1985). Important nectar plants at many overwintering sites include, *Eucalyptus* trees, Coyote Bush *(Baccharis),* wild mustard *(Brassica),* and Bottlebrush *(Callistemon),* although other native and introduced species will be used if available.

In concluding this discussion, I must emphasize that although a number of basic features are important determinants in the suitability of a particular location to serve as an overwintering habitat site by the Monarch butterfly, there is also an interaction of these and other factors that is only beginning to be understood by researchers. Also, because features of a site can change due to the growth of trees and understory vegetation, thinning or removal of trees, removal of brush, changes in nectar plant abundance, etc., Monarch usage of a particular site may vary from year-to-year and for longer durations. Indeed, new overwintering habitat sites continue to be discovered in California as conditions become favorable, even in areas where overwintering habitats were not previously observed. Similarly, when habitat quality deteriorates at locations that previously supported winter roosts, Monarch numbers decline and butterfly may even cease to roost at these sites. For example, at Natural Bridges State Beach, downed trees that previously provided windscreen protection, have likely contributed to the reduced numbers of Monarchs observed there in recent years. Clearing of brush and thinning of trees are common vegetation management practices that have adversely impacted Monarch roosting sites, even on public lands (Nagano and Lane 1985; Weiss et al. 1991). Conversely, adaptive management at historic roosting sites, such as planting of windscreen and roost trees, planting of nectar sources, selective limb pruning, and control of invasive plants, can assist in the maintenance of these sites as viable overwintering habitat.

Conservation of Overwintering Habitats.

At the international level, conservation of overwintering sites of the Monarch has become a top priority for the International Union for the Conservation of Nature and Natural Resources (IUCN). In 1983, the IUCN recognized the annual migration and overwintering cycle of the Monarch butterfly as a threatened phenomenon (Wells, Pyle, and Collins 1983).

In California, the legislature acknowledged the need to protect the Monarch's overwintering sites with the passage in 1987 of Assembly Bill #1671. The butterfly's overwintering habitats are protected under two statutes dealing with natural resources and the environment, the Public Resources Code and the Fish and Game Code. The primary agency responsible for administering and enforcing the former statute is the California Coastal Commission, while the California Department of Fish & Game (CDFG) is responsible for the latter. CDFG tracks the locations of Monarch overwintering sites through the California Natural Diversity Data Base (CNDDB), which includes an entry for the Rispin Mansion site, and considers the Monarch to be a CDFG California species of concern.

Overwintering habitats of the Monarch that are located within the state's coastal zone are often considered to be "environmentally sensitive habitat areas" (ESHA), which are afforded protection under Sections 30240 (a) and (b) of the California Coastal Act. The City of Capitola has an environmentally sensitive habitat (ESH) ordinance, municipal code #17.95, which is intended to protect Monarch habitat from impacts due to development in or adjacent to the habitat. In preparing my report, the City of Capitola requested that I identify the Monarch's overwintering habitat at the Rispin Mansion site. The City of Capitola will use the information in my report to determine where the ESHA (coastal zone only) and ESH boundaries occur at the Rispin Mansion project site.

History of Monarch Usage at Rispin Mansion.

The Monarch butterfly's use of the Rispin Mansion site has previously been studied by several biologists during the past 25 years. Christopher Nagano and John Lane (1985) documented Monarchs at the Rispin Mansion in 1982-1983 and 1985 and referred to the site as a permanent roost (i.e., full-term overwintering habitat in this report) because butterflies were observed at the site in January, after the winter solstice, which is the date used by some biologists to distinguish the Monarch's part-term and full-term overwintering habitat. Lane (1983) also published an independent report on the Monarch at the Rispin Mansion site, but I was unable to obtain a copy of this document.

In contrast, Paul Cherubini (1984) characterized the Rispin Mansion as an autumnal roost site based on his observations of the butterfly there in 1977-78, 1978-79, 1979-80, and 1982-83. Elizabeth Bell and John Dayton (1991) observed Monarch at the Rispin Mansion during October and November. Additional surveys were conducted by Bell at Rispin Mansion, plus nearby overwintering habitats at Escalona Gulch and Natural Bridges State Park during the fall/winters of 1996-1997, 1997-1998, and 1999-2000 to provide observations throughout the full roosting period and to compare results obtained between different sites and years. Results of these surveys were summarized by Denise Duffy & Associates, Inc. (2000) and (Bell 2000), and indicated that the Monarch used the site primarily between late September and mid-December. In 1997, butterflies remained as late as December 29th, which is after the winter solstice. During 1999, the site was used as an autumnal roost site.

The findings of these prior surveys indicate that during most of the past 25 years, Monarchs have used the Rispin Mansion property primarily as an autumnal roost site. The numbers of Monarchs observed at the Rispin Mansion generally ranged from a few hundred to a few thousand in those years when the butterfly utilized the site. Only three butterflies were observed there during the overwintering period of November 1996 through February 1997, and these were seen flying through the site, not roosting. Thus, in some years the Monarch may not overwinter at the Rispin Mansion property.

As illustrated in figures attached to some of the aforementioned documents (as referenced within Section 4-4 of the RDEIR, Denise Duffy & Associates, Inc. 2000), the roosting Monarchs have been observed at two locations on the property, referred to as Areas A and B. Area A is the primary roosting location at the site, while Area B is a secondary roosting location that also supports most of the on-site English Ivy, a fall nectar plant of the Monarch. The aforementioned

figures illustrate primarily the roost trees utilized by the Monarch at Areas A and B, but not all of the surrounding windbreak trees that also comprise both of these roost areas. However, the recent loss of several acacia trees has altered the amount of wind protection and dappled light, as well as the boundaries of these roost areas since they were previously identified.

According to Bell (1998), the observed variability in the pattern of roosting usage of the Rispin Mansion site by the Monarch butterfly may be due to annual changes in reproductive success of Monarchs during the summer (which occurs at other locations in the western U.S.), as well as biological and/or physical changes in habitat conditions at the Rispin Mansion site. Since fast-growing, unstable, non-native trees such as eucalyptus and acacia dominate the roosting habitat there, fallen trees and dropped limbs can result in quick and dramatic changes in the tree canopy structure of the wintering habitat area at the Rispin Mansion site. For these reasons, the observed year-to-year variation in Monarch usage of the Rispin Mansion site is not surprising, and may also explain why the Monarchs have been observed using different portions of the site in different years.

REVIEW METHODS

I first visited the Rispin Mansion project site on April 5th, 2002, and walked throughout the entire project site. I also examined the surrounding neighborhood during this visit to the site. Subsequent meetings with the applicant, Mr. Ron Beardslee, the City of Capitola's staff and planning consultant, Mr. Bud Carney, as well as with Barbara Bernie, the project's landscape architect, occurred at the site on June 22 and September 5, 2002, at the City of Capitola's offices on March 4 and 14, 2003, or on other dates at my office. In addition, there has been an exchange of numerous telephone calls, emails, and written communiques throughout this period, with these individuals and the staff of the EIR consultant, Denise Duffy & Associates, Inc. I have not visited the site during the fall or winter months when Monarchs could be roosting there, so my report relies heavily on prior observations of the butterfly at the Rispin Mansion to complete my evaluation.

During my survey of the project site and the surrounding residential neighborhood, I noted the presence of various plants and features that are known to be important to the Monarch butterfly at known overwintering habitat sites (see BACKGROUND INFORMATION). In particular, I searched for the favored trees that are used as roosts, examined the spatial configuration and density of favored trees, sheltered areas within the groves of roost trees, nectar plants, and water sources.

I also reviewed a number of documents and maps, including the RDEIR and Administrative Revised DEIR prepared by Denise Duffy & Associates, Inc. (2000 and 2002, respectively), plus recent reports or letters about project-related impacts by Elizabeth Bell (2000), John Dayton (2001), Wittwer & Parkin, LLP (2001), the City of Capitola (2002), the Sierra Club (2001), and the California Coastal Commission (2001). In addition, I reviewed the arborist's reports (Lewis Tree Service, Inc. 2002 and 2003), the Interim Management Plan (Lewis 2003), landscape architect's (Bernie 2002) plan, as well as the shading study prepared by architect Paul

Davis (2002).

DELINEATION OF OVERWINTERING HABITAT AT THE RISPIN MANSION

As I discussed in the section titled BACKGROUND INFORMATION, at any particular overwintering habitat site, the Monarch's overwintering habitat consists of one or more roost areas, plus sources of nectar and water. Every roost area includes not only the roost trees, but all surrounding windbreak trees, protective topography and even buildings that afford wind protection.

At the Rispin Mansion site, two "roost areas" for the Monarch, A and B, were previously identified by other biologists. Based on my evaluation, I conclude that these "roost areas" primarily represent the roost trees, because they do not include all of the surrounding windbreak trees that would comprise the entire roost area. In addition, they do not include all of the nectar and water sources available at the site, which constitute overwintering habitat for the Monarch at the Rispin Mansion site. Furthermore, the recent loss of several acacia trees due to winter storms has altered the wind protection since these original "roost areas" were identified. As noted by The Monarch Project (1993) in its description of Monarch overwintering habitats in California, "it is a common mistake, and one that has led to the destruction of many Monarch habitats, to assume that Monarch overwintering habitat includes only the trees on which the butterflies aggregate".

For these reasons, I conclude that the entire Rispin Mansion property provides the overwintering habitat for the Monarch butterfly at this location. The portion of the site that lies within the coastal zone (i.e., the southern approximate one-half of the site) supports the roost trees, the primary windbreak trees, some of the secondary windbreak trees, as well as some sources of nectar and water. The portion of the site that lies outside of the coastal zone (i.e., the northern approximate one-half of the site) supports primarily additional sources of nectar and water.

I should note that at this time the overwintering habitat probably extends beyond the southern and western boundaries of the site. For example, the off-site, residential building immediately south of the southern property boundary, probably provides some wind protection for the nearby, on-site roost areas. Similarly, the recent loss of several acacia trees close to Wharf Road during the winter storms of 2002-2003 has decreased the wind protection along the western border of the site. Also, Monarch butterflies probably obtain some nectar from fall and winter blooming plants growing on other properties in the surrounding neighborhood, as well as water. As noted by The Monarch Project (1993), "the total Monarch habitat at any one site thus may not correspond to the land ownership or political boundaries, and protection of any one site may require the cooperation of several property owners". The Interim Management Plan (Lewis 2003) addresses the recent loss of acacia trees that provided wind protection and dappled light. However, I recommend delaying any tree removal and pruning of the remaining acacias, as detailed in the Interim Management Plan, until replacement wind protection trees are of a

suitable size to provide substitute wind protection.

GENERAL RECOMMENDATIONS FOR PROJECT PLANNING

This section provides several general recommendations for project planning that apply not only to the proposed project, but also to the four alternatives presented in the Revised DEIR.

Timing of Construction Activities.

No construction-related activities should occur during the fall and winter months when Monarchs overwinter at the Rispin Mansion. As demonstrated by the historical observations of overwintering Monarchs at the Rispin Mansion, the timing and duration of overwintering can vary annually. Thus, the project's Monarch biologist will need to carefully monitor the timing of Monarch overwintering activity at the site to insure that construction activities are halted before the start of overwintering by the butterfly. Similarly, once Monarchs leave the site in the spring, as determined by the project's Monarch biologist, construction activities may resume.

Arborist's Report.

For the proposed project, the arborist determined that of the 81 trees mapped at the property, only seven trees need to be removed to accommodate the site plan, including three California live oaks, located in the northern portion of the site, and four acacias at the location of the South End Units (Lewis Tree Service 2002). The locations of these trees are noted on the tree map attached to the arborist's report. He also recommended the removal of six additional trees that are either dead, in poor health, have structural damage, or pose safety hazards, which should be removed regardless of the project. None of the trees proposed for removal are roost trees used by the Monarch. Until the recent winter storms, the four acacia trees that would be removed at the South End Units, provided wind protection and will be replaced by a single new building and new plantings that should provide substitute wind protection for the roosting area. A couple of these acacias that were originally targeted for removal were blown over during the recent winter storms.

In its review of alternative #2 to the proposed project, Lewis Tree Service (2003) noted that only three oak trees, #5, #9, and #11 on the tree map, which are in poor health, would need to be removed as a result of this alternative project. All three of these trees are located in the northern portion of the project site.

Tree pruning recommendations, for removal of dead wood, weight reduction, and removal of hazard limbs, are provided in the original arborist's report (Lewis Tree Service 2002) for every tree requiring such attention. Limb and tree removal within the wintering habitat at the site should primarily be restricted to satisfying safety concerns. Lewis' Interim Management Plan (2003) further addresses these concerns. However, to reduce the risk of inadvertently removing limbs that are used by roosting butterflies or whose foliage provide essential shade, dappled light, or wind protection of the roosting areas A and B, I suggest that all pruning should be supervised on-site by the Monarch biologist at the time that pruning occurs.

As Dayton (2001) noted, it may be possible to improve wintering habitat conditions for the Monarch at the site, especially in Area B, which is used as a temporary overwintering habitat in some years, through selective tree removal, pruning, and planting of sapling trees to eventually provide appropriate roost limbs and improved windbreaks. The project's Monarch biologist and arborist will need to work together very closely to make any such habitat enhancements. Habitat enhancements will not only benefit overwintering Monarchs, but also increase the likelihood that future generations of the butterfly will continue to utilize the overwintering habitat at Rispin Mansion in subsequent years.

One recommendation of the arborist that would be detrimental to the Monarch is the removal of ivy that grows on the trunks of several oaks and eucalyptus trees at the site. English Ivy is a nectar plant for Monarchs during the fall months and should be retained to benefit the butterfly. Since ivy can be detrimental to trees that it grows on, part of the habitat management will need to focus on preventing such damage to trees while providing adequate nectar for the Monarch. For this reason, it would be useful to plant other fall and winter sources of nectar for the Monarch at the property, as are detailed in the landscaping plan (Bernie 2002) for the proposed project. In my discussions with the project's applicant, Mr. Ron Beardslee, he has agreed to forgo any ivy removal until a substitute fall nectar source is available in adequate quantity at the Rispin Mansion site. It will be the responsibility of the project's Monarch biologist to monitor this situation and advise the City of Capitola if and when future ivy removal may be appropriate.

Both the arborist and Dayton (2001) recommended the gradual replacement of acacia trees, which currently function as windbreaks for the two roost areas and provide dappled light. These non-native trees are unsuitable components of Monarch wintering habitat because they reproduce and grow rapidly, plus their limbs break rather easily and the trees are prone to readily uproot. As part of the proposed project, four acacias were proposed for removal at the location of the South End Units; however, a few of them blew over during recent winter storms. Remaining acacias at the site should be gradually removed over a period of years, as planted replacement trees mature and provide substitute wind break and dappled light that the current resident acacias currently provide. Before any of the temporarily retained acacia trees are eventually removed, a Monarch biologist should be consulted to insure that the replacement tree(s) is/are of a size and growth form that will functionally compensate for the acacia(s) that will be removed. The Interim Management Plan (Lewis 2003) proposes to plant ten 24-inch, box-sized Coast Redwood (*Sequoia sempervirens*) trees among the remaining acacias along Wharf Road to provide substitute wind protection for the Monarch's overwintering habitat.

Landscaping Plan.

Barbara Bernie, the project's landscape architect, has prepared a plan (Bernie 2002) that addresses the gradual replacement of the undesirable acacia trees with sturdier trees and shrubs to provide windscreening and dappled lighting for the roost areas. As the new plantings reach a sufficient size and stature to replace the remaining existing acacias, these acacias will be permanently removed. The timing of removal of any acacias will be confirmed by consultation with the Monarch biologist and is likely to occur over a period of several years. Elizabeth Bell (1998) recommended the use of *Eucalyptus sideroxylon* for this purpose and I concur with her

recommendation. Coast Redwood and Holly-leaf Cherry (*Prunus ilicifolia*), as noted in Bernie's landscaping plan, are also good windscreen trees (The Monarch Project 1993). The Interim Management Plan (Lewis 2003) will initiate this process, independent of the project, by planting 10 Coast Redwood trees among the acacias that are targeted for eventual removal.

The landscaping will be further enhanced by the addition of various nectar plants utilized by the Monarch during the fall and winter months. The plant taxa to be used for windscreening, dappled light, and nectar were derived from species recommended by The Monarch Project (1993) and a recently completed habitat management plan for the Monarch's overwintering habitat at nearby Moran Lake County Park in Santa Cruz (Joni L. Janecki & Associates, Inc., *et al.* 2002). If habitat improvements are undertaken at roost Area B, then the Monarch biologist will need to work closely with the project's landscape architect to select sapling trees that are appropriate to provide the added windscreening and roost limbs to benefit the Monarch.

Some of the plants listed in the landscape plan will more likely benefit other butterfly taxa rather than the Monarch. However, I view this as an improvement as the inclusion of these other butterfly plants will encourage usage of the Rispin Mansion site by other butterfly taxa.

Operation of the Rispin Mansion and Management of Monarch Overwintering Habitat.

The Rispin Mansion shall have two operating modes to further protect the Monarch's overwintering habitat at the site:

a) spring/summer (= mode A), during which time vehicles can travel on the driveway at the site, and fireplaces in all buildings can be used; and
b) fall/winter (= mode B), during which time only zero emission vehicles (similar to golf carts, but street-legal) will be operated on site, fireplaces in all buildings will not be used, vents for heating systems will be directed away from the roost areas, and guests and visitors will be restricted to well-marked paths and guided tours to avoid disturbances to any roosting Monarchs.

The project's Monarch biologist will advise the City of Capitola and the operator of the project if butterflies are overwintering at the site in the fall or winter. If no overwintering Monarchs are present, then the project may continue to operate in its spring/summer mode. In other words, the fall/winter operational mode is not mandatory if Monarchs are not overwintering at the site. Since the timing of roosting can vary from year-to-year, the Monarch biologist will need to continuously monitor butterfly usage at the site throughout the fall and winter to determine whether Monarchs are or are not roosting at the property. Similarly, the operator of the Rispin Mansion will need to be prepared to shift to the fall/winter operational mode within a few day's notice that Monarchs are overwintering.

Implementing these precautions should not only protect the Monarch's overwintering habitat at the Rispin Mansion, but should also avoid disruptions to the butterflies that roost at the site. For example, during the fall/winter operating mode, only zero emission vehicles will be allowed to use the south driveway from Wharf Road to the mansion. Guests will be transported from the valet parking area to the mansion using these slow-moving vehicles. Service truck access will be limited to the north side of the mansion. No parking will be allowed under roost

trees during the fall/winter operating period. Similarly, outside night-lighting at the mansion and along the paths should utilize low wattage bulbs and fixtures that are mounted close to ground level and directed away from the roost areas. General Electric has developed light bulbs that do not attract insects, which may be appropriate for use at Rispin Mansion. Windows that face the roost areas may require special tinting, curtains or blinds to limit the spread of interior lighting to the roost area. Maintenance of the grounds during the fall/winter period will be limited to non-roosting portions of the site.

Outdoor activities, such as weddings, will be limited to the designated northern portions of the site to avoid disrupting the roosting Monarchs and degradation of its overwintering habitat during the fall/winter operating mode. The relatively minor amount of noise from operation of the Rispin Mansion and associated visitor serving uses is not expected to adversely affect the Monarch. Overwintering habitat for this butterfly is often located in noisy locations. The vast majority of butterflies that have been studied to date have been found to be deaf, so noisy locations generally do not bother them. Indeed, uses similar to those proposed at the Rispin Mansion now occur at motels in Pacific Grove (Butterfly Town, USA) where Monarch overwintering habitat is located among and adjacent to motels that exercise fewer restrictions in their guest and visitor-serving activities than are proposed for the Rispin Mansion.

The Monarch's overwintering habitat at the Rispin Mansion site should be permanently managed by an independent Monarch biologist, who is hired by the owners/operators of the Rispin Mansion. Please note that I am not a candidate for this position, due to my current and projected work load. At a minimum, the Monarch biologist will have the following duties as part of the habitat enhancement program:

a) advise the owners/operators of the Rispin Mansion when Monarch butterflies begin to use the overwintering habitat in the fall or winter so the mansion can shift to fall/winter operational mode, and similarly, advise the owners/operators when the Monarchs have left the Rispin Mansion site in the spring so the mansion can shift to spring/summer operational mode;
b) work with the arborist to determine how to best prune the trees at the Rispin Mansion to enhance overwintering habitat values for achieving wind protection, dappled light, roost limbs, etc.;
c) work with the landscape architect to insure that appropriate plant taxa are used to enhance overwintering habitat values for the Monarch, and that the selected plant materials are placed at the most appropriate locations on the site;
d) routinely work with the landscaping crew to insure that maintenance practices are compatible with protection and enhancement of the Monarch's overwintering habitat;
e) periodically re-evaluate overwintering habitat conditions for the Monarch and provide recommendations for corrective actions and improvements;
f) prepare a Monarch and overwintering habitat monitoring and management plan for the Rispin Mansion site, which will identify methods for annual monitoring of the butterfly and its habitat, plus identify specific management practices for all parts of the roost areas; and
g) advise the owners/operators about methods for raising butterflies in the reconstructed Rispin aviary and propagating the milkweed food plant of Monarch larvae in non-

roosting portions of the site

Permanent Protection of the Monarch's Overwintering Habitat.

I recommend that a conservation easement be placed on at least that portion of the Rispin Mansion site that supports the primary overwintering habitat for the Monarch butterfly. The purpose of the conservation easement would be to provide permanent protection of the Monarch's overwintering habitat at the Rispin Mansion. The Santa Cruz Land Trust or a similar entity may be willing to serve as the easement holder. The specific easement area and responsibilities of the operator, City, and easement holder will need to be described in the easement document.

Public Education.

With all of the efforts that are directed at maintaining and enhancing the Monarch's overwintering habitat at the Rispin Mansion site, opportunities for public education are plentiful. This may be as simple as providing a few information signs and a viewing area for observing the roosting Monarchs. Since the owners/operators are considering raising butterflies in the reconstructed Rispin aviary and plan to restore the well house to include an interpretive center, the educational program could be expanded to include tours (i.e., small groups of people supervised by an interpretive tour guide) of the aviary and overwintering habitat, as well as programs about the Monarch butterfly and its annual migration, butterfly gardening, and selection of landscaping plants to benefit the Monarch and other butterflies. These activities and programs should be offered not only to guests at the Rispin Mansion, but also to the general public. Since the public will enter the site through the restored well house/interpretive center, controlled access of the general public will provide additional protection for the Monarch's primary overwintering area (i.e., from fire, vandalism, etc.) and avoid disruption of any roosting butterflies. The applicant should check with appropriate local, state, and federal authorities about permits required for raising butterflies.

IMPACT ANALYSIS FOR THE PROPOSED AND ALTERNATIVE PROJECTS

This section analyses the anticipated impacts of the proposed project and four alternatives, as presented in the Revised DEIR (Denise Duffy & Associates 2003). Since descriptions of the development and associated activities specific to the proposed project and each alternative are presented in the Revised DEIR, I do not repeat them herein.

In general, project-related activities and future operations that occur within or close to roost areas have the greatest potential to adversely affect the Monarch butterfly and its overwintering habitat at the Rispin Mansion site. This is especially true if such actions occur during the overwintering period (usually October through February) of the Monarch butterfly.

Proposed Project.

In addition to the renovation of the Rispin Mansion building and grounds, the primary additional feature of the proposed project relevant to the primary overwintering habitat is the construction of the South End Units, which would be located adjacent to the roost trees

previously identified as Roost Area A. The earlier site plan in the RDEIR illustrated two detached buildings situated at the south end of the site between Wharf Road and the Monarch roost trees at Area A. These buildings were originally proposed to be tall enough that they would have shaded some of the roost limbs used by the Monarch in Area A or resulted in the need to prune overhanging limbs that are used by roosting Monarchs. As originally designed, several acacias, providing windbreak protection and dappled lighting for the Monarch roost Area A, would also have been removed to accommodate the new units.

The revised site plan in the Revised DEIR for the proposed project illustrates a single, smaller new building that would accommodate the guest rooms. The project's architect, Mr. Paul Davis, completed a shadow study (Davis 2002), to insure that the new building would not shade the Monarch's roost trees or the ground below them. As a result, several changes to the South End Units have been incorporated in the revised site plan, including:

a) only a single building is now proposed, which has been set back farther from the roost trees and with a reduced footprint (30 x 61 ft.) that should minimize the need for safety limb pruning and avoid disturbance to roots of the nearby roost trees;
b) the maximum building height will be no more than 17 feet above the existing grade, and slants to only 11 feet above existing grade at its eastern edge to avoid any shadows being cast onto roost trees of Area A;
c) the building's roof has been redesigned to accommodate plantings to provide additional windscreen protection, dappled lighting, and nectar for the Monarchs, and the height of these plantings will be monitored by the Monarch biologist in future years to insure that they do not become tall enough to excessively shade the roost trees in Area A;
d) the building has been redesigned to have a glass enclosed patio or deck on its east side, which can be sealed off, including the roof, during the Monarch's overwintering period without blocking the sunlight that would transmit through the glass enclosure;
e) windows that face the roost trees may require special tinting, curtains, or blinds to limit the spread of interior lighting to these trees during the overwintering period of the Monarch when butterflies are present;
f) exterior lighting for the South End Units will utilize low wattage bulbs designed to not attract insects;
g) lattice will be part of the exterior walls of the building to support ivy or other nectar sources that will be planted as part of the site's landscaping;
h) the originally proposed solid wall along the south end of Wharf Street will be replaced by plantings for windscreening and an open style of fencing to allow dappled light to reach the ground near the roost trees, or alternatively a short solid wall or fence (4 feet tall), with an open fence above;
i) post and rail fencing (or a similar open style fence) may be used along walkways at the site to protect roost trees; and
j) only a few existing acacia trees, which currently provide both windscreening and dappled light, will need to be removed, but they will be replaced by the new building and new plantings.

The incorporation of the aforementioned changes to the South End Units greatly reduces the chances of adverse impacts to the overwintering habitat of the Monarch butterfly. However, due

to the proximity of the proposed new building to the roost trees, some unforeseen impacts may still be unavoidable.

Alternative 1: No Project Alternative.

No new structures or restoration of the mansion would occur under this alternative. More importantly for the Monarch's overwintering habitat, no habitat enhancement, management and maintenance, nor future monitoring of the habitat would occur. As a result, I anticipate that habitat conditions would continue to deteriorate, perhaps to such a degree that the site would eventually no longer be suitable as overwintering habitat for the Monarch.

Alternative 2: 25-Unit Rispin Redevelopment Plan.

This alternative would focus on restoration of the Rispin Mansion and grounds, construction of new accommodations and other structures at the north end of the mansion, construction of a conservatory in the northern portion of the site, restoration and expansion of the well-house to include an interpretive center, and reconstruction of the aviary, a feature that was formerly part of the Rispin Mansion. Only the aviary would be located in the southern portion of the property, and it would be operated as a butterfly house. The well house/interpretive center is located near Roost Area A, but this is mainly a restoration with only 300 square feet of new construction. All of the landscape enhancements, habitat management and monitoring, and all operational guidelines that were described as part of the proposed project, would also be included in this alternative. As I noted earlier (see discussion under Arborist's Report), only three unhealthy or structurally defective oak trees would be removed, none of which are Monarch roost trees. The three trees targeted for removal are located in the northern portion of the site between Wharf Road and the Rispin Conservatory, approximately 240 feet north of the well house.

I consider alternative #2 to be the environmentally superior alternative to the proposed project for the following reasons. First, the reconstructed aviary is the only structure that will be placed in the southern portion of the site that functions as the Monarch's primary overwintering habitat at this property. The proposed location and size of the aviary should not require any safety pruning or tree removal, as it is situated closer to Wharf Road than the roost trees. Visitor and staff use of the aviary and primary overwintering habitat can easily be controlled during periods when Monarchs are roosting at the property. Access for visitors who come to see overwintering Monarchs will be controlled as they will need to go through the interpretive center. The vast majority of the project will occur in the northern portion of the site, away from the primary overwintering habitat at the site. Even upon completion of the project and during its operation, overwintering Monarchs may still obtain some nectar and water in the northern portion of the site, because the proposed landscaping and other habitat enhancement throughout the site with plants that support the butterfly, plus management of the primary overwintering habitat should offset any adverse temporary impacts that occur in the northern portion of the site.

Alternative 3: Rispin Mansion Bed and Breakfast.

Under this alternative, the restored Rispin Mansion would be used as a bed and breakfast inn with 13 guestrooms located within the Mansion proper. Other facilities, as identified in the proposed project or alternative #2, notably the interpretive center and aviary, would not be included in this alternative. Similarly, habitat enhancement and monitoring activities to benefit

the Monarch butterfly's overwintering habitat would not be implemented under this alternative.

Without on-going habitat management, maintenance, and monitoring activities, the condition of the Monarch's overwintering habitat at the Rispin Mansion will likely continue to deteriorate. Eucalyptus and acacia trees are notorious for dropping limbs or blowing over during storm events, which results in swift and dramatic changes at overwintering habitat sites. Just this past winter, several acacia trees that previously provided wind protection for the Monarch's roost trees, blew over during a winter storm. Since alternative #3 does not include the habitat enhancement and monitoring program to benefit the Monarch's overwintering habitat, such changes in the habitat would go undetected and uncorrected, and would be detrimental for the Monarch's longterm use of the Rispin Mansion site.

Alternative 4: Reduced Scale Alternative.

This alternative is similar to alternative #2, but differs in six key features:

a) surface parking would be retained near the well house;
b) the well house would not be restored to include an interpretive center;
c) the Rispin aviary would not be reconstructed;
d) the garden pavilion (or conservatory) would not be constructed;
e) the Rispin Café would not be constructed; and
f) habitat enhancement and monitoring activities to benefit the Monarch's overwintering habitat would not be implemented under this alternative.

Since the surface parking would be located in the southern portion of the project site, the potential for adverse impacts to the Monarch and its overwintering habitat remain. Also, as described for alternative #3, without the on-going habitat management, maintenance, and monitoring activities, the condition of the Monarch's overwintering habitat will likely continue to deteriorate.

CONCLUSIONS

Overwintering habitat for the Monarch includes the trees on which the butterflies gregariously roost, as well as any surrounding trees that provide wind protection, plus other nearby topographic features or man-made structures that also provide wind protection for the roost area. In addition, sources of nectar and water are also essential components of the butterfly's overwintering habitat. Thus at the Rispin Mansion site, the limits of the Monarch's overwintering habitat actually extend beyond the property's boundaries, in particular at the southern end of the site.

As described by Bell (1998), development (or in this case, redevelopment) may directly or indirectly impact Monarchs and their overwintering habitats by:

a) degradation of habitat quality by altering microclimatic conditions in the roost area, eliminating branches used by roosting butterflies, and reducing or eliminating nectar plants used by the Monarch during the fall and winter months;
b) increasing the frequency of disturbance of roosting Monarchs by reducing wind protection, increasing interactions with people and/or vehicular traffic; and

c) increasing Monarch mortality through vandalism and accidental death.

In addition, natural vegetation dynamics cause changes in habitat quality of the Monarch's overwintering sites that can occur rather quickly and dramatically. Downed trees and fallen limbs can alter the degree of wind protection, dappled light, and microclimatic conditions that favor the Monarch. The recent loss of several acacias along the western border at Wharf Road, due to winter storm events, has reduced the wind protection and dappled lighting of the roost trees at the site. It is also normal for changes in canopy structure and structure of the grove to occur with rapidly growing trees, such as the eucalyptus and acacias, which characterize the Rispin Mansion site. When site conditions deteriorate, fewer Monarchs will overwinter there and the site may even be abandoned unless habitat conditions improve.

At many sites in California, overwintering habitats have been protected, but in time they decline or even fail to support overwintering Monarchs due to changes in habitat conditions and a lack of monitoring and habitat management to detect and correct such changes. Local and state agencies often don't have the funds or expertise to manage overwintering sites of the Monarch in perpetuity. The proposed renovation of the Rispin Mansion and other project components provide a mechanism to not only enhance and protect the Monarch's overwintering habitat, but to also provide the sustained funding necessary to continuously monitor it and manage it in a manner to benefit the butterfly in perpetuity.

The entire Rispin Mansion property functions to some degree as overwintering habitat for the Monarch, but the roost trees and most of the windbreak trees are located in the southern portion of the site. In evaluating the proposed project and four alternatives to the proposed project, I conclude that alternative #2, the 25-unit redevelopment of the Rispin Mansion site, is the environmentally superior alternative for the Monarch butterfly. Under this alternative the southern approximately one-half of the property will not only be protected and enhanced, but the habitat will also be continuously managed and monitored with funding from uses that occur primarily on the northern portion of the site. In addition, landscaping in the northern portion of the site will benefit the butterfly and compensate for nectar sources that are temporarily impacted during construction activities. The two seasonal operation modes will further protect overwintering Monarchs and their habitat in those years when they roost at the site and the presence of on-site staff should eliminate vandalism and control visitation and other activities to minimize disturbance of the Monarchs and their overwintering habitat at the Rispin Mansion. Finally, the citizens of Capitola and visitors to the restored Rispin Mansion will develop a greater appreciation for the Monarch butterfly and its phenomenal migrations through the various educational programs offered there.

REFERENCES

Bell, E.A. 1997. Master plan recommendations for preserving the Monarch butterfly overwintering habitat at the Lode Street eucalyptus grove (Moran Lake) in Santa Cruz, CA. 8 pp.

Bell, E.A. 1998. The Monarch butterfly overwintering habitat at Rispin Mansion: habitat

utilization and assessment of impacts from development proposed by Beardslee Development Association. 33 pp.

Bell, E.A. 2000. The Monarch butterfly habitat at Rispin Mansion: an updated evaluation. 9 pp.

Bell, E.A. and J.J. Dayton. 1991. Overwintering Monarch butterfly survey on the Rispin Mansion site. Report to Jones & Stokes Associates, Inc. Sacramento, CA. 12 pp.

Bernie, Barbara. 2002. Landscape plan for Rispin Mansion.

California Coastal Commission. 2001. Letter dated February 22, 2001 and addressed to the Planning Director for the City of Capitola. Comment letter on RDEIR for Rispin Mansion. 5 pp.

California Natural Diversity Data Base. 2002. Report on Monarch butterfly overwintering sites in Santa Cruz County, CA. Data base maintained by the California Department of Fish & Game. Sacramento, CA.

Calvert, W.H. and L.P. Brower. 1982. The importance of forest cover for the survival of overwintering Monarch butterflies (*Danaus plexippus* L., Danaidae). Journal of the Lepidopterists' Society 35:216-225.

Cherubini, P. 1984. An environmental assessment of the impact of the proposed Rispin Mansion subdivision on the Monarch butterfly overwintering habitat. Integrated Land Services. Capitola, CA.

City of Capitola. 2002. Memorandum dated January 31, 2002, from Bud Carney, Interim Community Development Director and addressed to Denise Duffy. 1 p.

Davenport, K. 1983. Geographic distribution and checklist of the butterflies of Kern County, California. Journal of the Lepidopterists' Society 37:46-69.

Davis, Paul. 2002. Shadow study for the South End Units at Rispin Mansion.

Dayton, J.J. 2001. Letter dated October 30, 2001, and addressed to Anthony J. Carney, City of Capitola. 3 pp.

Dayton, J.J. 2002. Monarch butterfly wintering habitat assessments: background information and terminology. Privately published. 4 pp.

Denise Duffy & Associates, Inc. 2000. Recirculated draft environmental impact report for the Rispin Mansion and Mini-Park projects. SCH #97121056.

Denise Duffy & Associates, Inc. 2003. Draft environmental impact report for the Rispin Mansion project.

Fadem, C.M. and A.M. Shapiro. 1979. Notes on wintering roosts by Monarchs (Lepidoptera: Danaidae) at an inland site in California. Pan-Pacific Entomologist 55:309-310.

Joni L. Janeck & Associates, Inc., Boone/Low Consulting Architects, Barrie Coate Consulting Arborist, Entomological Consulting Services, Ltd., and John J. Dayton, Consulting Biologist. 2002. Management plan for the Monarch butterfly habitat at Moran Lake County Park. Prepared for the Santa Cruz County Parks, Open Space & Cultural Services Department. 17 pp.

Lane, J.N. 1983. Letter report regarding Monarchs at Rispin Mansion. (not seen).

Lane, J.N. 1993. Overwintering Monarch butterflies in Califorina: past and present. IN, Malcolm, S.B. and M.P. Zalucki (eds.), Biology and conservation of the Monarch butterfly. Natural History Museum of Los Angeles County, Science Series, No. 38. pp. 335-344.

Leong, K.L.H. 1990. Microenvironmental factors associated with the winter habitats of the Monarch butterfly (Lepidoptera: Danaidae) in central California. Annals of the Entomological Society of America 83:906-910.

Lewis, Nathan. 2003. Interim management plan for preservation of Rispin Mansion butterfly habitat and screening of Rispin-Peery bridge connection. 8 pp. and map.

Lewis Tree Service. 2002. Arborist's report for Rispin Mansion. 19 pp. & photographs.

Lewis Tree Service. 2003. Letter to Ron Beardslee, dated February 12th, regarding tree removal for Alternative #2. 1 page and tree removal map.

Nagano, C.D. and J. Lane. 1985. A survey of the location of Monarch butterfly *(Danaus plexippus* L.) overwintering roasts in the state of California, U.S.A.: first year 1984/1965. World Wildlife Fund - U.S.

Sakai, W., C.D. Nagano, A.V. Evans, J. Schrumpf, J. Lane, and M. Monroe. 1989. The wintering colonies of the Monarch butterfly *(Danaus plexippus* L.: Nymphalidae: Lepidoptera) in the state of California, USA. California Department of Fish & Game. Sacramento, CA.

Sierra Club. 2001. Letter dated January 31, 2001, and addressed to The City of Capitola. Comment letter on the Rispin Mansion RDEIR. 3 pp.

The Monarch Project. 1993. Conservation and management guidelines for preserving the Monarch butterfly migration and Monarch overwintering habitat in California. A guide for land managers and community activists. 43 pp. & appendices.

Urquhart, F.A. 1960. The Monarch butterfly. University of Toronto Press. 361 pp.

Weiss, S.B., P.M. Rich, D.D. Murphy, W.H. Calvert, and P.R. Ehrlich, 1991. Forest canopy structure at overwintering Monarch butterfly sites: measurements with hemispherical photography. Conservation Biology 5:165-175.

Wittwer & Parkin, LLP. 2001. Letter dated January 31, 2001, commenting on the RDEIR for Rispin Mansion and Mini-Park Projects. 8 pp.

If you have any questions about my report, please contact me.

Sincerely,

Richard A. Arnold

Richard A. Arnold, Ph.D.
President

The Monarch Butterfly Habitat at Rispin Mansion: An Updated Evaluation

Results of the 1999-2000 Overwintering Survey
and
Reassessment of Impacts Associated with the Proposed Development

by
Elizabeth A. Bell, Ph.D.

4/17/2000

This letter report presents the results of a habitat utilization survey that I conducted at Rispin Mansion during the 1999-2000 overwintering season. It also provides a reassessment of some impacts and mitigations indicated in the EIR for the Rispin Mansion project. This reassessment is necessary in light of structural changes within the habitat (i.e. tree regrowth & limb loss, since 1998) and changes in habitat utilization patterns by the overwintering monarch butterflies. Thus, this new information provides an up-to-date evaluation and delineation of the environmentally sensitive habitat for the monarchs at Rispin.

Results of the habitat utilization study

During the 1999-2000 overwintering season, monarch butterflies occupied the grove at Rispin Mansion in the fall months, mainly during October and into early November (Table 1). There were relatively few butterflies at Rispin this season compared to past years; however, as indicated by colony sizes at Natural Bridges and other coastal habitats, this was an extremely low population year overall for monarchs in California. That monarchs used the Rispin habitat at all this past winter is significant, since some overwintering habitats are not utilized during winters with small population sizes. Thus, the habitat at Rispin remains viable for monarch overwintering use.

Roost locations within the monarch overwintering habitat were documented and are collectively shown in Figure 1; Figure 2 indicates the specific roost areas seen on each field survey. Butterflies mainly roosted in trees located within the same general region in which they have roosted during past years (Area A on the map in the EIR). However, roost locations were restricted to the eastern side of the roadway this winter, in the mature blue gum trees with large horizontal branches hanging over the paved access road and on a few smaller saplings adjacent to these larger trees. The roost area in the center of the grove (Area B on the map in the EIR) was not utilized by the butterflies this winter.

In addition to use of the traditional roosting Area "A", monarchs also roosted farther North in the mature blue gums located immediately adjacent to the Mansion driveway/garage area. Although I did not observe monarchs in this roost location during the surveys conducted in the winters of 1996-97 and 1997-98, this area was documented by Mr. John Lane as one of the traditional roost areas at the Rispin Mansion site during the 1970s and possibly during the early 1980s (CA Fish & Game Natural Heritage Database).

Evaluation of Habitat & Impacts/Mitigations

The four mature blue gums near the mansion have large horizontal lower branches which create good roosting substrate for the butterflies. The tree closest to the mansion garage, whose branches overhang the patio area, was the one most frequently used for roosting in this region. Not only do these trees form the outer boundary for a portion of the grove, and thereby provide wind protection to other roost locations in the habitat, they also function as a roost location for the butterflies. Therefore, these four trees are clearly an integral part of the environmentally sensitive monarch habitat at the Rispin Mansion site.

In light of the new data indicating that these trees near the mansion are used for roosting, loss of these four mature trees (as indicated by the site plans in the EIR) represents a significant non-mitigatible impact in the monarch habitat. Thus, my original interpretation of this tree loss (that the impact could be mitigated to a less than significant level) must be modified, since new tree planting will not provide equivalent suitable roosting substrate or wind protection in that part of the overwintering habitat. Restoration of the mansion, driveway and associated wall may still be accomplished with the trees in place; however, the project must include plans to minimize damage to the root systems of these trees during the restoration process. Moreover, the lower limbs and their associated canopy must remain on these trees; therefore, only limited safety pruning should be allowed on these trees overhanging the driveway and patio. Removal of these trees, to accommodate new structures, is incompatible with habitat conservation goals in this environmentally sensitive area.

Rapid regrowth of *Acacia* saplings in the Southwest corner of the project site during the past few years has resulted in canopy development in this formerly bare area (i.e. grassy open space). Some of these young trees have reached heights of nearly 20 feet now, and they will eventually begin to function as a wind barrier in the habitat. While loss of these small *Acacia* trees, to accommodate new buildings in this area, may represent an adverse impact to the monarch habitat, their loss can be mitigated to a less than significant level by the presence of the buildings themselves in conjunction with the planting of appropriate ornamental trees (as previously suggested in the EIR). Thus, this recent change in the canopy configuration within the monarch habitat does not significantly affect the previous impact assessment on this issue.

Likewise, regrowth of *Acacia* saplings immediately to the North of the *Acacia* roost tree in Area A (and directly to the East of the well house) is beginning to create a wind barrier for

this habitat. However, as indicated in the EIR, the loss of these saplings can still be mitigated to a less than significant level by replanting with small trees suitable for roosting.

Delineation of Monarch Habitat

In the broadest sense, the monarch overwintering habitat at Rispin not only includes all trees and open space in the southern region of the project site, but also the adjacent areas surrounding the *Eucalyptus* grove and *Acacia* trees (which includes the buildings on the properties to the South and West, as well as Wharf Road itself). All of these natural and man-made features in the immediate vicinity contribute to the formation of the microclimatic conditions within the roosting areas of the habitat.

Because viable monarch habitat requires trees for roosting and wind protection, tree locations (and the ground areas shaded by the dripline of the canopy) are generally used to delineate the extent of environmentally sensitive habitat boundaries. Therefore, in a stricter sense, the monarch overwintering habitat includes all mature trees to the South of the Mansion, as well as the grassy open space within the boundaries of the tree perimeter (the area located between the Acacia along Wharf Road and the Eucalyptus grove that is bisected by the access road). The results of this winter's survey confirm the previous determination (as indicated in the EIR) that the monarch overwintering habitat on the project site includes all mature trees (*Eucalyptus* and *Acacia*) to the South of the Mansion.

Habitat alteration within the environmentally sensitive area, due to development, would significantly alter the habitat value of the site (California Coastal Act; Section 30240a). Thus, the original project design must be modified (no units added to southern side of garage) to preserve the four mature Eucalyptus adjacent to the Mansion. If these trees are preserved, then the mitigated project would not significantly alter the habitat value of the site, since no tree removal or building construction will occur within the environmentally sensitive habitat.

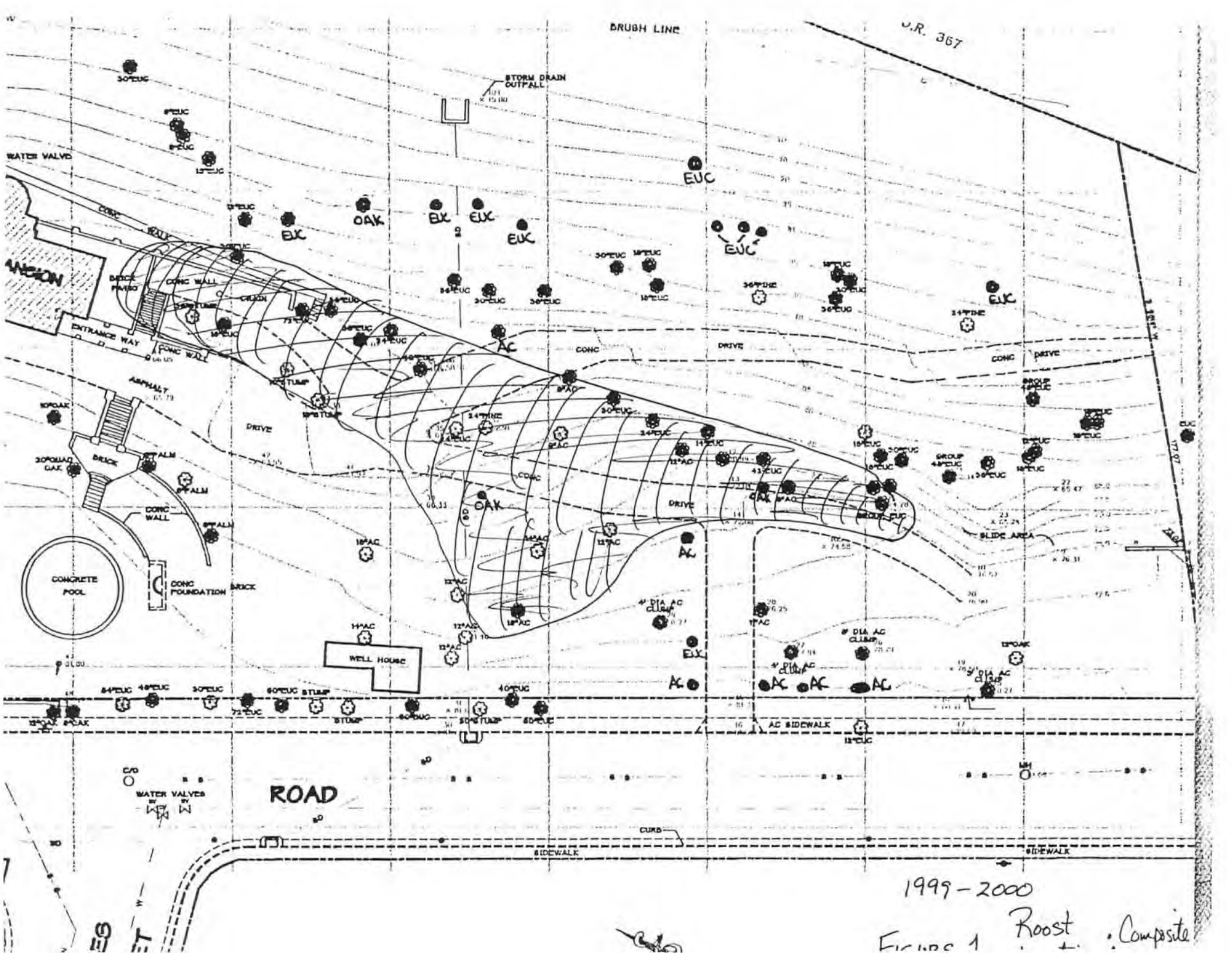
The Southwestern corner of the project site is a small open space area adjacent to the environmentally sensitive habitat. Proposed buildings in this area have been positioned to be outside of the canopy dripline; therefore these buildings are not located within the delineated boundaries of the environmentally sensitive habitat. Thus, the project is in compliance with California Coastal Act; Section 30240b, wherein development has been sited and designed to prevent impacts to the adjacent environmentally sensitive habitat.

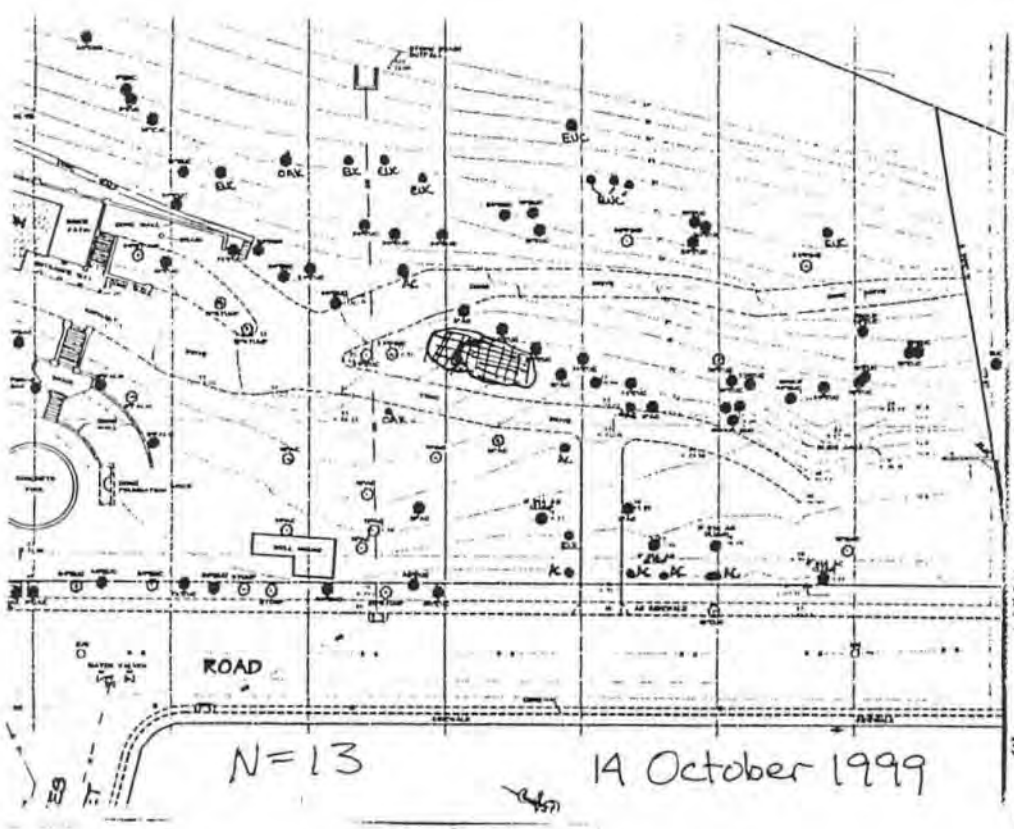
The southwestern corner of the project site also includes a small area of *Acacia* sapling regrowth in the grassy "open" space. As indicated earlier in this report, loss of these saplings can be mitigated to a less than significant level by post-construction mitigation tree planting.

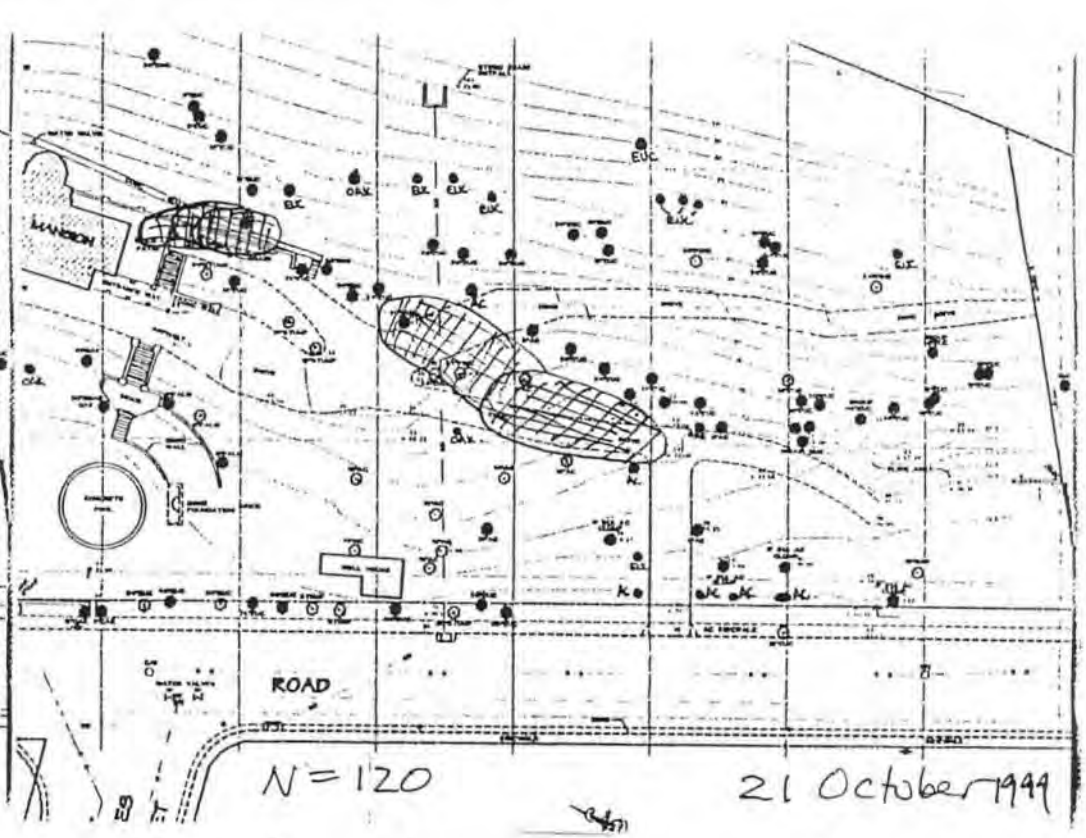
In conclusion, the new information regarding monarch butterfly use of the Rispin Mansion site has confirmed that the environmentally sensitive habitat includes all mature trees on this property South of the Mansion. It has also confirmed that the butterflies continue to use this site as overwintering habitat, even in a low population year when other overwintering sites may not be used. Finally, this current study has pointed out the necessity of preserving areas on site that were previously considered to be only historical areas of habitat use, since changing on-site tree canopies and variable winter weather have created microclimatic conditions which resulted in the use of this historical roost area once again. It should be noted, however, that there are no historical records for butterfly roosting, nor any observations in recent time, on the project site to the North of the Mansion.

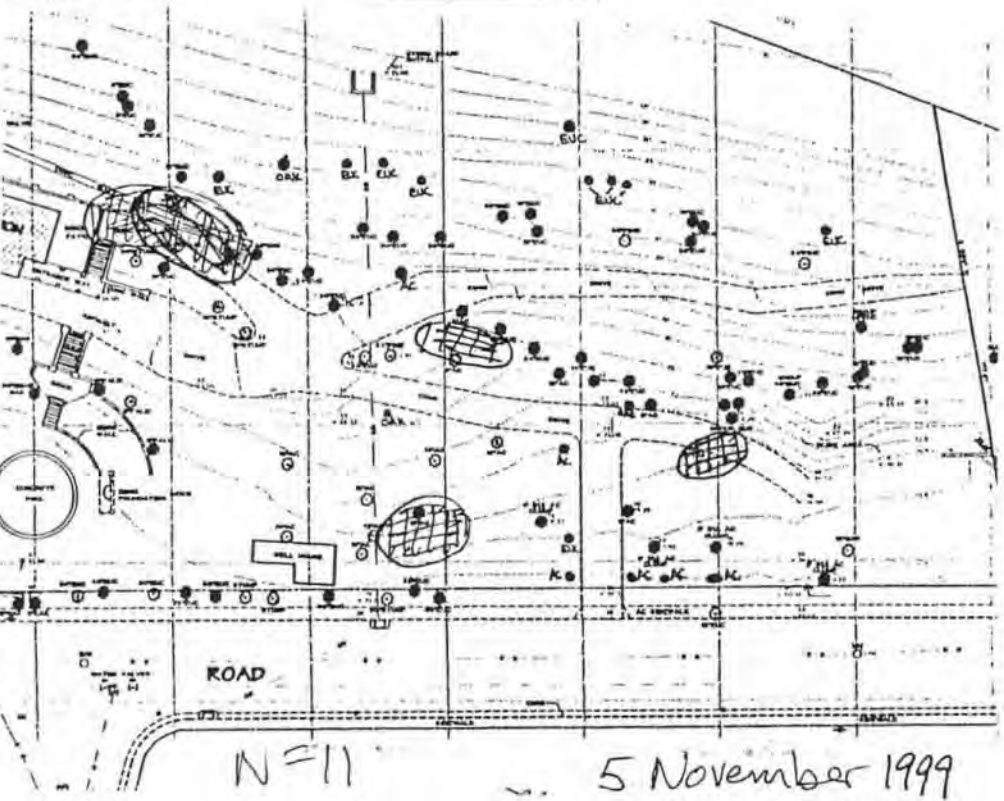
Table 1. Visual determinations of the numbers of monarch butterflies at Rispin Mansion and Natural Bridges during the 1999 - 2000 overwintering season.

		Number of butterflies observed	
Visit	Date	Rispin	Natural Bridges
1	6 Oct 99	6	1,000
2	14 Oct 99	13	4,500
3	21 Oct 99	120	6,500
4	28 Oct 99	0	8,000
5	5 Nov 99	11	10,000
6	13 Nov 99	5	10,000
7	21 Nov 99	0	13,000
8	27 Nov 99	0	13,500
9	5 Dec 99	6	14,500
10	11 Dec 99	1	14,000
11	21 Dec 99	0	9,000
12	27 Dec 99	0	14,000
13	3 Jan 00	0	9,000
14	16 Jan 00	0	8,000
15	29 Jan 00	0	4,000
16	19 Feb 00	0	500


BRUSH LINE
U.R. 367
STORM DRAIN OUTFALL
WATER VALVE
CONC WALL
ENTRANCE WAY
CONC WALL
DRIVE
CONC
DRIVE
CONC
DRIVE
ASPHALT
BRICK
CONC WALL
CONCRETE POOL
CONC FOUNDATION
BRICK
WELL HOUSE
SLIDE AREA
AC SIDEWALK
WATER VALVES
ROAD
CURB
SIDEWALK
SIDEWALK
1999-2000
Roost
Composite


ROAD
N=13
14 October 1999


ROAD
N=120
21 October 1999


ROAD
N=11
5 November 1999

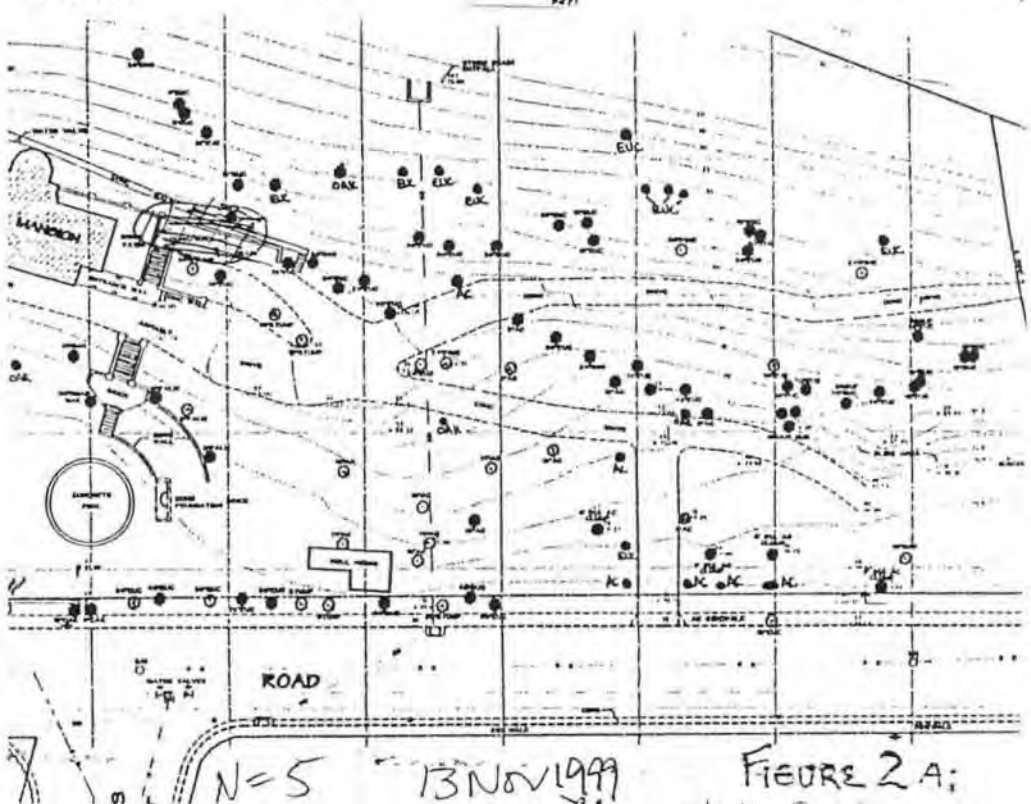
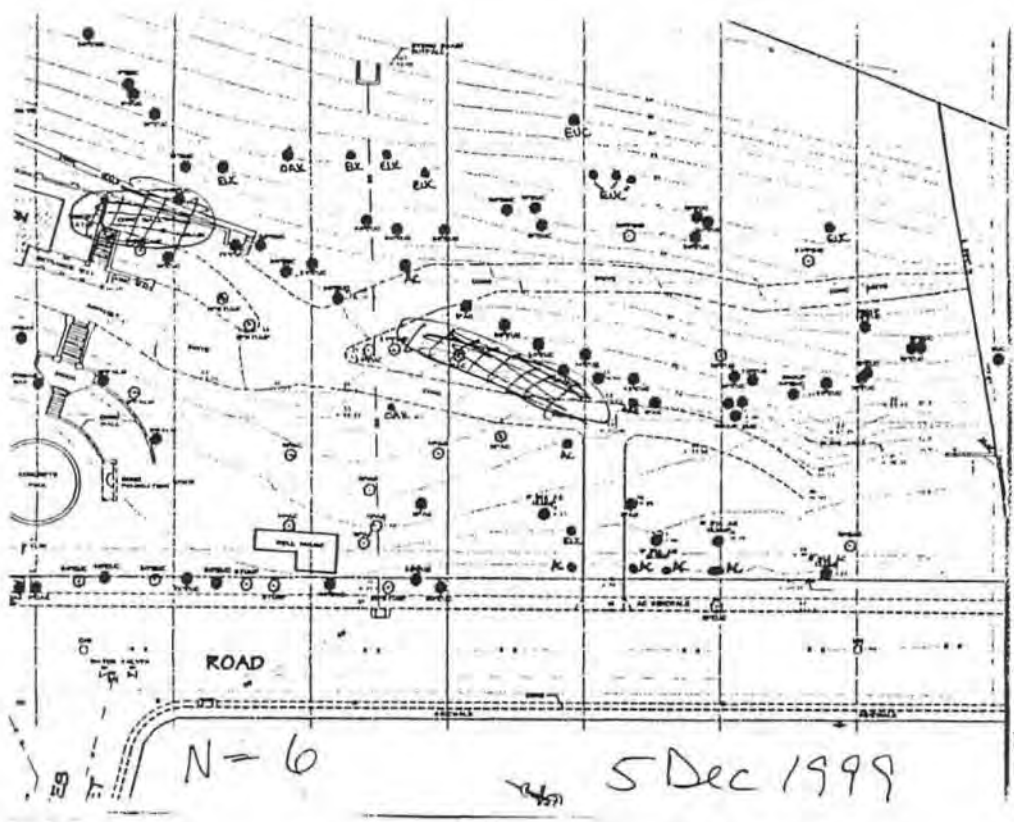
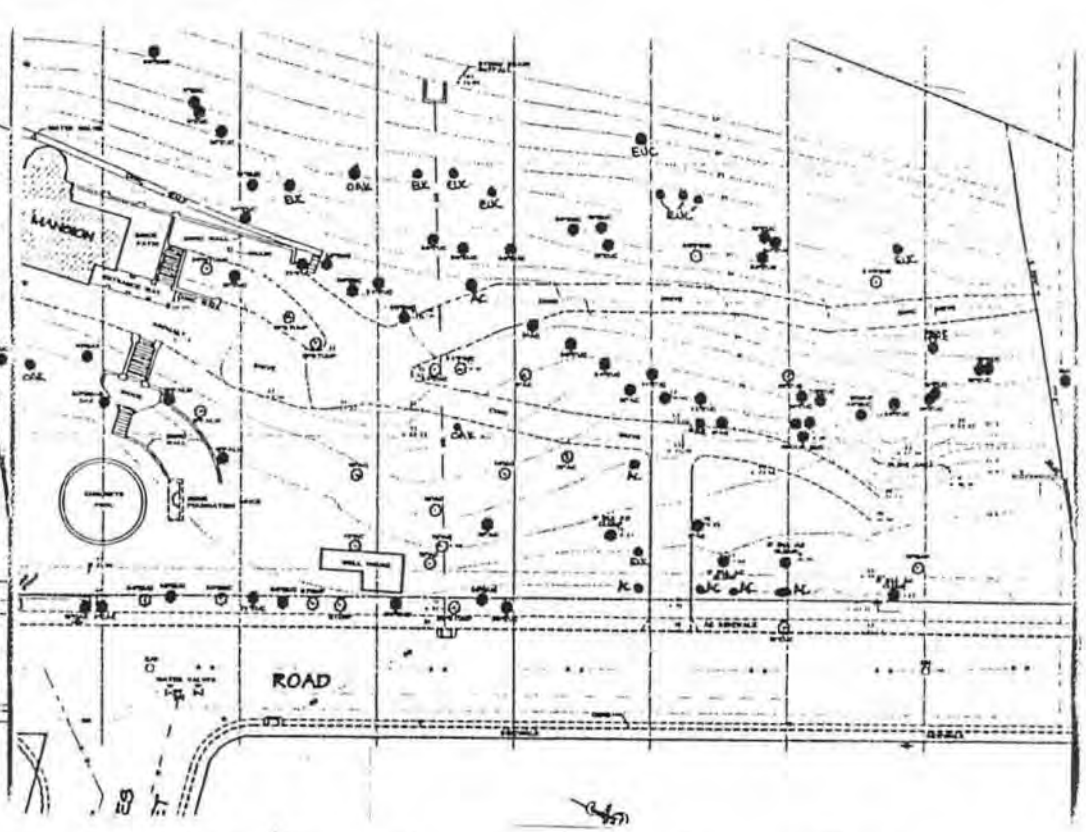
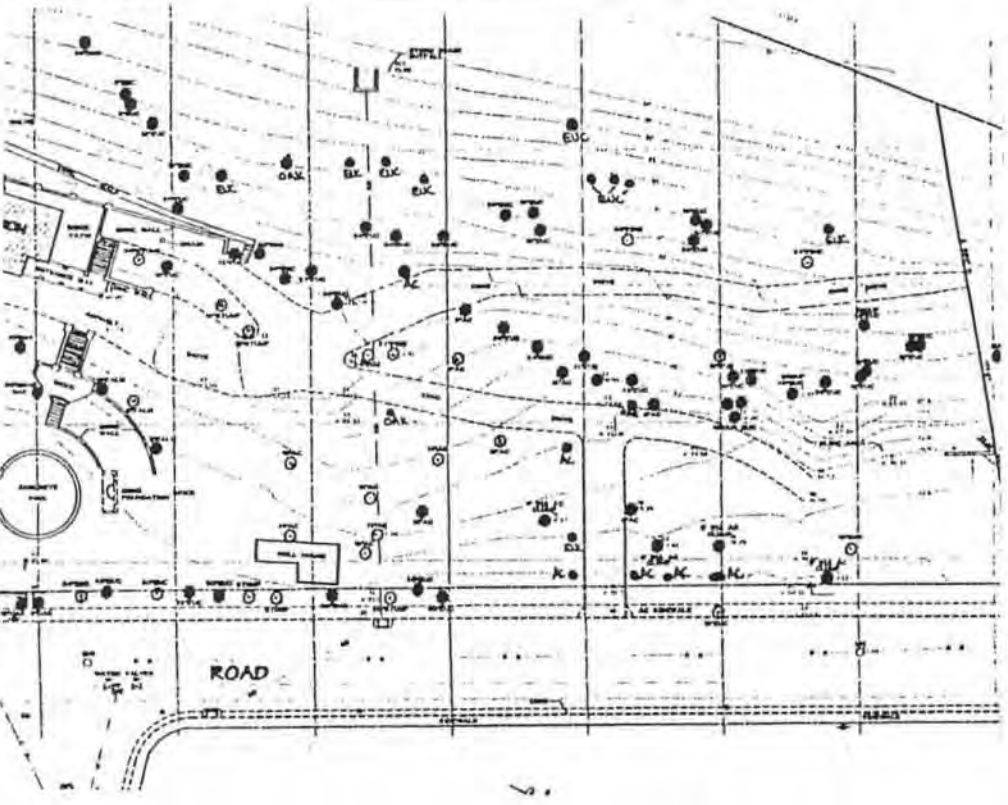

ROAD
N=5
13 Nov 1999

FIGURE 2A:







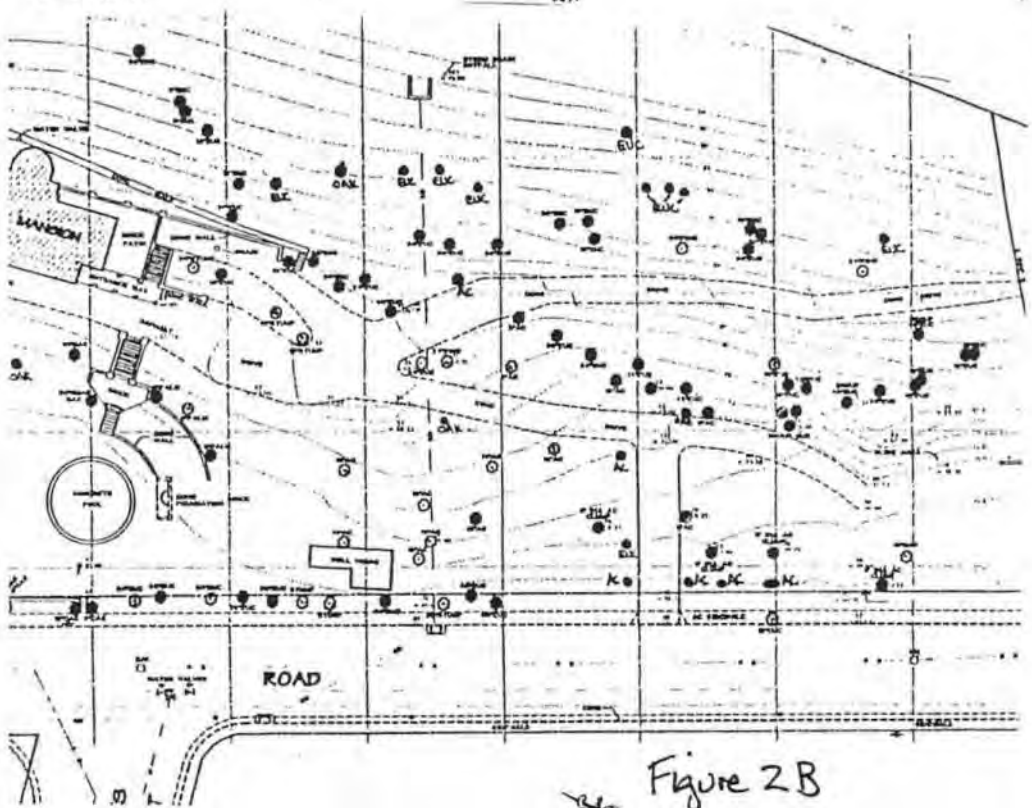


Figure 2B

The Monarch Butterfly Overwintering Habitat at Rispin Mansion: Habitat Utilization and Assessment of Impacts from Development Proposed by Beardslee Development Association

April 9, 1998

By

Elizabeth A. Bell

125 B Myrtle St.
Santa Cruz, CA
(408) 426-1543

INTRODUCTION

The monarch butterfly (*Danaus plexippus* L.) is well known for its long-distance annual migration and spectacular overwintering aggregations (Brower, 1985). During the spring and summer of each year, several generations of monarch butterflies spread progressively northward across North America (Brower and Malcolm, 1989). In the fall, adult monarchs migrate from these summer breeding grounds to a small number of overwintering habitats in California and Mexico. Monarchs congregate at these "overwintering sites" for 5-6 months in a state of relative inactivity and reproductive dormancy. In early spring, as temperature and day length increase, overwintering monarchs mate and return to the interior of the continent where the females lay eggs on milkweed (*Asclepias* spp.) host plants.

As a species, the monarch butterfly is not listed as threatened or endangered. However, monarch overwintering habitats are generally recognized as biotic resources that warrant protection. The California legislature acknowledged the value of monarch overwintering sites and the importance of protecting them by passing Assembly Bill No. 1671 in 1987. Thus, the monarch is now recognized as a species of concern by the California Department of Fish and Game in their Natural Diversity Data Base. In addition, within the California Coastal Zone, monarch overwintering habitat is considered to be "environmentally sensitive habitat" requiring protection under Section 30240 of the California Coastal Act. In 1983 the International Union for the Conservation of Nature and Natural Resources (IUCN) recognized the vulnerability of the monarch migration by designating the annual migration and overwintering cycle of the North American monarch butterfly as a "Threatened Phenomenon" in the IUCN Invertebrate Red Data Book (Brower and Malcolm, 1989).

Importance of overwintering habitats

Like other migratory animals, both the breeding grounds and wintering habitats of the monarch butterfly are crucial in the maintenance of viable populations. The availability of overwintering habitats is particularly important for monarchs, since they are unable to survive prolonged periods of freezing temperatures in any stage of their life cycle. Thus, in order to exploit the large North American milkweed flora during the summer, monarchs must migrate to warmer climates to spend the winter (Brower, 1985). Their survival during the winter depends on their ability to find habitats where they can avoid physical damage from weather and predators, while optimizing the utilization of their limited fat reserves.

and afternoon shade. Later in the season (December-February), when temperature maxima are lower, they tend to roost in trees that receive afternoon sunlight. Thus, the sequential occupation of the same roost locations in an overwintering habitat from one year to the next reflects a consistent response by the monarchs to prevailing winds and seasonal changes in microclimatic conditions within a grove.

Types of overwintering habitats

Winter habitats of the monarch butterfly are generally classified on the basis of the way that they are utilized by the butterflies. Sites that are utilized only as temporary roosts during migration phase are called "Transient Roost Sites" (previously referred to as bivouacs). Sites that provide moderate wind protection along the coast tend to be utilized as roost areas for longer periods of time. When such sites also provide on-site nectar in the fall, substantial numbers of monarchs may cluster there for one to two months and then disperse as the nectar availability declines or storm winds disrupt the clusters. Such sites are known as "Autumnal Roost Sites" and are generally utilized from late September through early November. Sites that are consistently occupied by monarchs from late September or early October through all or part of the winter are known as "Overwintering Sites" (also referred to as permanent overwintering sites). Overwintering sites that are utilized throughout the entire overwintering cycle (October - February) are called "full-term" overwintering habitats, whereas those that are occupied only into December are called "part-term" overwintering habitats (The Monarch Project, 1992; Urquhart and Urquhart, 1977).

Background information on the Rispin Mansion overwintering habitat

The Rispin Mansion overwintering site is listed as Occurrance Number 59 in the California Natural Diversity Database. Information in the Database indicates that monarch overwintering and breeding occurred at this site prior to the clearing of tree and understory vegetation around 1985. Cherubini (1984) observed monarchs at the Rispin site for several overwintering seasons (1977-78, 1978-79, 1979-80, 1982-83) and reported that they used the habitat primarily as an autumnal roost site (September - November). Lane (1983) indicates that some monarchs were present at the site throughout the winter of 1982-83; but the majority of the butterflies present were gone by December (Cherubini, 1984). The most recent study (Bell & Dayton, 1991) showed that the Rispin site was occupied by monarchs during October and November. Thus, most observations at this site during the past twenty years indicate that the Rispin overwintering habitat has functioned primarily as an autumnal roost site.

dissecting the clusters into groups of 25, 50, 100 etc., counting the number of such groups and multiplying the number of groups by the number per group to estimate the number per cluster. Cluster size estimates were recorded on a site map according to the location of the cluster and the population size estimate was calculated as the sum of the cluster estimates.

FIELD SURVEY RESULTS

1997-98 Overwintering season

During the 1997-98 overwintering season, monarch butterflies were present in the Rispin habitat from September through December (Table 1). As in past years, monarchs occupied the portion of the property located South of the Mansion. Concentrations of roosting butterflies developed in two main areas on the property: (A) in the area adjacent to the south access road (primarily near the point where it enters the mansion grounds at the fence), and (B) in the eucalyptus trees on the hillside adjacent to Soquel Creek (see Figure 1).

In the early fall, clusters of roosting monarchs were observed in Area A primarily on the lower eucalyptus branches overhanging the roadway access to the mansion. Small groups of butterflies were scattered along the edge of the grove from the road adjacent to the mansion to the southern edge of the habitat. During October, the number of butterflies present on site increased substantially to approximately 2,000 and roosting activity shifted eastward toward Soquel Creek (Area B) where the butterflies roosted in the interior of the grove on or near eucalyptus with blooming English Ivy growing on the trunks. By late October the monarch colony had increased in size to it season peak of approximately 2,600 butterflies.

In early November the colony returned to Area A, over the southern access road, where they remained until they left the habitat in early January. Cluster locations were not as spread out in Area A as they were in the early part of the season. During November and December, clusters formed primarily on the acacia trees located on both sides of the southern access road (cross-hatched portion of Area A), with the highest concentrations in the canopy of the acacia which is located in the central grassy area on the western side of the roadway approximately 30' southeast of the Well House. Colony size declined to approximately 1,000 in early November, then remained relatively stable through the rest of November. By mid-December only about 500 monarchs were present and the population continued to decline through the later part of December.

often directly reflect physical changes in the site that alter its suitability, they may also result, at least in part, from differences in the relative reproductive success of the monarchs during the summer (i.e., regional metapopulation size) and/or changes in the biotic components of the habitat (such as increased nectar availability or disturbance from increased predator activity). When the regional metapopulation is small, transient roost sites and autumnal roost habitats are often not utilized and clusters subjected to frequent disturbance typically do not persist for long. Thus, the relative biological importance of a monarch winter habitat may appear to change from one year to the next. Therefore, all types of winter habitats warrant the same level of conservation efforts.

Several large acacia trees at the north end of the main cluster area have fallen since our study of the site in 1990-91. These trees provided most of the protection from north wind in the main cluster area. During winters when north winds are not severe this loss is probably of little consequence; however, during storms accompanied by strong north wind, it is likely that severe disturbance of roosting monarchs in the main cluster area will result. Such disruption can result in the departure of the entire population. If this site is to function as a full-term overwintering site, this wind protection must be restored. The acacia saplings that have grown up from the bases of the fallen trees will eventually recreate this north wind protection; however, acacia has a strong tendency to fall over during storms and thus becomes a problem for long term maintenance. It may be more desirable to recreate this wind protection by inter-planting a more structurally stable species (e.g., ironbark eucalyptus) in this area.

Although monarchs occupied the Rispin site through December, they had abandoned the nearby Escalona site by mid-November. This suggests that the Rispin site provided a more suitable overwintering habitat than did the grove at Escalona Gulch during the 1997-98 season. Historically, the site at Escalona Gulch consistently provided habitat for the third largest overwintering colony in Santa Cruz County. However, tree removal and other alterations associated with development on that site have resulted in a reduction in colony size, as well as the duration of occupancy, to the point that the site now only functions as an autumnal roost site and is no longer suitable for overwintering. Thus, tree removal within the Escalona Gulch monarch habitat has altered the microclimatic conditions to the point that it no longer functions as a true overwintering habitat. The sensitivity of overwintering monarchs to changes in their roosting habitats underscores the necessity of tree preservation within these habitats.

EVALUATION OF POTENTIAL IMPACTS and MITIGATIONS

General considerations

In the context of monarch overwintering habitats, an impact is considered significant if it has the potential to substantially reduce the number of butterflies utilizing the habitat (colony size) and/or the length of time that a colony persists in the habitat (duration of occupancy).

In general, development may significantly impact monarch overwintering habitats in one or more of three basic ways:

1. Development can reduce habitat suitability (quality) by: (a) altering microclimatic conditions (wind penetration, insolation, temperature and humidity) in the cluster area, (b) eliminating some or all of the low branches (5-50 feet above ground) that the butterflies may use for roosting, and (c) reducing or eliminating nectar sources (fall/winter blooming plants). Reduced habitat suitability may lead to a reduction in the size of the butterfly colony and/or the length of time the colony persists on the site.
2. Development can increase the frequency of disturbance of roosting monarchs by reducing wind protection, increasing interactions with people and/or increasing vehicular traffic in the area. Such disturbances can increase monarch flight activity which can lead to unnecessary expenditure of individual fat reserves, increased emigration and increased mortality.
3. Development can increase butterfly mortality directly by increasing the frequency of vandalism and accidental death (*e.g.*, road kills).

Mature trees are the most important component of a monarch overwintering habitat. They function to: (1) create the physical structure of the habitat, (2) provide sun/shade roost locations for the butterflies, (3) determine patterns of wind flow and sunlight penetration in the habitat, (4) provide navigational cues that attract the butterflies to the site, and (5) in some cases (e.g., *Eucalyptus globulus*), provide winter nectar.

Removal of trees from monarch overwintering habitat can substantially reduce the suitability of a site for overwintering butterflies. In addition to the cluster bearing trees, preservation of the perimeter (windbreak) trees that surround the cluster areas is of prime importance in the maintenance of all monarch overwintering sites. Removal of mature trees is often a significant, non-mitigatable impact since the impact of removing a mature tree from a monarch overwintering habitat cannot be mitigated to a less than significant

Mitigation 1: Reduce the size of the structure and reposition it farther away from the trees to reduce the impact on the eucalyptus grove and the acacia trees. Replace lost acacia trees by planting *Eucalyptus sideroxylon* along the border of the property and Wharf Road, as well as along the northern edge of the building.

A 25 foot minimum setback shall be required from the eucalyptus trees and the overhanging limbs along the margin of the eucalyptus grove shall be preserved. By reducing the size of the building, it is possible that some of the acacia trees may be preserved in this area. These mitigations will reduce the severity of these impacts, but not to a less than significant level.

Impact 2: The driveway leading to the southern access road will need to be widened (20 feet) for roadbed construction and to accommodate emergency vehicles. This will require the removal of at least two (possibly three) of the acacia trees along the road segment that connects the southern access road to Wharf Road (i.e. the driveway) and will damage the root zones of adjacent trees on either side of this driveway due to their close proximity. This is a significant impact.

Loss of acacia trees in this area of the habitat (directly adjacent to the primary roosting area - See Figures 2 and 5) will increase wind penetration into the main cluster area, subject the remaining trees to wind exposure to which they are not adapted and increase insolation in the main cluster area. This design provides no setbacks (tree protection zones) from the acacia trees that will remain in this area; roadbed construction without setbacks will damage remaining trees and decrease their long-term health and viability. Increased wind throw of trees in the main cluster area also represents a cumulative impact resulting from the removal of windbreak trees. The arborist's report indicates that these trees will be lost in the current design plan.

The existing driveway is only 10 feet wide and acacia trees border the road on both sides. Two mature acacias border the driveway entrance now (note: they are not indicated on the original tree map) and these trees are 20 feet apart. One or both of them will certainly need to be removed for roadbed construction, as well as some of the other trees bordering this driveway. The close proximity of these trees to the main roosting area makes this a serious impact on the monarch habitat. Retention of tree canopy cover is of primary importance in habitat preservation; therefore, project design should retain as many of the existing trees as possible.

Mitigation 2 : Avoidance of any acacia tree removal or root damage north of the driveway. Widen the roadbed only along the southern side of the existing driveway;

exposure to sudden changes in air temperature and/or CO2 levels in engine exhaust; and (3) low frequency vibrations of idling engines transmitted through the trunks and limbs of nearby cluster trees.

This impact has both direct and indirect effects on the monarch colony. Disturbance of roosting butterflies reduces colony stability by increasing flight and emigration. During warm temperatures, butterflies will abandon an area if they are exposed to the aforementioned types of disturbances. If temperatures are cold, these disturbances may result in the butterflies falling to the ground where they can be crushed by cars. If butterflies have been blown onto the ground during a storm (which frequently happens in these habitats during the winter), vehicles parking beneath the roost areas will run over the grounded butterflies and kill them. Moreover, the presence of parking areas requires the removal of understory vegetation, which the grounded butterflies need in order to climb up to safety (this reduces the likelihood of drowning or being washed downhill during heavy rains with rapid runoff and also provides some protection from ground dwelling predators such as mice).

Flight from disturbance also indirectly affects population stability by unnecessarily increasing the expenditure of individual fat reserves. Monarchs that reach a low level threshold of fat content are stimulated to find nectar; searching for nectar often takes the butterflies off the site and results in emigration from the area. If nectar is not readily available, butterflies that run low on fat may die or be unable to remigrate in the spring. (See also the Cumulative impact section for a discussion of the incompatibility of parking lots in relation to tree and limb retention in monarch habitats).

<u>Mitigation 4</u>: Eliminate all parking spaces within the butterfly roosting area (Area "A") along the south gate access road. No grading will be permitted within 30 feet of the trunk of the acacia tree which serves as the primary roosting tree .

This includes the elimination of the four parking spaces along eastern side of access road, the three parking spaces along the western side of the road and the three southern spaces in the large, multiple car lot directly to the north of the main acacia roost tree. Elimination of these spaces could mitigate this impact to a less than significant level. The presence of the remaining parking spaces in the multiple car lot to the north could also represent an impact, but due to the distance away from the main roosting area this impact may be less than significant.

Impact 6: Removal of 7 large eucalyptus trees will be necessary to construct building "M3" adjacent to the mansion. This is a significant impact.

Theloss of these seven large trees will primarily reduce the number of lower limbs used by the butterflies for roosting; however, only the three trees on the southern edge of this group are used by the monarchs. Due to the location of these trees, as indicated in the arborist's report, the main structure of the grove will remain intact even if these trees are lost.

Mitigation 6: Compensate for this tree loss by tree replanting at a 4:1 replacement level in an adjacent area to the South of the new building.

While tree replanting cannot usually compensate for loss of a mature tree, in this particular case (due to the location of these trees in relation to other features in the monarch habitat) this impact may be mitigated to a less than significant level by tree replanting. These trees border the entrance to the"nature trail", an area which is occassionally used by the butterflies for roosting. If new trees are planted around the nature trail entrance, and along the driveway directly to the south, this impact may be mitigated.

Impact 7: Blacktop pavement on the south-gate access road and adjacent parking areas will alter microclimatic conditions within the main roost area by increasing temperature and reducing humidity. This is a significant impact.

Blacktop pavement absorbs sunlight and radiates heat which, in the absence of sufficient airflow, can increase air temperature and lead to increased activity in monarchs roosting above. In addition, by conducting rain water out of the area, such pavement can lower humidity and reduce water availability for adjacent trees.

Mitigation 7: Use a light colored, water premeable substrate for the road and parking lot surfaces.

Use of interlocking bricks or turf block may reduce this impact to a less than significant level.

Impact 8: Trees intended for preservation may become damaged inadvertently during construction. This represents a significant impact.

The main trees on the project site which may be threatened by construction activities are the acacia trees on the western side of the roadway and the eucalyptus trees on the eastern side of the roadway. The acacia trees are most likely to be damaged due to their close

Impact 10: The creation of the nature trail pathway within the eucalyptus grove may create conflicts between the maintenance of the butterfly roost area and the maintenance of the grove for public safety; this could lead to significant long-term impacts.

A small dirtpath "nature trail" and bench at the end of the trail has been proposed to allow people to view the monarchs within the eucalyptus grove. Overall, this is an excellent idea as it will allow public appreciation of the monarch overwintering phenomenon in a serene setting. The potential impact on the butterfly habitat will mainly be due to a perceived need to clear understory vegetation on the hillside. A further impact could arise if the English Ivy that is growing up the trunks of the eucalyptus trees is removed, as this is an important nectar source for the butterflies.

Mitigation 10: Clearing of understory vegetation shall occur only within the boundaries of the footpath; tree removal in the grove shall be limited to the two dead Monterey pines near the side of the path (for public safety). The path shall not be paved, nor the pathway area graded.

The hillside understory vegetation shall be left in its natural state, except where cleared to create and maintain the footpath and viewing area. Fallen dead tree limbs may be removed from the ground to reduce the buildup of a fuel load for fire safety. There are two large dead pines next to the existing dirt trail that are still standing in center of grove; these will need to be removed for public safety.

Impact 11: Grounds maintenance issues may arise that are incompatible with the long-term use of the habitat by butterflies. Some of these impacts may be: the removal of overhanging limbs, removal of understory vegetation within the roost areas, use of blowers under the clusters, et.:

Removal of lower limbs (15-50 feet above the ground) overhanging the access road along the western border of the Eucalyptus grove will eliminate the currently used roosting sites in this habitat.

Mitigation 11: Landscape & grounds maintenance workers should be informed of conservation issues regarding overwintering monarch habitat, either through an educational brochure or training seminar.

The intent of this measure is to create an awareness of issues related to grounds maintenance procedures that will favor the continuation of monarch overwintering in the habitat. Some of the standard procedures for landscape maintenance (such as: the use of chemical or biological insecticides, removal of understory vegetation and the use of

Mitigation 13: Site preparation (tree trimming, tree removal, grading, excavation, roadbed construction and paving) on the project site should be conducted only when monarchs are not present (February through August).

Impact 14: The use of chemical and/or biological insecticides on the property could have adverse effects on the health and survival of overwintering monarchs.

The use of chemical insecticides near overwintering monarchs could obviously have devastating effects. Additionally, butterflies imbibing nectar or dew in an insecticide treated area could ingest toxic residues in the process of feeding. The use of biological insecticides (including bacteria, viruses, protozoans & nematodes used in the control of lepidoptera) can result in long term contamination of the habitat.

Mitigation 14: Use of biological insecticides (including bacteria, viruses, protozoans & nematodes) that are effective in the control of all lepidoptera shall be prohibited throughout the habitat. Chemical insecticides should not be applied during the overwintering season (September-March). Grounds maintenance workers shall be made aware of monarch habitat conservation guidelines as they pertain to grounds management (see Mitigation 10).

Evaluation of design alternatives

From the perspective of the butterfly habitat, alternative designs "B" & "C" have the same impacts as addressed for the original project design, as well as the following additional impacts:

The larger buildings "Units B &C" will require removal of more acacias and eucalyptus, make setback problems for remaining acacias in that area which will destroy more trees (no setback room) & require the trimming of overhanging limbs on remaining trees (eucalyptus from the grove edge & from acacia canopy). Avoidance of these impacts is the only mitigation alternative in order to preserve the monarch overwintering habitat.

General Mitigations for tree replacement : Trees shall be planted on the project site with guidance from a qualified monarch expert to eventually compensate for limbs and trees lost due to project construction. A revegetation plan should be designed and implemented for habitat restoration after development. This measure will reduce the severity of the impact over time, but may not reduce it to a less than significant level.

may not restore the site in the long-term (> 20 years from now). If proper mitigations are implemented, they could reduce the impact of development on the project site after several decades, once the replacement trees have grown to a sufficient size to once again provide adequate wind protection, shading and/or roost sites.

The main impacts of the proposed development will result from tree removal and damage associated with: 1) the placement of the southern building unit, 2) widening the driveway and 3) the placement of parking areas directly below roost trees. Additionally, there is also the long-term incompatibility of monarch habitats with such uses in the immediate vicinity of the roosting areas.

The southern unit located within this monarch habitat is problematic due to tree loss, as well as the loss of overhanging limbs on trees that will remain. One or more eucalyptus trees will be removed in this area, as well as all of the acacias to the South of the driveway. Loss of the overhanging eucalyptus limbs cannot be mitigated and represents a significant reduction in roost habitat; avoidance of this impact is recommended.

The arborist's report indicates that all acacia trees bordering Wharf Road within the monarch habitat will be lost. This is by far the most severe impact of the proposed project. It will result in such large scale habitat microclimatic alterations that the overwintering habitat will no longer function; this means that the overwintering habitat will be destroyed and butterflies will no longer be able to utilize this site.

If the mitigation measures are upheld, the northern half of the acacia grove is retained (North of the driveway) and the driveway is widened only along its southern edge, then at least half of the existing acacias will still need to be removed to accommodate the building and the widening of the driveway. Avoidance of this impact is also recommended. However, loss of some southern-most acacia may be mitigated with tree replanting, as part of an overall, post-development habitat restoration plan. It must be noted, however, that it may take <u>at least</u> 10-20 years for the replacement trees to grow tall enought to function appropriately in this habitat. Furthermore, the success of the proposed mitigations is critically dependent on the survival, health and structure of the remaining trees.

Overwintering habitats along the coast of California provide a network of winter shelters for the entire migratory population of the monarch in western North America. Conservation of these habitats is of vital concern for the maintenance of viable populations. Many monarch butterfly overwintering habitats along the California

LITERATURE CITED

Bell, E. A. and Dayton, J.J. 1991. Overwintering monarch butterfly survey on the Rispin Mansion Site. Report to Jones & Stokes Associates, Inc. Sacramento, CA. 12 pp.

Brower, L. P. 1985. New perspectives on the migration ecology of the Monarch butterfly, Danaus plexippus L. In: Univ. Texas Contributions in Marine Science (supplement) 27: 748-785.

Brower, L. P. and Malcolm, S. B. 1989. Endangered Phenomenon. Wings 14 (2): 3-9.

Cherubini, P. 1984. An environmental assessment of the impact of the proposed Rispin Mansion subdivision on the monarch butterfly overwintering habitat. Integrated Land Services, Capitola, CA.

Dayton, J. J. and E. A. Bell. 1985. Monarch butterfly monitoring study, Santa Cruz California, 1983-84. Report to Harvey and Stanley Associates, Inc. Alviso, CA. 56 pp.

Dayton, J. J. and E. A. Bell. 1986. Monarch butterfly monitoring study at Natural Bridges and Moran Lake, Santa Cruz California, 1984-85. Report to Harvey and Stanley Associates, Inc. Alviso, CA. 52 pp.

Lane, J. 1983. Impact on monarch butterflies at Rispin Mansion, Capitola, CA. Integrated Land Services, Capitola, CA.

Leong, K. L. H. 1990. Microenvironmental factors associated with the winter habitat of the monarch butterfly (Lepidoptera: Danaidae) in central California. Ann. Entomol. Soc. Am. 83 (5): 906-910.

Leong, K. L. H., D. Frey, G. Brenner, S. Baker and D. Fox. 1991. Use of multivariate analysis to characterize the monarch butterfly (Lepidoptera: Danaidae) winter habitat. Ann. Entomol. Soc. Am. 84 (3): 263-267.

Table 1. Visual determinations of the numbers of monarch butterflies overwintering in Capitola, CA at Rispin Mansion and Escalona Gulch during the 1997-98 season. NS = no survey. Colony size at Natural Bridges ranged from 80,000 - 100,000 butterflies during the 1997-98 overwintering season.

		Number of butterflies observed	
Visit	Date	Rispin	Escalona Gulch
1	22 Sep 97	350	34
2	2 Oct 97	400	800
3	8 Oct 97	2,000	5,000
4	16 Oct 97	1,500	1,400
5	26 Oct 97	2,600	1,000
6	12 Nov 97	1,000	20
7	17 Nov 97	1,000	0
8	22 Nov 97	1,000	4
9	27 Nov 97	1,000	0
10	12 Dec 97	500	NS
11	29 Dec 97	200	NS
12	8 Jan 98	0	NS

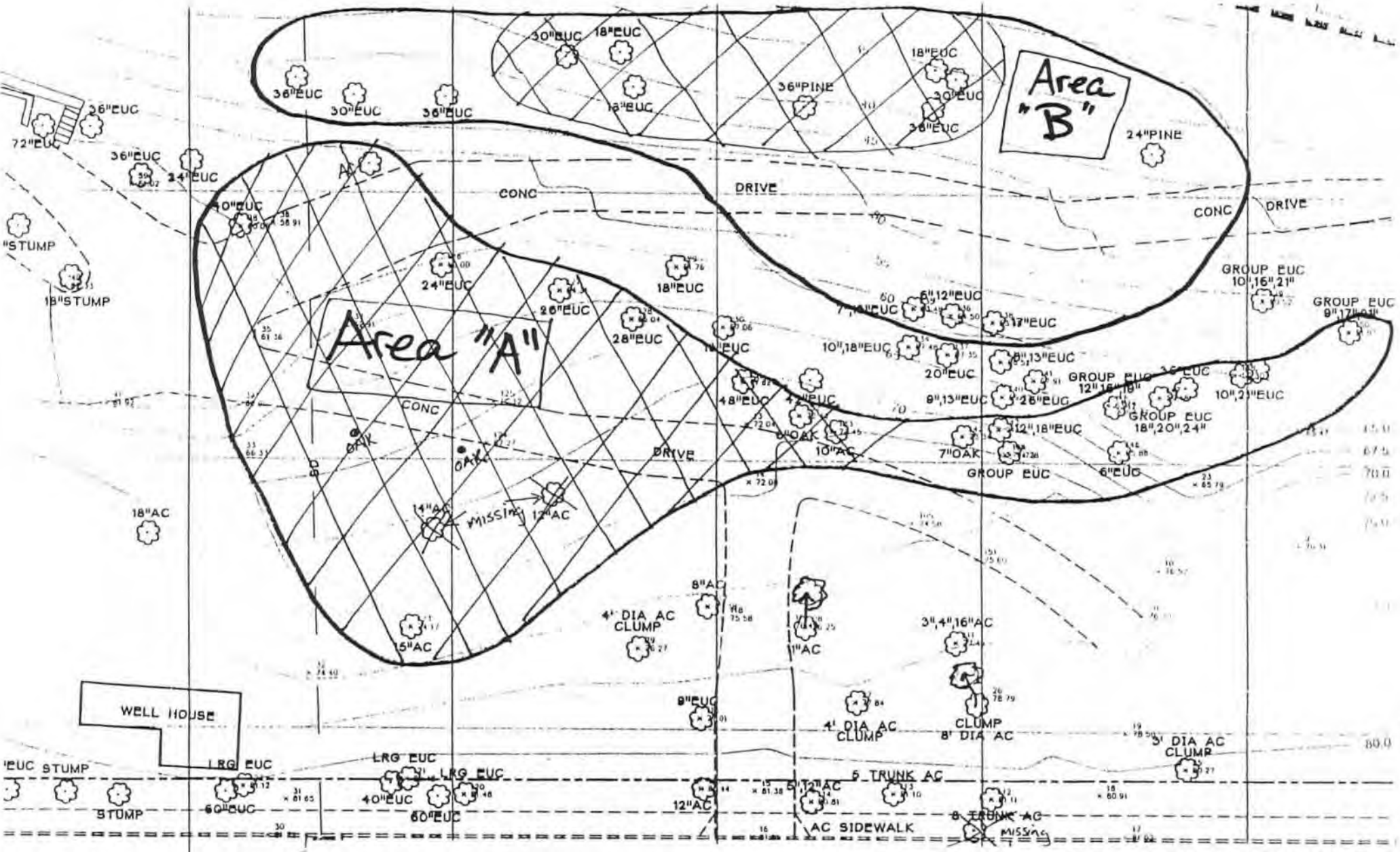


Figure 1. The monarch butterfly overwintering habitat at Rispin Mansion includes all trees on the southern half of the property. Trees in which the butterflies roost are located within Areas "A" and "B"; cross-hatched parts of these areas are the focal points of roosting activities. Trees surrounding the roost locations function to create wind protection and dappled shade conditions for the roost areas. The 15" acacia tree (South of the well house) was used most consistently by the butterflies for roosting during November and December.

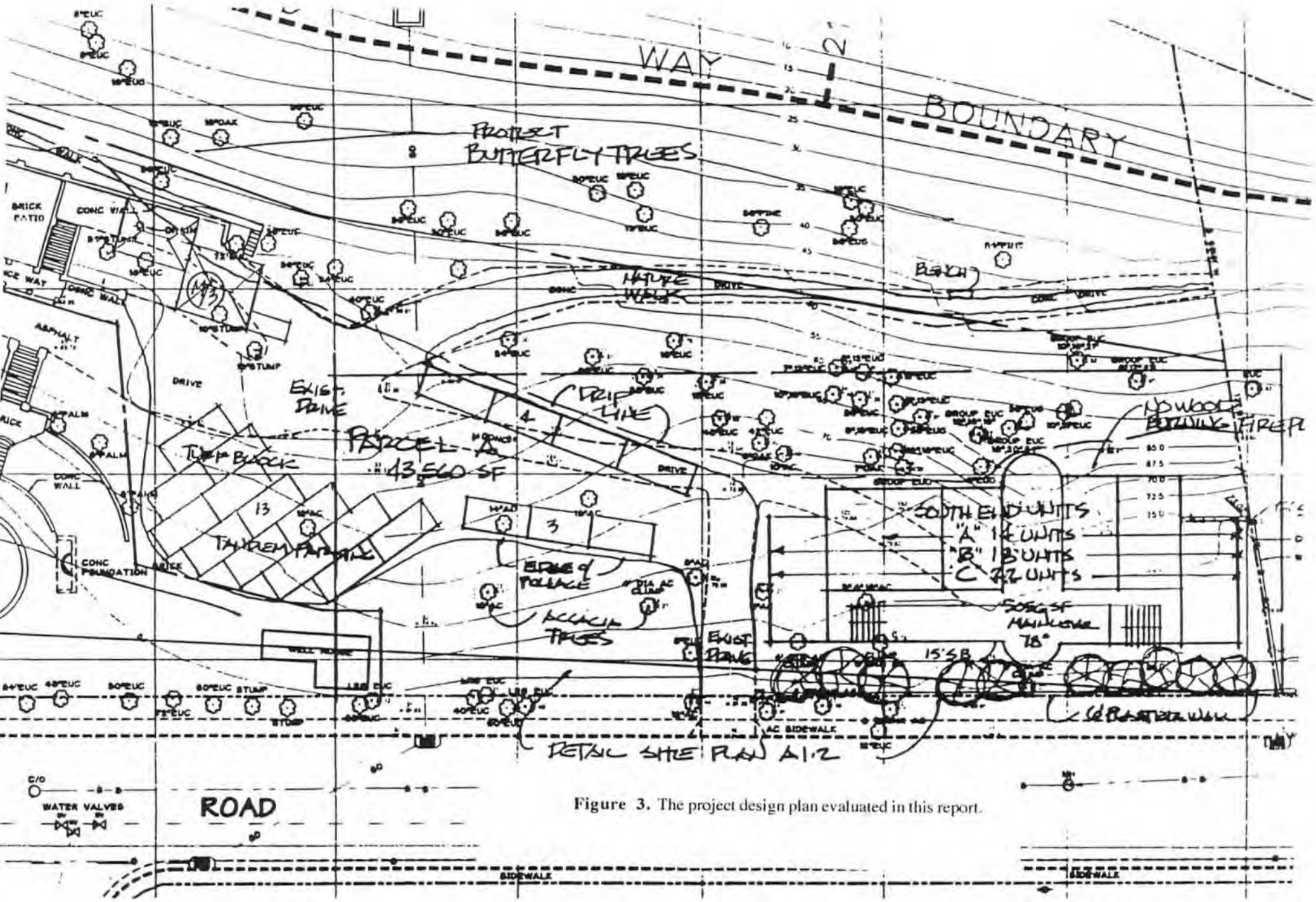


Figure 3. The project design plan evaluated in this report.

Figure 5. This photographic composite shows the acacia trees located along the western edge of the monarch habitat. All trees to the left (South) of the driveway will be removed (Region 1 of Figure 2) and the trees immediately to the right of the driveway (North) will be removed or damaged. This stand of acacia trees provides necessary wind protection and dappled light conditions for the roost areas. The primary tree utilized for roosting during the winter months in 1997 was the acacia tree located on the far right side of the photo. Loss of all of these trees will destroy the monarch overwintering habitat at Rispin.

TREE PRESERVATION REPORT

for

Beardlsee Development
Attn: Ron Beardslee
110 Grand Ave.
Capitola, CA 95010
Phone: (831) 475-1806
Fax: (831) 419-7020

Site Location:
Rispin Mansion
Wharf Rd.
Soquel, CA

SITE VISITED: September 1-13, 2002
REPORT DATE: September 16, 2002

Prepared by:

Nathan Lewis
Certified Arborist #WC-1735
3135 Porter Street
Soquel, CA 95073
(831) 476-1200 *Office*
(831) 476-1207 *Fax*

TABLE OF CONTENTS

INTRODUCTION

Mr. Ron Beardslee and Mr. Dan Floyd are planning to restore the Rispin Mansion located on Wharf Road in Capitola. This project will include the historical reconstruction of the original mansion, accessory buildings, gardens, arbor and surrounding amenities. Mr. Beardslee has contracted my services to survey and evaluate the trees with regards to the potential for preservation, construction impacts and to make recommendations for the improvement of tree health and structure. This report summarizes my observations and evaluations.

BACKGROUND

The Rispin Mansion was constructed during the early 1920's as the home of Henry Alan Rispin. Mr. Rispin and his family occupied the home as primarily a weekend resident until about 1929 when he vacated the premises.

The home was designed by San Francisco architect, George McCrae as an 11 ½ acre home that included a large lawn area with a brick pathway, a rose arbor, a well house and pump, and a reflective pool with a fountain.

During the early 1940's the facility was purchased by the Archdiocese of Monterey and used as "Poor Clares Monastery" until 1956. Poor Clares added buildings to the facility, which covered a significant area of the lawn and old access road. The buildings added by Poor Clares have since burned down, leaving only the concrete foundations. Poor Clares vacated the premises in 1956 and the mansion has been vacant ever since.

SITE DESCRIPTION

The proposed development is located between Wharf Road and the Soquel Creek, at the eastern end of Clares Street in Capitola. The area to the south and west of the property is a mix of high-density urban housing, rest homes and a public library.

The majority of the property is densely forested with oaks, acacias, eucalyptus, and redwoods. The eastern portion of the property is located on steeply downward sloping terrain. Much of the area is designated as a riparian corridor and butterfly habitat.

SURVEY METHOD

The tree survey was conducted on September 10-13, 2002. The survey included only the trees that would be affected by this project and consisted of the following steps:

1. Locate and number each tree (6 inches in diameter and greater) on the site map provided by Joe L. Akers, Civil Engineer in Capitola. Note: Mr. Beardslee performed this work. The trees were numbered using 1-inch diameter aluminum tags, which were oriented on each tree for easy visibility at a height of approximately 6'.

2. Identify each tree as to species.

3. Measure the diameter of the trunk at a point 54 inches above soil grade or other more appropriate height.

4. Evaluate the health of the trees on a 0-5 scale, where 0=dead, 1=poor, and 5=excellent condition.

5. Note any areas of structural weakness such as decay, cracks, poor crown configuration, history of failure etc.

The attached survey contains information on a total of 81 trees. Ratings for health and structure are based on the following criteria.

Tree Health: This rating is determined visually. Annual growth rates, leaf size and coloration are examined. Indications of insect activity, decay and dieback percentages are also used to define health.

* Trees in "good" health have full canopies, with dark green leaf coloration. Areas of foliar dieback or discoloration are less than 10% of the canopy. Dead material in the tree is limited to small twigs and branches less than one inch in diameter. Insect infestation is minimal.

* Trees with a "fair" health rating will have from 10% to 30% foliar dieback, with faded coloration, dead wood larger than one inch, and/or visible insect activity, disease or decay.

* Trees rated as having "poor" health have greater than 30% foliar dieback, dead wood greater than two inches, severe decay, disease or serious insect activity.

Tree Structure: This rating is determined by visually assessing the roots, root crown (where the trunk meets the ground), supporting trunk, and branch structure. The presence of decay can affect both health and structural ratings.

* Trees that receive a "good" structural rating are well rooted, with visible taper in the lower trunk, leading to buttress root development. These qualities indicate that the tree is solidly rooted in the growing site. No structural defects such as co-dominant stems (two stems of equal size that emerge from the same point), narrow angle crotches poorly attached branches, cavities or decay are present.

* Trees that receive a "fair" structural rating may have defects such as poor taper in the trunk, inadequate root development or growing site limitations. They may have multiple trunks, included bark (where bark turns inward at an attachment point), or suppressed canopies. Decay or previous limb loss (less than 2 inches in diameter) may be present in these trees. Trees with fair structure may be improved through proper maintenance procedures.

* Poorly structured trees display serious structural defects that may lead to limb or trunk failure, or whole tree failure due to uprooting. Trees in this condition may have had root loss, cavities or severe decay that has compromised their support structure. Decay may have compromised larger scaffold branches leading to the failure. Trees in this condition can present a risk to people and structures. Maintenance procedures may reduce, but not eliminate, these defects.

Overall Condition: This rating is a combination of tree health and tree structure ratings. In some cases a tree that is in good health can receive a fair or poor overall rating if the structure of the tree is somehow compromised or presents a hazard.

DESCRIPTION OF TREES

Eighty-one trees greater than six inches in diameter were surveyed. These trees consist of both native and non-native species. Eucalyptus and oaks seem to have been planted as ornamentals for landscaping around the mansion. Over the years volunteers have mixed with the planted population. The eucalyptus and redwoods may have been planted for aesthetic purposes, slope stabilization and windscreen purposes. The trees on this property have not been maintained in a manor consistent with benefiting the tree condition, health or public safety. The eucalyptus grove now serves as habitat for Monarch butterflies. According to the developer, maintenance of this habitat, and public safety are primary objectives for this development.

Of the trees surveyed, the California Live Oaks were the most commonly occurring tree. The majority of these trees are in generally good or fair condition. The most common defect found was narrow angle crotches where co-dominant stems or limbs emanate.

Narrow angle crotches are the result of separate, adjacent trunks or stems growing in roughly parallel orientations. As the stems grow in size, they begin to touch, and as they expand in diameter, the bark is trapped between them. The trapped, or included, bark then prevents the formation of adequate connective tissues between the stems, and results in a crotch that is structurally less sound than it otherwise might be. Crotches that are stressed and contain large amounts of included bark also tend to produce a characteristic swelling around the weakened junction.

Pruning and cabling techniques will aid in reducing the potential for stem and branch failure. In addition, pruning to remove dead wood, soil stabilization, irrigation, fertilization and mulching may significantly improve the overall health and aesthetic appearance of these trees.

The second most commonly occurring tree surveyed were the eucalyptus trees. These trees included the trees located at the top of the slope on the west side of the grove. Five large eucalyptus trees planted in a row along Wharf Road were also included. Evidence suggests that many years ago the aforementioned five trees were topped to a height of between 6 and 12 feet above soil grade. The response of these trees included the production of epicormic sprouts along the trunk below the topping cuts. These sprouts have now developed into multiple large trunks, which define the tree's structure. The union in which these trunks emanate is the site of the original trunk that was cut. Due to the collection of an enormous amount of debris in each of the five trees, a thorough inspection for decay was not performed.

When evaluating trees to assess or predict the potential for failure, it is necessary to consider many factors. The factors may include, but are not limited to, tree architecture, structural defects, decay, exposure to climatic conditions, the patterns of structural failure for that species, and targets. The potential for serious damage or injury to motorist, bicyclist and pedestrians is high as Wharf Road and Clares Street are busy roads. A more thorough hazard evaluation report for these five trees is recommended.

According to Mr. Beardslee and the conceptual site plan, the restoration project will include the construction of a building located at the southern corner of the property adjacent to Wharf Road and the neighboring residences. This site is a prime location for development.

It is important to remember that trees require large amounts of space both above and below the ground. Locating the buildings as far from the trees as possible can mitigate the detrimental effects of construction. The larger eucalyptus trees in the eucalyptus grove are more than 30 feet below the development envelopment. Modifications to the building placement shall require a ten-foot separation between the building and the neighbor's redwood #56. Removal of three acacia clumps (#53, 54 & 55) will be required.

In general, acacia trees are not the preferred species in an urban environment. They are prolific in the production of pollen, subject to decay and root failure. However, it is my understanding that the acacia trees located on this site are an important component to the occupation of this site by the butterflies. They not only serve as a wind block but also to provide for dappled light to lower limbs of the eucalyptus trees. Unfortunately, as the size and quantity of the acacia grove is increasing, the amount of dappled light decreases. In time, not only may this become a less friendly environment for the butterflies, but also will result in a reduction in the foliar canopy of the western edge of the eucalyptus grove. Maintenance pruning to reduce the potential for failure for both species will also result in secondary benefits of increasing dappled light to the understory areas.

The failure patterns of the eucalyptus and acacia in a forested environment suggest that each species is prone to limb and trunk failure. Measures aimed at a reduction of failure include the removal of the most leaning trees, the reduction of excessive limb and canopy weight, and the removal of large deadwood. These specifications should be included in the maintenance of all large heritage trees.

SUITABILITY FOR PRESERVATION

Before evaluating the impacts that will occur during development, it is important to consider the quality of the tree resource itself, and the potential for individual trees to function well over an extended length of time. Trees that are preserved on development sites must be carefully selected to make sure that they may survive construction impacts, adapt to a new environment and perform well in the landscape. Our goal is for long-term health, structural stability and longevity.

*Tree Health
Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees.

*Structural Integrity
Trees with poor branch attachments and other structural defects that cannot be corrected are likely to fail. Such trees should not be preserved in areas where damage to people or property could occur.

*Species Response
There is a wide variation in the response of individual species to construction impacts and changes in the environment. For example, Coast Redwood trees tolerate site disturbances relatively well compared to Giant Seqouia's.

*Tree Age and Longevity
Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change.

CONCLUSIONS AND RECOMMENDATIONS

Based on the conceptual site plan of the eighty plus trees surveyed, only seven trees will need to be removed. This includes oak trees #9 & #11. The location of these two trees will restrict the reconstruction of the arbor and the garden / pavilion. Tree #33 is basically a deteriorating stump with sprouts. This tree will need to be removed to restore the brick patio. Trees #53, #54 and #55 will need to be removed as they are in the building envelope for the new building. Tree group #82 consisting of young acacia sprouts one to four inches in diameter will need to be removed to accommodate the location of the electric vehicle house.

Based on the condition of the trees surveyed, I recommend the removal of six additional trees. This list includes the holly tree #10 (due to poor health), tree #46 (this tree is failing onto Wharf Road), and tree #48 (consists of four stems, which are severely leaning over Wharf Road and previous contact with large vehicles is evident). Also included are trees #65 & #78 (due to excessive lean creating a high potential for failure), tree #76 (this tree is in poor structural condition and damaging the concrete wall), and tree #81 (which is a dead pine stump).

The remaining trees, with the exception of the acacia, should be maintained, protected and incorporated in the project as an asset for the community. The acacia trees that were not recommended for removal should also be managed until a more suitable replacement species, such as Live Oaks and / or redwoods, are large enough to be considered as a substitute with respect to dappled light and wind block for habitat.

Overall, this restoration project and development will be a benefit to the existing tree population. Although there will be increased activity on this site, tree maintenance will be regularly performed and the establishment and maintenance of tree protection areas and pathways will occur. In addition, clean up of the site from transient and pedestrian litter, stockpiled concrete and dog waste will provide a more attractive and appealing site within the community.

OAK TREE PRUNING SPECIFICATIONS AND RECOMMENDATIONS

The foliar canopies of these oak trees are generally faded and sparse compared to other trees of this species. This is an indication of low vigor and / or compromised health. This species is one of the best quality resources on this site.

Recommendations: The project arborist should monitor any demolition or construction activity including utility, landscape and irrigation installation. In addition an invigoration program, pruning, and cabling should be implemented prior to construction activity and should include the following specifications.

Invigoration

- Root crown restoration of soil level around base of trees.
- Deep root fertilization using the following solution in a pattern of 18" intervals in a grid pattern from ½ the tree's dripline to 1.5 times the tree's dripline.
  - Romeo Greenbelt 22-14-24 – 35 pounds per 100 gallons of water
  - Biostimulant and Mycortree
- Removal of ivy and other vegetation.
- Installation of 4" to 6" layer of oak mulch.

Pruning:

- Prune for the removal of dead wood greater than ½ inch diameter or smaller, if requested by developer.
- Prune for the removal of diseased, dying, crossing, broken or weakly attached limbs (retaining all live interior foliage).
- Prune to reduce branch length and weight (load) without altering tree form.

Cabling:

- Install cables as recommended, in accordance with National Arborist Association standards for guying of shade trees using
  - Eye lag bolts.
  - EHS cable.
  - Preformed grips with thimbles.

EUCALYPTUS TREE PRUNING SPECIFICATIONS AND RECOMMENDATIONS

This location and the nature of this species lends to a management program that should be very low impact. The failure profile indicates that limb failure is the most commonly occurring failure.

Recommendations:

- Prune to reduce long heavily weighted limbs overhanging the existing cart path and new building site (west side of the grove) as needed.
- Prune to remove of large dead wood 2" and larger.
- Removal of ivy from the lower trunks.

EUCALYPTUS TREE PRUNING SPECIFICATIONS AND RECOMMENDATIONS (THE FIVE TREES ALONG WHARF ROAD)

Recommendations:

- Clean crotches of debris for inspection of decay.
- Remove fences & barbed wire.
- Prune to reduce branch and canopy weight, as necessary.
- Install cables on main stems using rotary box configuration using the following required hardware:
  - 9/16 inch eye lags or ¾ inch through-bolts and ammor. eyes.
  - 5/16 inch EHS cable.
  - Preformed grips with thimbles.

ACASIA PRUNING RECOMMENDATIONS AND SPECS

These trees are an essential component to the sensitive butterfly habitat. They serve to provide dappled light and windscreen. They shall be pruned to maximize dappled light penetration, for public safety to reduce the potential for failure and to provide for clearance of large trucks and emergency vehicles along Wharf Road.

Recommendations:

- Prune to remove failed or failing stems.
- Thin group of trees for improved stem spacing.
- Prune to remove dead wood greater than ½ inch diameter.
- Prune to remove dying, crossing, rubbing and weakly attached limbs.
- Prune to reduce end weight on long heavy limbs and to reduce canopy loads on stems.

TREE PRESERVATION GUIDELINES

The goal of tree preservation is not merely tree survival during development but maintenance of tree health and beauty for many years. Trees retained on sites that are either subject to extensive injury during construction or are inadequately maintained become a liability rather than an asset. The response of individual trees will depend on the amount of excavation and grading, the care with which demolition is undertaken, and the construction methods. These impacts can be minimized by coordinating any construction activity inside the Tree Protection Zone.

The following recommendations will help reduce impacts to trees from development and maintain and improve their health and vitality through the clearing, grading and construction phases.

Design recommendations

1. Any plan affecting trees should be reviewed by the Consulting Arborist with regard to tree impacts. These include, but are not limited to, improvement plans, utility and drainage plans, grading plans, landscape and irrigation plans and demolition plans.

2. The Consulting Arborist will identify a Tree Protection Zone for trees to be preserved in which no soil disturbance is permitted. For design purposes, the Tree Protection Zone shall be defined by the dripline. If grading must encroach within the dripline, the Consulting Arborist will determine if a smaller Tree Protection Zone is possible.

3. Prior to demolition, the Consulting Arborist will prepare a Tree Fencing Plan, detailing the location of all protective fencing.

4. No underground services including utilities, sub-drains, water or sewer shall be placed in the Tree Protection Zone.

5. Tree Preservation Notes should be included on all plans.

6. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use.

7. Irrigation systems must be designed so that no trenching will occur within the Tree Protection Zone.

Pre-construction treatments and recommendations

1. Prune the trees to be retained to clean the crown of dead, dying, and weakly attached branches. Ivy should also be removed from tree crowns and trunks. Pruning to create clearance form proposed buildings and roadways is also required. We recommend using a tree service experienced in ornamental pruning, and that an I.S.A (International Society of Arboriculture) Certified Arborist or Tree Worker be present at all times during pruning. Tree services must have a State of California Contractors License for Tree Service (C61-D49) and should provide proof of workman's compensation and general liability insurance.

2. Fence all trees to be retained to completely enclose the Tree Protection Zone prior to demolition, grubbing or grading. Fences shall be 6 feet nylon mesh or equivalent as approved by the consulting arborist. Fencing shall be placed at the dripline. Fences are to remain until all grading and construction is completed.

Recommendations for tree protection during construction

1. No grading, construction, demolition or other work shall occur within the Tree Protection Zone. Any modifications must be approved and monitored by the Consulting Arborist.

2. Roots greater than 1 inch in diameter which are encountered during grading or trenching for utilities should be severed cleanly with a saw, rather than torn by grading equipment.

3. No excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the Tree Protection Zone.

4. Any additional tree pruning needed for clearance during construction must be performed by a Certified Arborist and not by construction personnel.

TREE SURVEY FORM

Tree #	Tree Name	Size = DBH Diameter at Breast Hieght (unless otherwise noted)	Condition Rating (0=dead, 5=excellent)	Health Rating	Structure Rating	Structural Characteristics and Comments	Potential for Preservation	Recommendations for Preservation
1	Ca. Live Oak	61" (at 2')	3	Fair	Poor	4 stems @ 3', basal decay	Excellent	Prune to reduce canopy weight and end weight, remove dead wood to 1/2", remove ivy and install 5 cables
2	Ca. Live Oak	45"	2	Poor	Poor	3 stems @ soil grade, inner trunk decay	Good	Prune to remove dead wood to 1/2", fertilize
3	Ca. Live Oak (2)	8" & 6"	3	Fair	Fair	2 indiv. Trunks, understory	Good	Prune to remove dead wood to 1/2", fertilize
4	Ca. Live Oak	13"	3	Fair	Fair	"V" crotch at 12', no targets	Excellent	Prune to remove dead wood to 1/2", end weight reduction
5	Ca. Live Oak (2)	10" & 11"	3	Fair	Poor	"V" crotch , lean to east	Good	Prune to remove dead wood to 1/2", end weight reduction, building clearance
6	Eugenia	13"	3	Fair	Poor	Co-dominant stems, lower trunk wound	Good	Prune to remove dead wood to 1/2"
7	Ca. Live Oak	16"	3	Fair	Good	Good aesthetic value	Excellent	Prune to remove dead wood to 1/2", end weight reduction
8	Ca. Live Oak	16"	3	Fair	Fair	Co-dominant stems	Good	Prune to remove dead wood to 1/2", end weight reduction
9	Ca. Live Oak	11"	2	Fair	Poor	Excessive lean	Remove	Remove
10	Holly	10"	1	Poor	Fair		Remove	Remove
11	Ca. Live Oak	15"	3	Fair	Poor	Poor buttress root architecture and branch attachment	Remove	Remove
12	Ca. Live Oak	33"	3	Fair	Poor	Multiple "V" crotches, weak limb attachments	Excellent	Prune to remove dead wood to 1/2", end weight reduction, install 4-6 cables, mulch area, remove debris under canopy
13	Ca. Live Oak	21"	3	Good	Poor	Multiple "V" crotches, weak limb attachments	Excellent	Prune to remove dead wood to 1/2", end weight reduction, install 2-3 cables, mulch area, remove debris under canopy
14	Ca. Live Oak	44" (at soil grade)	3	Good	Poor	Co-dominants (2) @ soil grade, poor canopy balance	Good	Prune to remove dead wood to 1/2", end weight reduction, install 4 cables, mulch area, remove debris under canopy
15	Ca. Live Oak (2)	17.5" & 13"	3	Fair	Poor	Understory, poor canopy balance	Good	Prune to remove dead wood to 1/2", end weight reduction, remove ivy
16	Ca. Live Oak	13"	3	Good	Poor	Co-dominants with weak attachments	Good	Prune to remove dead wood to 1/2", end weight reduction, mulch area
17	Ca. Live Oak	16"	2	Poor	Fair	Close to wall and walkway	Good	Prune to remove dead wood to 1/2", end weight reduction, release road, fertilize
18	Ca. Live Oak	15.5"	2	Fair	Very Poor	Sprouts from parent tree	Good	Prune to remove dead wood to 1/2", end weight reduction, release road
20	Ca. Live Oak	13"	2	Fair	Poor	Poor balance	Good	Prune to remove dead wood to 1/2", end weight reduction
21	Blue Gum Euc.	56"	3	Fair	Poor	Previously topped (2x) @ as', multiple co-dominants	Good	Prune to remove dead wood to 1/2", end weight reduction, and prune for structure
23	Blue Gum Euc.	81"	2	Fair	Poor	Previously topped @ 6', internal decay	Good	Prune to remove dead wood to 1/2", end weight reduction, and prune for structure, remove wood fence and barbed wire
24	Ca. Live Oak	23.5"	3	Fair	Fair		Excellent	Prune to remove dead wood to 1/2", end weight reduction, remove ivy

Tree #	Tree Name	Size = DBH Diameter at Breast Hieght (unless otherwise noted)	Condition Rating (0=dead, 5=excellent)	Health Rating	Structure Rating	Structural Characteristics and Comments	Potential for Preservation	Recommendations for Preservation
25	Ca. Live Oak	33"	2	Fair	Fair	Covered in ivy, co-dominant stems	Good	Prune to remove dead wood to 1/2", end weight reduction, remove ivy
26	Ca. Live Oak	22"	3	Fair	Fair	Co-dominant stems	Good	Prune to remove dead wood to 1/2", end weight reduction, remove ivy
27	Ca. Live Oak	24.5"	3	Fair	Fair	Covered in ivy, co-dominant stems	Good	Prune to remove dead wood to 1/2", end weight reduction, remove ivy
28	Ca. Live Oak	34"	3	Fair	Fair	Poor stem and branch attachment	Good	Prune to remove dead wood to 1/2", end weight reduction, remove ivy
29	Ca. Live Oak	14"	2	Fair	Fair	10 degree lean towards house	Good	Prune to remove dead wood to 1/2", end weight reduction, remove ivy
30	Windmill Palm	7"	4	Good	Good		Excellent	Prune to remove dead wood to 1/2", remove ivy
31	Windmill Palm	7"	4	Good	Good		Excellent	Prune to remove dead wood to 1/2", remove ivy
32	Ca. Live Oak	6"	4	Good	Fair	Volunteer	Excellent	Prune to remove dead wood to 1/2", separate from Euc.
33	Ca. Live Oak	8" (at soil grade)	1	Fair	Poor	Stump with sprouts, decay	Poor	Remove
34	Blue Gum Euc.	64"	3	Good	Poor	Previously topped @ 8', decay in center	Good	Prune to remove dead wood to 1/2", end weight reduction, remove small co-dominants to increase dappled light and safety
36	Blue Gum Euc.	48"	3	Fair	Poor	Previously topped @ 6', co-dominant stems	Good	Prune to remove dead wood to 1/2", end weight reduction, remove weak co-dominant stem to east to increase dappled light and safety
38	Blue Gum Euc.	83"	3	Fair	Poor	Previously topped @ 6', co-dominant stems, possible internal decay	Fair	Prune for end weight reduction, remove 3 co-dominant stems growing towards roa, install cable system
40	Acacia	11.5"	2	Fair	Very Poor	Stump cluster, all but single stem previously failed, high potential for root failure	Very Poor	Remove
41	Acacia	9"	2.5	Fair	Poor	Damaged trunk @ 20'	Fair	Prune to remove dead wood to 1/2", end weight reduction
42	Blue Gum Euc.	12"	4	Good	Good		Good	Prune to remove dead wood to 1/2", end weight reduction
43	Acacia	12.5"	3	Fair	Fair	Basal bleeding, lean towards road	Fair	Prune to remove dead wood to 1/2", end weight reduction, thin canopy
44	Acacia	13"	3	Fair	Poor	Basal bleeding, lean towards road, high potential for root failure	Poor	Prune to remove dead wood to 1/2", end weight reduction, thin canopy, prune for balance
45	Acacia	5"	3	Fair	Fair	Being pushed over by #46	Good	Prune to remove dead wood to 1/2"
46	Acacia (6)	3" - 12"	1	Fair	Poor	3 of 6 stems failing	Very Poor	Remove
47	Acacia (2)	11.5" & 6"	2	Poor	Poor	Hit by falling tree or vehicle, large wound at base of larger stem	Poor	Prune to remove dead wood to 1/2", end weight reduction, thin canopy, release road
48	Acacia (4)	2" - 7.5"	2	Fair	Poor	Leaning over road, smaller stems being pushed over by #46	Fair	Remove

Tree #	Tree Name	Size = DBH Diameter at Breast Hieght (unless otherwise noted)	Condition Rating (0=dead; 5=excellent)	Health Rating	Structure Rating	Structural Characteristics and Comments	Potential for Preservation	Recommendations for Preservation
49	Acacia (8)	2" - 8.5"	2	Fair	Poor	Perimeter trees prone to failure	Poor	Prune to remove dead wood to 1/2", end weight reduction, release road, remove 3 stems growing southwest over roadway
50	Acacia (38)	1" - 6"	2	Fair	Poor	Dense clump perimeter trees, lean	Good	Thin clump, remove smallest and most leaning trunks
51	Acacia (4)	3" - 7"	2	Fair	Poor	Weak basal attachments	Fair	Thin clump, remove smallest and most leaning trunks
52	Acacia (4)	9" each	1	Poor	Poor		Fair	Prune to release road, remove dead wood to 1/2", prune for structure
53	Acacia	6"	2	Fair	Very Poor	Structure destroyed by failing stem, within building area	Remove	Remove
54	Acacia	4"	4	Good	Good	Within building area	Remove	Remove
55	Acacia (6)	4" - 7"	2	Good	Poor	Within building area, poor trunk attachment	Remove	Remove
56	Coast Redwood	16"	2	Fair	Poor	Co-dominant stem and top, neighbors tree	Good	Prune to remove co-dominant stems, for end weight reduction and to remove dead wood to 1/2"
57	Mtry Cypress	28"	3	Fair	Good	Neighbor's tree	Good	Prune for balance and for end weight reduction
58	Blue Gum Euc.	70"	3	Fair	Fair	Neighbor's tree, 3 stems @ 6'	Good	Prune for end weight reduction towards building area, install 3 cables
59	Blue Gum Euc.(2)	11" & 21"	3	Fair	Fair	High potential for limb failure, long limbs to west	Good	Prune for end weight reduction towards building area
60	Blue Gum Euc.	36"	3	Fair	Fair	High potential for limb failure, long limbs to west	Good	Prune for end weight reduction towards building area
61	Blue Gum Euc.	18", 20", 24", 34"	2	Fair	Poor	High potential for limb failure, long limbs to west	Good	Prune for end weight reduction towards building area
62	Blue Gum Euc.	12", 16", 19", 49"	2	Fair	Poor	High potential for limb failure, long limbs to west	Good	Prune for end weight reduction towards building area, remove lowest limb
63	Blue Gum Euc.	6"	3	Fair	Fair	High potential for limb failure, long limbs to west	Good	
64	Blue Gum Euc.	12" & 18"	2	Fair	Poor	High potential for limb failure, long limbs to west	Good	Prune for end weight reduction towards building area, remove lowest limb
65	Acacia	12"	2	Fair	Poor	High potential for root failure	Poor	Remove
66	Ca. Live Oak	6"	3	Fair	Fair	Low light level	Good	Prune for end weight reduction over road and to remove dead wood to 1/2"
67	Blue Gum Euc.	18" - 20", & 26"	2	Fair	Poor		Good	Prune for end weight reduction over road and to remove dead wood to 1/2"
68	Blue Gum Euc.	33"	3	Fair	Fair	Bleeding cankers	Good	Prune for end weight reduction over road and to remove dead wood to 1/2"
69	Blue Gum Euc.	34"	3	Fair	Good		Good	Prune for end weight reduction over road and to remove dead wood to 1/2", remove ivy
70	Blue Gum Euc.	29"	3	Fair	Fair		Good	Prune for end weight reduction over road and to remove dead wood to 1/2"

Tree #	Tree Name	Size = DBH Diameter at Breast Hieght (unless otherwise noted)	Condition Rating (0=dead, 5=excellent)	Health Rating	Structure Rating	Structural Characteristics and Comments	Potential for Preservation	Recommendations for Preservation
71	Blue Gum Euc.	44"	2	Poor	Fair	Previously topped @ 40'	Good	Prune for end weight reduction and to remove dead wood to 1/2"
72	Blue Gum Euc.	33"	2	Fair	Fair	Topped at 45'	Good	Prune for end weight reduction and to remove dead wood to 1/2"
73	Blue Gum Euc.	39"	2	Poor	Poor	Topped at 40'	Fair	Prune for end weight reduction and to remove dead wood to 1/2"
74	Blue Gum Euc.	38"	2	Fair	Poor		Good	Prune for end weight reduction and to remove dead wood to 1/2", remove lowest limb over oak
75	Blue Gum Euc.	56"	2	Fair	Poor	Topped at 10'	Good	Prune for end weight reduction and to remove dead wood to 1/2", remove 2 large limbs growing towards building, remove ivy
76	Blue Gum Euc.	41"	2	Fair	Very Poor	Damaging wall and walk, topped at 30'	Poor	Remove
77	Blue Gum Euc.	27"	2	Fair	Poor	Poor location and canopy balance	Poor	Prune for end weight reduction and to remove dead wood to 1/2", prune for balance
78	Acacia	17"	2	Poor	Very Poor	Canopy lean to west	Very Poor	Remove (increase dappled light)
79	Ca. Live Oak	6"	2	Fair	Very Poor	Understory	Very Poor	Prune to remove dead wood to 1/2"
80	Ca. Live Oak	6"	3	Fair	Fair	Damaged by dead pine failure	Fair	Prune to clean canopy and for balance
81	Pine stump (dead)							Remove
82	Acacia (50)	1" - 4"	4	Good	Good	Young volunteers	Very Poor	Remove

Should you have any questions, or if I can be of further assistance, please feel free to call me at (831) 476-1200.

Sincerely,

Nathan Lewis
President; Certified Arborist #WC1735
LEWIS TREE SERVICE, INC.

ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided to the appraiser/consultant is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character nor is any opinion rendered as to the quality of any title.

2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, other governmental regulations.

3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the appraiser/consultant can neither guarantee nor be responsible for accuracy of information provided by others

4. The appraiser/consultant shall not be required to give testimony or to attend court by reason of this appraisal unless subsequent written arrangements are made, including payment of an additional fee for services.

5. Loss or removal of any part of this report invalidates the entire appraisal/evaluation.

6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person(s) to whom it is addressed without written consent of this appraiser/consultant.

7. Neither all nor any part of the contents of this report, nor copy thereof, shall be used of any purpose by anyone but the client to whom it is addressed, without the prior written consent of the appraiser/consultant; nor shall it be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales, or other media, without the written consent and approval of the author; particularly as to value considerations, identity of the appraiser/consultant or any professional society or institute or to any initialed designation conferred upon the appraiser/consultant as stated in his or her qualifications.

8. This report and the values expressed herein represent the opinion of the appraiser/consultant, and the appraiser's/consultant's fee is in no way contingent upon the reporting of a specified value nor upon any finding to be reported.

9. Sketches, diagrams, graphs, photos, etc. in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering reports or surveys.

10. This report has been made to the best of our ability in conformity with acceptable appraisal/evaluation/diagnostic reporting techniques and procedures, as recommended by the International Society of Arboriculture.

11. No tree described in this report was climbed, unless otherwise stated. We cannot take responsibility for any defects which could only been described by climbing. A full root collar inspection, consisting of excavating the soil around the tree to uncover the root collar and major buttress roots, was not performed, unless otherwise stated. We cannot take responsibility for any root defects which could only have been discovered by such an inspection.

Trees #1 + #2 General Poor Health

Leaning Tree #7

Root Crown of Tree #11

Dying Canopy of Tree #10 (Holly)

Codominant stem Tree #12 V-crotch

Tree #21 Eucalyptus

Tree #23 Eucalyptus Previously Topped @ 6' Poor Structure

Potential Decay @ Crotches

Tree #38 weak trunk union potential internal decay


ABACHERLI
FENCE

#45 being pushed over by #46

FAILING STEMS of Tree #46


Failure In Progress

#46
#48 Leaning over Roadway

Tree #49 - Previous Failure of # one stem #50

Trees # 21-01 Long heavily weighted lateral limbs

Trees #5 7-64 Long Heavily weighted Lateral Limbs

Interim Management Plan for Preservation of Rispin Mansion Butterfly Habitat and Screening of Rispin-Peery Bridge Connection

for

Beardlsee Development
Attn: Ron Beardslee
110 Grand Ave.
Capitola, CA 95010
Phone: (831) 475-1806
Fax: (831) 419-7020

Site Location:
Rispin Mansion
Wharf Rd.
Soquel, CA

SITE VISITED: March 28, 2003
REPORT DATE: April 3, 2003

Prepared by:

Nathan Lewis
Certified Arborist #WC-1735
3135 Porter Street
Soquel, CA 95073
(831) 476-1200 *Office*
(831) 476-1207 *Fax*

ASSIGNMENT

As a result of adverse weather during the winter on 2002 – 2003, several of the acacia trees failed and were consequently removed along Wharf Road. At the request of Mr. Ron Beardslee, this report was prepared to address the potential for failure of the remaining acacia trees, prepare specifications to mitigate future failures and provide an immediate plan for the replacement of these trees.

DISCUSSION

It is my understanding that the City of Capitola and the community wish to retain the approximately 12 plus clumps of acacia (*Acacia decurrens*) located at the southern end of the Rispin Mansion property. These trees are an important resource as they provide a lower level wind block to the eucalyptus grove and an urban riparian interface. It is also a requirement that the species of tree used for this purpose will provide a year round canopy and dappled lighting for the lower limbs of the taller eucalyptus trees.

Unfortunately, these acacia trees which are so important for providing this wind block are in an un-maintained condition. The potential for root and stem failure near soil grade is considered high. The structural development of the majority of these trees is a result of sucker growth from previously removed or failed trees. As numerous suckers sprout from the lower bole or root crown of a recently injured tree they compete for available resources (food, light, space, etc.). Over time the most successful of these sprouts grow to become new trees in the clump. Unfortunately as the trunks grow in a semi-vertical parallel orientation they often begin to push on one another. The outer trunks, or trees in a larger group, grow away from the trunk's center at angles where they can more successfully compete for light. The canopies most often become biased in the same direction of lean. Trees that grow under these conditions have a typical failure pattern of root and/or stem failure near the root crown. *Acacia decurrens*, which are common around the Santa Cruz Mountains, but are originally from eastern Australia, are particularly prone to failure during wet and windy conditions.

The following specifications have been provided after a visual assessment of all the trees. These specifications will aid in reducing the potential for failure and still maintain tree health as well as the many benefits that they provide.

SPECIFICATIONS FOR PRUNING

These specifications are intended only to reduce the potential for failure. They are not, and cannot compensate for the structural defects associated with their development. Regular maintenance pruning will be required to maintain these trees.

TREES LOCATED ALONG WHARF ROAD FRONTAGE

#42, #44 & #49

- Prune canopies to provide clearance for large vehicles – minimum of 14-15 feet vertically over roadways and 8 feet clearance over sidewalks.
- Prune canopies to improve balance and reduce canopy loads in direction of lean.
- Reduce end weight of long heavy limbs to reduce potential for limb failure.
- Prune to clean canopies, removing only broken limbs and deadwood ½" in diameter and larger.
- Note: All work shall be performed in accordance with the standards as recommended by the International Society of Arboriculture and under the supervision of a certified arborist. Foliage loss shall not exceed 20% of the foliar canopy.

#48

- It is my opinion that this tree should be removed as soon as possible. Trunk lean and canopy weight in the direction of Wharf Road is considered excessive. Pruning will not sufficiently correct the defects present. The potential for failure is very high and likely immanent.

Remaining Interior Trees

- Prune canopies to improve balance and reduce canopy loads in the direction of lean.
- Reduce end weight of long heavily weighted limbs to reduce the potential for limb failure.
- These trees pose less of a threat to vehicles traveling along Wharf Road. The severity of pruning can be reduced to not exceed 10 – 15% of the foliar canopy. Only those trees with leaning trunks and biased canopies need to be pruned.

REFORESTATION PLAN

The second part of this report entails the reforestation of the wind block for the monarch butterfly habitat along Wharf Road. In addition, I have incorporated some recommendations to improve screening of the intersection at Rispin Mansion Road and the Rispin-Peery Bridge. Before creating quality recommendations, it is important to consider the intent, the site's environment and the potential for individual aspects of a species to perform well at this location. The goal is for a quality resource, long-term health, structural stability and longevity.

Evaluation for the suitability of a particular species considered several factors.

Tree Health – Tree species that enjoy a relatively low level of opportunistic pests and diseases tend to perform well over an extended period of time.

Structural Integrity – Trees prone to failure, or which have negative structural characteristics tend to be poor candidates for a reforestation project.

Species Response – There is a wide variation in species' response with respect to the site and local conditions. These conditions include temperature, wind, annual rainfall, drainage, soil type and structure, etc.

Tree Size and Longevity – Trees which become large or which have relatively short life spans tend to become established quicker and grow faster than trees which stay small or have long life spans.

Taking these factors into consideration, it has been determined that Coast Redwoods (*Sequoia sempervirens*) would be the most practical choice for this site. This species is a native evergreen species, which is susceptible to very few diseases or pests. The redwood groves currently residing at this site appear to be thriving, these trees enjoy long life spans, have significant emotional and aesthetic appeal. In addition they tend to be very stable on slopes and have a low frequency of failure. This is a quality tree species.

The following recommendation specifies the planting of 15-gallon sized trees and 24-inch box sized trees. Studies have shown that these sizes are more successful and have the shortest periods of time for establishment.

RECOMMENDATIONS FOR WIND BLOCK PLANTING ALONG WHARF ROAD.

- Install ten 24-inch box sized trees in open space locations among acacia trees along Wharf Road as highlighted on the site plan.

RECOMMENDATIONS FOR PLANTING NEAR THE RISPIN MANSION ROAD.

In addition to the maintenance of the wind block for the butterfly habitat, it is my understanding that the City of Capitola may want trees along the southern end of this roadway to provide for increased screening.

- Install fourteen 15-gallon sized trees planted in one group of nine trees and a second group of five trees as highlighted on the site map.

PLANTING AND MAINTENANCE

The specifications for planting have been provided in the following insert. Thorough watering of the tree immediately after planting and approximately ten gallons each week thereafter throughout the dry season is required for the first two to three years. Trees will benefit from a two to three inch layer of mulch within the tree's dripline. No pruning of these trees should occur for the first three years.

Should you have any questions, or if I can be of further assistance, please feel free to call me at (831) 476-1200.

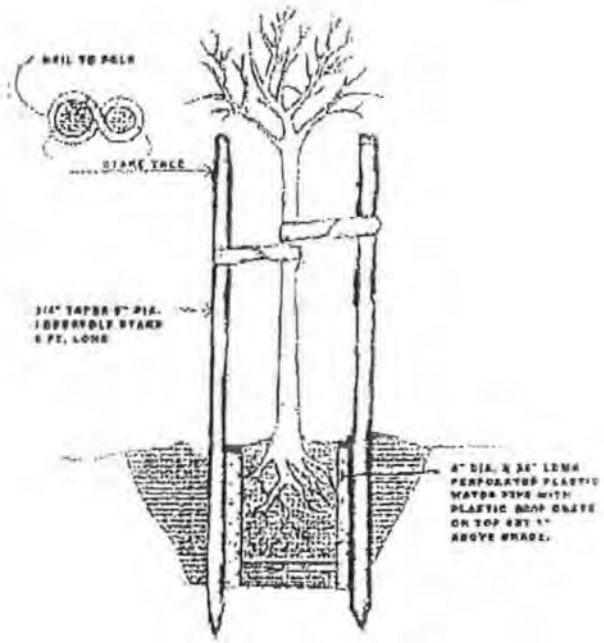
Sincerely,

Nathan Lewis
President; Certified Arborist #WC1735
LEWIS TREE SERVICE, INC.

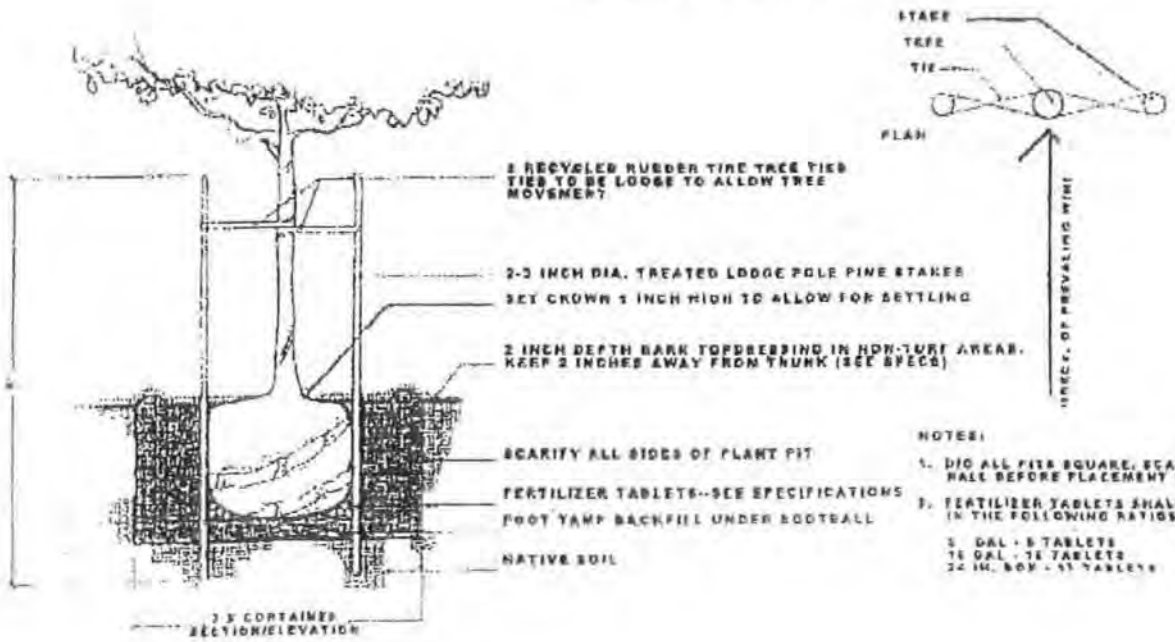
Attachment: Tree planting instructions and planting detail.
Hazard Pruning – Pruning Standard for Class III Pruning, National Arborist Association

TREE PLANTING INSTRUCTIONS AND PLANTING DETAIL

15 GALLON TREE PLANTING DETAIL



TREE STAKING DETAIL



d. Old injuries are to be inspected. Those not closing properly and where the callus growth is not already completely established should be bark traced if the bark appears loose or damaged. Such tracing shall not penetrate the xylem (sapwood), and margins shall be kept rounded.

e. Equipment that will damage the bark and cambium layer should not be used on or in the tree. For example, the use of climbing spurs (hooks, irons) is not an acceptable work practice for pruning operations on live trees. Sharp tools shall be used so that clean cuts will be made at all times.

f. All cut limbs shall be removed from the crown upon completion of the pruning.

g. Trees susceptible to serious infectious diseases should not be pruned at the time of year during which the pathogens causing the diseases or the insect vectors are most active. Similarly, if pruning wounds may attract harmful insects, pruning should be timed so as to avoid insect infestation.

h. All visible girdling roots are to be reported to a supervisor and/or the owner.

i. The presence of any disease condition, fungus fruit bodies, decayed trunk or branches, split crotches or branches, cracks, or other structural weakness should be reported in writing to a supervisor and/or the owner, and corrective measures recommended.

NATIONAL ARBORIST ASSOCIATION, P. O. Box 1094, Amherst, New Hampshire 03031 (603) 673-3311

ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided to the appraiser/consultant is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character nor is any opinion rendered as to the quality of any title.

2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, other governmental regulations.

3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the appraiser/consultant can neither guarantee nor be responsible for accuracy of information provided by others

4. The appraiser/consultant shall not be required to give testimony or to attend court by reason of this appraisal unless subsequent written arrangements are made, including payment of an additional fee for services.

5. Loss or removal of any part of this report invalidates the entire appraisal/evaluation.

6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person(s) to whom it is addressed without written consent of this appraiser/consultant.

7. Neither all nor any part of the contents of this report, nor copy thereof, shall be used of any purpose by anyone but the client to whom it is addressed, without the prior written consent of the appraiser/consultant; nor shall it be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales, or other media, without the written consent and approval of the author; particularly as to value considerations, identity of the appraiser/consultant or any professional society or institute or to any initialed designation conferred upon the appraiser/consultant as stated in his or her qualifications.

8. This report and the values expressed herein represent the opinion of the appraiser/consultant, and the appraiser's/consultant's fee is in no way contingent upon the reporting of a specified value nor upon any finding to be reported.

9. Sketches, diagrams, graphs, photos, etc. in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering reports or surveys.

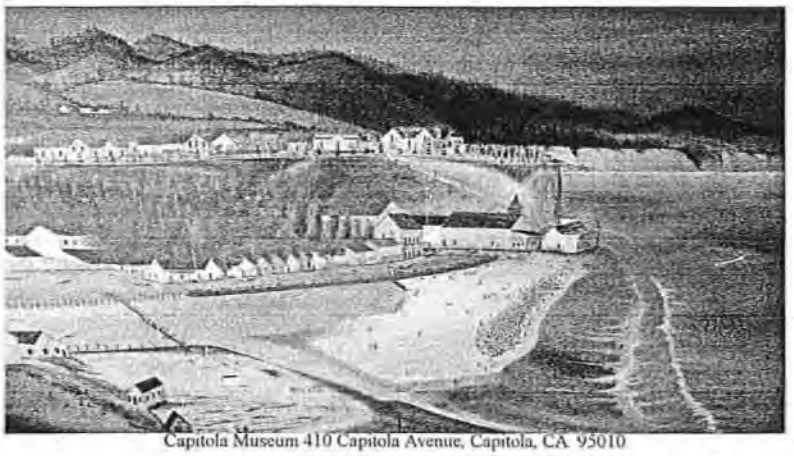
10. This report has been made to the best of our ability in conformity with acceptable appraisal/evaluation/diagnostic reporting techniques and procedures, as recommended by the International Society of Arboriculture.

11. No tree described in this report was climbed, unless otherwise stated. We cannot take responsibility for any defects which could only been described by climbing. A full root collar inspection, consisting of excavating the soil around the tree to uncover the root collar and major buttress roots, was not performed, unless otherwise stated. We cannot take responsibility for any root defects which could only have been discovered by such an inspection.

APPENDIX D

Letters from Capitola Historical Museum and Architectural Resources Group

This page intentionally left blank.



Capitola Museum 410 Capitola Avenue, Capitola, CA 95010

April 24, 2003

Beardslee Development Associates
110 Grand Avenue,
Capitola, CA 95010

Dear Ron,

As Director of the Capitola Historical Museum, I am happy to offer you assistance with setting up a display at the Rispin Mansion that will focus on the life of Henry Allen Rispin and his impact on Capitola history. Once the mansion has been renovated, and if your firm provides the space and funding for exhibit materials, it will be an excellent opportunity for the museum to take a leading role in setting up a display that interprets a critically important chapter in community development and relates it to the architectural design and significance of the mansion itself.

Within its collection, the museum has photographs, documents, genealogy, research and written articles that it can use to tell the story of Rispin and his Capitola estate.

Capitola Museum is also willing to help train volunteers gathered by you to serve as tour guides to the mansion and the surrounding neighborhood. An initial docent training might include a slide lecture, printed materials, and a tour of both the mansion and Capitola. Specific details, of course, would be decided on once the mansion and grounds were ready for visits by the public.

Museum directors, volunteers and I are looking forward to the mansion's future as a place where history feels at home.

Best regards,

Carolyn Swift

Carolyn Swift
Director

ARCHITECTURAL RESOURCES GROUP
Architects, Planners, Preservators, Inc.

BRUCE D. JUDD, FAIA
STEPHEN J. FARNETH, AIA

TAKASHI FUKUDA
KATE JOHNSON
CATHLEEN A. MALMSTROM
NAOMI O. MIROGLIO
NINA PASCALE
DOUGLAS R. TAYLOR
DAVID P. WESSEL

Pier 9, The Embarcadero
San Francisco
California
94111
arg@argsf.com
fax 415.421.0127
415.421.1680

April 27, 1999

Ms. Kathy Molloy
Community Development Director
City of Capitola
City Hall
420 Capitola Street
Capitola, CA 95010

RE: Rispin Mansion Development
ARG Project No. 97174

Dear Kathy;

I have reviewed four sheets of drawings delivered to our office yesterday. None of the sheets are labeled with a sheet number. Ron Beardsley has asked that I comment on the design so that they might be presented at a Planning Commission meeting on April 29th.

The first sheet is dated 3/29/99 and is a partial plan view of the northern end of the Rispin Mansion site. Changes are indicated in red pen on a blueline print. I understand that the design has been revised so that the path is to remain unchanged; the "Option A" unit is not to be developed and another unit, "Option B-3" is to be constructed at the 60 feet elevation. You letter mentions a level at 50 feet but I can find no such unit in the drawings. If I am reading the drawing correctly, reducing the number of units and opening the area to the north of the mansion is a positive development.

The second sheet of drawings does not have a sheet number or date and shows both a plan and elevations of an entry to the south of the concrete pool. The basic form seems to be appropriate to the mansion, but I am uncertain about the glazed structure and what appears to be a curved glass wall or ceiling over part of the entry. It is also difficult to see how much of the site is impacted by the new stairs to the east of the entry. It is difficult to see how much cut or fill is involved with the revised design in this area.

ARCHITECTURAL RESOURCES GROUP
Architects, Planners, Preservators, Inc.

I am pleased that the area between the Rispin Mansion and the southern units has been opened up so that there is a gap between the new construction and the existing building.

The third sheet is a site plan drawing of the area to the south of the Rispin Mansion dated 3/29/99. The number of units has been reduced to a total of eight units in two buildings rather than three buildings. This is also an improvement as the physical impact to the site and the visual impact to the Rispin Mansion is reduced.

The fourth sheet is dated 4/16/99 has two elevations consisting of the east and south additions. From the areas crossed out in red, I am assuming that the northern most unit has been removed from the plan and the unit to the south of this unit has been reduced in size. I am unclear as to the extent of this unit as there are units labeled as "Option A" and "Option B", but the extent of these is not labeled on the drawings.

While the changes are generally very positive, the drawings need to be revised to show what is actually proposed so that the plans and elevations relate to each other. Assuming that this is done, I feel that the design is moving in the right direction. I do have questions about the design of the glass entry area but the over all feeling seems to is sensitive to both the site and the historic building.

Please call with any questions or comments.

Sincerely,

Bruce D. Judd, FAIA
Principal

ARCHITECTURAL RESOURCES GROUP
Architects, Planners & Conservators, Inc.

May 5, 2003

Mr. Paul Davis
The Paul Davis Partnership
286 Eldorado Street
Monterey, CA 93940

FAX: 831 373-7459

RE: Rispin Mansion

Dear Paul:

I have reviewed a number of documents that Ron Beardslee has provided to me. These include: 1) an undated letter from Ron describing the current project; 2) copies of landscape design dated 3/97; 3) a photograph of the Rispin Aviary; 4) a Rispin Mansion Survey of Decorative Features by Dave Weber, undated; 5) numerous color copies of photographs depicting the current state of the Rispin mansion; and 6) Schematic Design Drawings of the proposed design dated 11/14/02.

I am very impressed that you have continued to develop and refine the project over the last year and can understand your difficulties in arriving at a project that respects all of the natural environmental conditions yet will still allow for enough rooms to pay for the high-quality development that the site deserves.

I am pleased to be able to recommend the design as it now exists without hesitation. The reduction in the number of rooms, their location and the reduced size of the Conservatory all fit with and respect the historic Rispin Mansion building. In addition, you have clearly spent considerable effort to avoid the butterfly habitat areas and the sloped areas to the east.

I sincerely hope that the project can now move forward to completion!

All the best,

Bruce D. Judd, FAIA

cc: Mr. Ron Beardslee
Rispin Partners, LLC
110 Grand Avenue
Capitola, CA 95010
FAX: 831 475-2703

Pier 9, The Embarcadero
San Francisco
California
94111
e-mail arg@argsf.com
fax 415.421.0127
415.421.1680

APPENDIX E

Traffic Analysis

This page intentionally left blank.

HIGGINS ASSOCIATES
CIVIL & TRAFFIC ENGINEERS

1335 First Street, Suite A, Gilroy, CA 95020 ❖ 408-848-3122 ❖ fax 408-848-2202 ❖ info@kbhiggins.com

November 25, 2002

MEMORANDUM

TO: Jeff Foster

FROM: Dan Takacs

SUBJECT: Rispin Mansion Trip Generation Analysis

The trip generation analysis for the Rispin Mansion project traffic analysis was based upon a project consisting of 24 units and 27 rooms. Twenty-one of the units were modeled as single bedroom units and three units were modeled as two bedroom units, resulting a total of 27 bedrooms. Each bedroom was treated as a separate unit for purposes of estimating the project trip generation.

Exhibits 1 and 2 present a trip generation analysis for the project as modeled in the traffic study as well as the currently proposed 28-room project. With one additional room, the 28-room project would generate 9 more trips on a weekday and 9 more trips on a weekend day. This is not a significant volume of trips and these additional trips would not change the results/conclusions of the traffic analysis.

The additional room associated with the revised 28-room project would not increase the peak hour trip generation estimates that were documented in the traffic study. Either size project generates 16 trips during the weekday PM peak hour and 21 trips during the Saturday peak hour. The reason that the project trip generation does not change is because rounding the trip generation calculation results in the same trip generation estimate with either project size. The 27-room project generates 15.7 trips and the 28-room project generates 16.2 trips during the weekday PM peak hour. The 27-room project generates 20.5 trips and the 28-room project generates 21.3 trips during the Saturday peak hour. Therefore, one additional room can be added to the project without requiring any changes to the peak hour traffic analyses previously completed for the project.

Please contact me if you have any further questions.

EXHIBIT 1-
PROJECT TRIP GENERATION RATES

		WEEKDAY					SATURDAY				
			PM PEAK HOUR					MD PEAK HOUR			
LAND USE	UNIT	DAILY	PEAK HOUR	% OF ADT	IN	OUT	DAILY	PEAK HOUR	% OF ADT	IN	OUT
INN AT RISPIN MANSION											
1. Bed and Breakfast	per room	9.11	0.58	6%	53%	47%	8.84	0.76	9%	45%	55%
2. Meeting/Wedding Facilities	per person						3.0	0.50	20%	100%	0%

EXHIBIT 2-
PROJECT TRIP GENERATION SUMMARY

		WEEKDAY					SATURDAY				
			PM PEAK HOUR					MD PEAK HOUR			
LAND USE	SIZE	DAILY VOL.	PEAK HOUR VOL.	% OF ADT	IN	OUT	DAILY VOL	PEAK HOUR VOL.	% OF ADT	IN	OUT
24-UNIT PROJECT											
1. Bed and Breakfast	27 rooms	246	16	6%	9	7	239	21	9%	9	12
2. Meeting/Wedding Facilities	50 people	0					150	30	20%	25	5
TOTAL PROJECT TRIPS		**246**	**16**	**6%**	**9**	**7**	**389**	**51**	**13%**	**34**	**17**
25-UNIT PROJECT											
1. Bed and Breakfast	28 rooms	255	16	6%	9	7	248	21	8%	9	12
2. Meeting/Wedding Facilities	50 people	0					150	30	20%	25	5
TOTAL PROJECT TRIPS		**255**	**16**	**6%**	**9**	**7**	**398**	**51**	**13%**	**34**	**17**
DIFFERENCE		9	0		0	0	9	0		0	0

Note:
1. Bed and Breakfast trip generation rates based on Motel (ITE Land Use Code 320) trip generation rates published by ITE; Trip Generation Manual, 6th Edition.
2. Wedding facility trip generation rate based on auto occupancy of 2 persons/vehicle with maximum of 2 weddings per Saturday.
3. 1 ksf = 1,000 square feet.

HIGGINS ASSOCIATES
CIVIL & TRAFFIC ENGINEERS

1335 First Street, Suite A, Gilroy, CA 95020 • 408 848-3122 • fax 408 848-2202 • e-mail info@kbhiggins.com

TRAFFIC ANALYSIS FOR THE INN AT RISPIN MANSION

CAPITOLA, CALIFORNIA

Prepared for:

DENISE DUFFY & ASSOCIATES
546-A Hartnell
Monterey, California 93940

September 16, 2002

TABLE OF CONTENTS

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION
1.	PROJECT LOCATION MAP
2.	PROJECT SITE PLAN (INN AT RISPIN MANSION)
3A.	EXISTING PEAK HOUR VOLUMES (PM PEAK HOUR)
3B.	EXISTING PEAK HOUR VOLUMES (SATURDAY MIDDAY PEAK HOUR)
3C.	EXISTING INTERSECTION LANE CONFIGURATIONS
4.	ROAD SEGMENT LEVEL OF SERVICE SUMMARY
5.	PEAK HOUR INTERSECTION LEVELS OF SERVICE (LOS)
6.	RECOMMENDED INTERSECTION IMPROVEMENTS
7A.	PROJECT TRIP GENERATION RATES
7B.	PROJECT TRIP GENERATION SUMMARY
8.	PROJECT TRIP DISTRIBUTION (INN AT RISPIN MANSION)
9.	PROJECT TRIP ASSIGNMENT
10A.	EXISTING + PROJECT PEAK HOUR VOLUMES – (PM PEAK HOUR)
10B.	EXISTING + PROJECT PEAK HOUR VOLUMES - (SATURDAY PEAK HOUR)
11A.	RECOMMENDED PARKING REQUIREMENT
11B.	WORST-CASE PARKING ANALYSIS - SATURDAY
12A.	GENERAL PLAN PEAK HOUR VOLUMES - (PM PEAK HOUR)
12B.	GENERAL PLAN PEAK HOUR VOLUMES - (SATURDAY PEAK HOUR)

LIST OF APPENDIXES

APPENDIX NO.	TITLE
A.	LEVEL OF SERVICE THRESHOLD VOLUMES FOR VARIOUS ROADWAY TYPES
B.	LEVEL OF SERVICE DESCRIPTION - SIGNALIZED INTERSECTIONS
C.	LEVEL OF SERVICE DESCRIPTION - TWO-WAY STOP CONTROLLED INTERSECTION
D.	LEVEL OF SERVICE DESCRIPTION - ALL-WAY STOP CONTROLLED INTERSECTION
E.	LEVEL OF SERVICE CALCULATIONS - 41ST AVENUE/HIGHWAY 1 NORTHBOUND OFF-RAMP
F.	LEVEL OF SERVICE CALCULATIONS - 41ST AVENUE/HIGHWAY 1 SOUTHBOUND OFF-RAMP
G.	LEVEL OF SERVICE CALCULATIONS - 46TH AVENUE/CAPITOLA ROAD
H.	LEVEL OF SERVICE CALCULATIONS - 49TH AVENUE/CAPITOLA ROAD
I.	LEVEL OF SERVICE CALCULATIONS - WHARF ROAD/GRACE STREET
J.	LEVEL OF SERVICE CALCULATIONS - WHARF ROAD/CLARES STREET
K.	LEVEL OF SERVICE CALCULATIONS - 46TH AVENUE/CLARES STREET
L.	LEVEL OF SERVICE CALCULATIONS - 41ST AVENUE/CLARES STREET
M.	LEVEL OF SERVICE CALCULATIONS - ROBERTSON STREET/SOQUEL WHARF ROAD

I. INTRODUCTION

A. Project Description

The proposed project includes the restoration of the Rispin Mansion to provide a bed and breakfast inn consisting of 24 guest rooms. The Mansion is planned for use for corporate events and weddings. Weddings will be held weekends between the hours of 11:00 AM and 10:00 PM and meetings will be held weekdays between the hours of 8:00 AM and 5:00 PM. Rental units will be in use 24 hours per day, 7 days a week. A 62-space parking lot for the project is provided at the site of the existing library at the Clares/Wharf intersection. The project location map is provided as *Exhibit 1.*

B. Project Location and Street Network

The Inn at Rispin Mansion site is located just east of the Clares Street/Wharf Road intersection in the City of Capitola, California. The Inn at Rispin Mansion will be accessed via a driveway located south of the Wharf Road/Clares Road intersection. The project site plans are shown on E*xhibit 2A and 2B.*

C. Scope of Work

The scope of this traffic study is to identify potential traffic impacts on the street network attributed to the proposed project. A traffic analysis for a previous project proposal was prepared and is documented in the Draft EIR prepared in 2000. The traffic study documented in this report is an update of the previously prepared traffic study.

The three scenarios analyzed in this study include existing conditions, existing plus project conditions, and General Plan Buildout conditions. A total of 9 intersections are analyzed for the weekday PM and Saturday Mid-day peak hours. The intersections include key intersections in the vicinity of the project as well as intersections at the Highway 1/41st Avenue interchange. In addition, project access and internal on-site circulation are also evaluated. Where deficiencies are identified, mitigation measures are developed. The nine study intersections are as follows:

1. Robertson Street/Soquel Wharf Road
2. Wharf Road/Clares Street
3. 46th Avenue/Clares Street
4. 41st Avenue/Clares Street
5. Wharf Road/Grace Street
6. 49th Avenue/Capitola Road
7. 46th Avenue/Capitola Road
8. 41st Avenue/Highway 1 - South Ramps
9. 41st Avenue/Highway 1 - North Ramps

II. EXISTING CONDITIONS

This chapter presents a description of the existing street network, existing traffic volumes, a levels of service analysis, and an overview of traffic flow conditions within the study area.

A. Street Network

Roadways serving the study area include Highway 1, Wharf Road, Clares Street, Capitola Road, 41st Avenue, 49th Avenue and Grace Street.

Highway 1 is a four-lane freeway with a grade-separated interchange at 41st Avenue. In the vicinity of the project, Highway 1 is oriented in an east-west alignment, while the interregional alignment of Highway 1 is designated as north-south. To the west (or Highway 1 north), it provides access to the City of Santa Cruz and Santa Clara County via Highway 17. To the east (or Highway 1 south), it provides access to south Santa Cruz County and Watsonville.

Wharf Road is a two-lane north-south minor arterial and is approximately 33-feet wide along the project frontage. The posted speed limit on Wharf Road is 25 miles per hour (mph). North of Clares Street, bike lanes are provided on Wharf Road. All movements at the Wharf Road/Clares Street intersection are protected by a STOP sign. Near the project vicinity, parking is prohibited on Wharf Road. North of the Highway 1 underpass, Wharf Road changes to Robertson Street.

Robertson Street is a two-lane north-south minor arterial that connects Wharf Road to Soquel Drive. Robertson Street is approximately 40-feet wide at is approach to Soquel Wharf Road. The posted speed limit on Robertson Street is 25 mph. Robertson Street forms a T-intersection with Soquel Wharf Road that is uncontrolled since Soquel Wharf Road is a one-way street (eastbound only).

Clares Street is a two-lane east-west minor arterial that connects the northerly boundary of the Capitola Mall complex to Wharf Road. Bike lanes are currently provided on the north side of Clares Street. Near the project vicinity, parking is only allowed on the south side of Clares Street.

Grace Street is a two-lane collector street and is approximately 45-feet wide at its approach to Wharf Road. Parking is allowed on both sides of Grace Street. At Wharf Road, the Grace Street approach is protected by a STOP sign.

Capitola Road is a four-lane east-west arterial with a posted speed limit of 25 mph. Bike lanes are currently provided on both sides of Capitola Road. Parking is prohibited on both sides of Capitola Road.

49th Avenue is a two-lane collector street with a posted speed limit of 25 mph. Parking is allowed on both sides of 49th Avenue. All movements at the 49th Avenue/Capitola Road intersection are controlled by STOP signs.

46th Avenue is a two-lane local street that serves local residences. The 46th Avenue northbound approach at Clares Street and southbound approach at Capitola Road is controlled by a STOP sign.

41st Avenue is a six-lane north-south divided arterial that provides access to the Capitola mall complex and State Highway 1. Bike lanes are currently provided on both sides of 41st Avenue. Traffic movements at the 41st Avenue/Clares Street intersection are controlled by a fully actuated traffic signal.

B. Existing Roadway Segment Volumes and Operating Conditions

Traffic volumes documented in the previous traffic studies prepared for this project were collected in December 1997 and January/February 1998. New weekday PM peak period and Saturday mid-day peak period traffic counts were conducted at the Wharf Road/Clares Street intersection Thursday May 9, 2002 and Saturday May 11, 2002 to determine the amount of traffic growth that has occurred between 1998 and 2002. On the basis of the percentage change between the 1997/1998 counts and the 2002 counts collected at the Wharf Road/Clares Street intersection, intersection volumes at the Clares Street/46th Avenue, Capitola Road/46th Avenue, Capitola Road/49th Avenue and Wharf Road/Grace Street were adjusted to reflect existing conditions. Existing weekday PM and Saturday Mid-day peak hour volumes documented in the traffic study prepared for the proposed 41st Avenue Safeway Shopping Center expansion project located on 41st Avenue, north of Highway 1 were utilized in this study to represent existing volumes at the 41st Avenue intersection with the northbound Highway 1 ramps, southbound Highway 1 ramps and Clares Street.[a] The existing weekday PM and Saturday MD peak hour volumes are shown on *Exhibits 3A and 3B.* The existing volumes reflect peak seasonal conditions, which occur during the summer.

Intersection and roadway segment traffic flow operations are evaluated using a level of service (LOS) concept. Intersection and road segments are rated based on a grading scale of "LOS A" through "LOS F", with "LOS A" representing free flowing conditions and "LOS F" representing forced flow conditions. As per City of Capitola General Plan, LOS C would be considered the maximum allowable LOS for roadway segments and intersections.

The LOS ratings for roadway segments are based on the peak hour threshold volumes provided in *Appendix A.* Other factors that may affect traffic flow conditions include intersection channelization design, type of traffic control devices, pedestrian volume and on-street parking activities. Therefore, the road segment level of service ratings should not be relied solely upon to describe traffic operations along a street corridor. Intersection operating conditions are discussed in the next section.

---

[a] *41st Avenue Safeway Shopping Center Expansion Traffic Impact Analysis*, Fehr & Peers Associates, January 2001.

The weekday PM and Saturday MD peak hour roadway segment volumes shown on *Exhibit 4* indicate that all study roadway segments currently operate within acceptable levels of service (LOS C or better). No improvements are currently required for the study street segments.

C. Existing Intersection Operating Conditions

In a manner similar to that conducted for the study road segments, an analysis of the study intersections was conducted using the LOS concept. For signalized intersections, average vehicle control delay (seconds) is used to analyze intersection LOS values. Delay is dependent on many factors including signal cycle length, roadway capacity (number of travel lanes provided on each intersection approach) and the traffic demand and arrival pattern. *Appendix B* provides a level of service description for signalized intersections. The TRAFFIX 7.5 software was utilized to calculate the level of service for the signalized study intersections. The level of service calculations determined by this software are based on technical procedures documented in the 2000 Highway Capacity Manual.

At stop sign controlled (unsignalized) intersections, vehicle delays for the side street (minor street approach) and mainline left-turn traffic are analyzed. The level of service values for vehicle movements on the controlled approaches (minor street) are based on the peak hour approach volumes and the availability of sufficient gaps in the major street traffic stream. *Appendix C* shows the relationship between vehicle delays and level of service values for two-way stop sign controlled intersections and *Appendix D* shows the relationship between vehicle delays and level of service values for all-way stop sign controlled intersections.

Per City standards, LOS C is established as the threshold for acceptable levels of service. *Exhibit 5* provides the results of the existing weekday PM and Saturday MD peak hour intersection operating conditions. Existing intersection lane configurations are displayed on *Exhibit 6.* Intersection level of service calculation worksheets are attached as *Appendices E through M.*

The results indicate that all the study intersections currently operate at acceptable levels of service (LOS C or better) except the 41st Avenue/Clares Street intersection and the Wharf Road/Clares Street intersection. The 41st Avenue/Clares Street intersection currently operates at LOS D during the weekday PM peak hour and Saturday Mid-day peak hour. The addition of a right-turn lane on the southbound 41st Avenue approach to Clares Street would decrease the intersection delay, but would not improve the intersection operation to LOS C or better. Given existing development located in the quadrants of the intersection, it may not be feasible to add additional capacity to the intersection. The City of Capitola plans to study the 41st Avenue corridor and identify potential improvements, including modification of signal timing, to increase capacity in the corridor.

The Wharf Road/Clares Street intersection currently operates at LOS F during the Saturday mid-day peak hour. The addition of a right-turn lane on the southbound intersection approach would improve intersection operations to LOS B during the Saturday mid-day peak hour. The Wharf Road/Clares Street peak hour volumes currently meet peak hour signal warrant criteria used by Caltrans. However, an acceptable intersection level of

service can be achieved with the addition of a southbound right turn lane. Therefore, it is recommended that the intersection not be signalized if the right turn lane is added.

The 49th Avenue/Capitola Road peak hour volumes also meet the peak hour volume warrant criteria. However, the intersection currently operates at LOS B during the Friday peak hour and LOS C during the Saturday peak hour. The all-way stop control provided at the intersections provides satisfactory traffic control in lieu of signalization and signalization is not recommended based on existing conditions.

The improvements recommended to improve existing deficiencies are shown on Exhibit 6.

D. Transit Service

Regular transit service is provided to and from the site by the Santa Cruz County Transit District. The nearest bus stops to the project site are located at the corner of Wharf Road/Clares Street and at the corner of 46th Avenue/Clares street.

Route 52 serves the project site. Route 52 provides hourly weekday service connecting the project site to the Capitola Mall, Portola Drive, Capitola Avenue and Soquel Drive. The route provides access to the Capitola Mall, which is a major transfer site, where transfers can be made to other routes on the system.

E. Bikeways

The bikeways near the project vicinity include striped on-street bike lanes along Wharf Road, from Clares Road north to the Capitola city limit, and along Capitola Road from Wharf Road west beyond Capitola Mall. Bike lanes are also provided along both sides of 41st Avenue on the study road segment.

III. EXISTING PLUS PROJECT CONDITIONS

This section describes traffic conditions with traffic generated by the proposed project added to the road network. Impacts related to the development of the project are described below. Impacts related to each of these development scenarios are described below.

A. Project Trip Generation, Distribution and Assignment

Trip generation rates were obtained from data contained in the Institute of Transportation Engineers (ITE), *Trip Generation Manual, 6th Edition*, 1997. The trip generation estimates for the Inn at Rispin Mansion are displayed on *Exhibits 7A and 7B.*

During weekdays there will be some meeting activities. The ITE trip generation rates for the motel land use category include small meeting spaces. Therefore, the meeting component of this land use will not generate any additional weekday PM peak hour trips. A maximum of two (2) weddings would generally occur on a Saturday. The first wedding is scheduled to begin around 11:00 AM. During this time, it is estimated that minimal

outbound trips will occur because people will be arriving at, rather than departing from the wedding. The Saturday MD street peak hour occurs between 11:45 and 12:45 near the project vicinity. During this peak hour minimal project trips would occur. However, for a worst-case analysis, it is assumed that the wedding inbound peak occurs during the street peak hour. The second wedding will occur on Saturday evenings (6:00 PM), after street peak hour traffic conditions The second wedding will therefore have a lesser impact than the first wedding. No analysis of the traffic impacts associated with the second wedding is necessary.

The project will consist of 24 rental units. Three of the units will be two-bedroom units. For trip estimating purposes, each of the bedrooms was treated as a separate unit and the trip generation for the bed and breakfast component of the project was based on 27 rooms. Based on ITE trip generation rates for motel and assuming an average auto occupancy of 2 persons/vehicle for the wedding component, the project will generate a total of approximately 246 daily weekday trips and 389 daily Saturday trips. The project will generate 16 vehicle trips (9 inbound and 7 outbound) during the weekday PM peak hour, and 51 vehicle trips (34 inbound and 17 outbound) during the Saturday MD peak hour. The project traffic generation is summarized on *Exhibit 7B.*

Trip distribution defines the origins and destinations of all trips to and from a project site. Trip assignment defines the actual travel paths that motorists would choose between the project site, and their origins or destinations. The project traffic was distributed to the study street network based upon a review of existing traffic counts and travel patterns. Traffic generated by the Inn at Rispin Mansion was distributed onto study street network with **15%** to and from the south on Wharf Road, **5%** to and from the east on Clares Street, **5%** to and from the north on Robertson Street, **5%** to and from the north on 41st Avenue, **35%** to and from the south on Highway 1 and **35%** to and from the north on Highway 1 north. The distribution of peak hour trips generated by the proposed Inn at Rispin Mansion is presented on *Exhibit 8.* Project trip assignment for the Inn at Rispin Mansion is included as *Exhibits 9A and 9B.*

The project trip assignments shown on *Exhibits 9A and 9B* were added to existing weekday PM peak hour and Saturday peak hour volumes to derive the existing plus project peak hour volumes. These volumes are illustrated on *Exhibits 10A and 10B.*

B. Existing Plus Project Roadway Segment Operations

The Existing Plus Project weekday PM and Saturday MD peak hour roadway segment volumes are shown on *Exhibit 4.* Under Existing Plus Project Conditions, the study road segments operate at LOS C or better, indicating that no road segment related improvements are required with the addition of project traffic to the street network.

C. Existing Plus Project Intersection Operations

The existing plus project (Inn at Rispin Mansion) weekday PM and Saturday MD peak hour intersection levels of service are summarized on *Exhibit 6.* Existing Plus Project Condition intersection levels of service are unchanged from Existing Condition levels of

service. Deficient operations that were identified at the following intersections for Existing Conditions will continue with the project traffic added to the road network:

1. 41st Avenue/Clares Street; and
2. Wharf Road/Clares Street.

The traffic from the proposed project will increase the average vehicle delay at the 41st Avenue/Clares Street intersection by 3.2 seconds per vehicle during the weekday PM peak hour and 13.6 seconds during the Saturday mid-day peak hour. As described for the existing situation, the addition of a right-turn lane on the southbound 41st Avenue approach to Clares Street will decrease vehicle delay at the intersection, but will not provide sufficient capacity to improve intersection operations to LOS C or better.

At the Wharf Road/Clares Street intersection, the addition of a right-turn lane on the southbound Wharf Road approach to Clares Street would improve the LOS F condition during the Saturday mid-day peak hour to LOS C. A satisfactory intersection level of service can be provided if the southbound right turn is provided. Therefore, signalization of the intersection is not recommended in conjunction with development of the project.

Under Project Conditions, peak hour volumes at the 49th Avenue/Capitola Road intersection meet Caltrans peak hour volume warrants. Signalization of the 49th Avenue/Capitola Road intersection is also not recommended under Project conditions because satisfactory intersection levels of service are maintained with the existing all-way stop control.

D. Project Parking Impacts

Due to environmental constraints on the Rispin Mansion site, parking for the project will be provided at the site of the library located on the west side of Wharf Road, north of Clares Street. A 62-space lot will be striped at the library with 10 spaces designated for library use only during hours of library operation. The parking lot will be expandable to 89 spaces for "event parking" through the use of a valet parking system. A trash enclosure at the parking lot will use two of the parking spaces.

The Institute of Transportation Engineers (ITE), *Parking Generation Manual, 2nd Edition*, indicates that the peak parking demand rate for a non-conventional hotel (such as the Inn at Rispin Mansion) ranges from 0.29 to 0.68 parking spaces per occupied room. Based on the highest rate (0.68 peak parking spaces per occupied room), the hotel will have a parking demand of 18 spaces based on 27 rooms. This demand analysis counts the three two bedroom suites as two units each.

The wedding component of the project will require 27 parking spaces assuming maximum capacity (50 persons), an average auto occupancy of 2 persons/vehicle and providing an additional 2 spaces for wedding caterers results.

The project will share parking with the library located northwest of the Wharf Road/Clares Street intersection. The worst-case parking situation will occur on a Saturday when special

events are conducted at the site. A detailed breakdown of project parking demand by time of day for Saturday is presented on *Exhibit 11B*, with the parking requirement for the individual uses presented on *Exhibit 11A*.

Based on the data contained in the Urban Land Institute, Shared Parking, (1983) peak PM parking demand for the hotel on Saturdays is assumed to be 1 parking space per occupied room. This source was used in the analysis rather than ITE's *Parking Generation Manual* because ITE's manual does not specify weekend (i.e. Saturday) peak parking demands for hotels. One space was added to this demand as a safety factor to account for employees on the site. On this basis, the hotel would require 28 parking spaces.

Based on the data contained in *Zoning Ordinance Provisions for Parking*, peak parking demand rates for a public library is one (1) parking space per 600 square feet of floor area open to the public plus one space per staff person. The temporary library facility (4,320 square feet) has a maximum parking demand of 10-spaces.

A detailed breakdown of project parking demand by time of day for Saturday is presented on *Exhibit 11B*. Data contained in *The Urban Institute, Shared Parking* was utilized to estimate the parking demand associated with the hotel by hour. On a Saturday, the parking demand for a hotel reduces throughout the day from 100% of peak demand in the early morning to about 30% of peak demand between 12:00 to 2:00 PM. Throughout the afternoon the parking demand increases and reaches 100% in the late evening. The library was assumed to be open between 10:00 AM and 6:00 PM. (At the current time, the library opens at 10:00 AM on Saturday and closes at 5:00 PM). Two weddings are assumed with the first occurring near the noon hour and the second occurring after 6:00 PM.

The data presented in *Exhibit 11B* indicates that the peak parking demand for the Inn at Rispin Mansion would occur during the time of second wedding. During this time the maximum parking demand would be 54 spaces. With 87 spaces provided for special events through the use of a valet parking system, there would be a surplus of 33 spaces during special events.

E. Project Site Access and Site Circulation

Because vehicular access to the site will be restricted and because the project parking area is located north of the Wharf Road/Clares Street intersection, it is recommended that appropriate guide signing be provided on Wharf Road and Clares Road to direct Rispin Mansion patrons to the parking area.

The existing driveway width of 15-feet at the project entrance on Wharf Road is not adequate for vehicular traffic and emergency vehicle access. It is recommended that the driveway be widened to 24-feet in width at Wharf Road.

The location of the parking lot on the west side of Wharf Road will induce pedestrian crossings of Wharf Road. It is recommended that a crosswalk be provided across Wharf Road at Clares Street.

IV. GENERAL PLAN BUILDOUT CONDITIONS (YEAR 2015)

This chapter presents the analysis of cumulative buildout traffic conditions.

A. General Plan Buildout Volumes

Traffic volumes on the study road network are expected to increase over time, as new projects are developed within the Capitola area. Future traffic in Capitola will primarily increase as a result of growth in the County, particularly the area immediately adjacent to Capitola. To account for the additional traffic that will be added to the road network from cumulative projects, existing peak hour volumes at the study intersection were increased. At the 41st Avenue intersection with the northbound Highway 1 ramps, the southbound Highway 1 ramps and Clares Avenue existing traffic volumes were increased at an average rate of +2% for 15 years. This rate was used in the traffic study prepared for the proposed 41st Avenue Safeway Shopping Center expansion project located on 41st Avenue north of Highway 1. At the other study intersections, growth rates established by AMBAG forecasts and as presented in the Capitola Crossing DEIR were utilized. Base volumes at the other study intersections were achieved by applying a growth factor of 1.11 to the existing weekday PM and Saturday MD peak hour volumes. The project trip assignments were combined with the cumulative condition base volumes to achieve General Plan Buildout Conditions. The General Plan buildout volumes are shown on *Exhibits 12A and 12B.*

B. General Plan Buildout Roadway Segment Operations

The roadway segment peak hour volumes for General Plan Buildout conditions are illustrated on *Exhibit 4.* Traffic growth is expected to result in unacceptable conditions on the following links under General Plan Buildout Conditions:

1. 41st Avenue north of Clares Street;
2. 41st Avenue north of Highway 1;
3. Capitola Road east and west of 46th Avenue; and
4. Wharf Road north of Clares Street.

Widening 41st Avenue between Clares Street and Highway 1 to an 8-lane facility would be required to achieve LOS D operations on this facility based on the planning level threshold volumes shown in Appendix A. North of Highway 1, widening 41st Avenue to a 6-lane facility would also achieve LOS D operations based on the planning level threshold volumes. A well-coordinated system of signals along the 41st Avenue coordination could improve corridor operations. The City of Capitola plans to study the 41st Avenue corridor and identify potential improvements, including modification of signal timing, to increase capacity in the corridor. It is not certain, at this time, whether sufficient capacity can be provided to improve corridor operations to LOS C under General Plan buildout conditions.

It is not feasible to significantly widen Capitola Road and Wharf Road given the existing development located along these roads and topographic constraints on Wharf Road. Therefore, it is not possible to increase the capacity of these facilities. It should be noted,

however, that intersection operations typically determine the overall operating efficiency of urban streets. Therefore, the poor levels of service reported for Wharf Road and Capitola Road may provide a conservative analysis of traffic conditions on these roadways.

C. General Plan Buildout Intersection Operating Conditions

Traffic growth associated with General Plan buildout and traffic generated by the proposed project were added to existing volumes to establish General Plan peak hour volumes for each scenario. General Plan weekday PM and Saturday MD peak hour volumes are presented on *Exhibits 12A and 12B.*

The results of the intersection level of service analysis for the General Plan Buildout conditions with the project are displayed on *Exhibit 5.* It indicates that 4 of 9 study intersections will continue to operate within acceptable levels of service (LOS C or better) under General Plan Buildout study scenario.

As with the Existing and Project analysis conditions, the 41st Avenue/Clares Avenue intersection operates at an unsatisfactory intersection level of service under General Plan conditions. Adding a right turn lane on the southbound 41st Avenue approach to Clares Street would not improve the weekday PM peak hour LOS E condition and the Saturday mid-day peak hour LOS F condition. Additional widening on all intersection approaches would be required to achieve LOS D operations under General Plan buildout conditions. However, significant widening is not feasible due to existing development located on 41st Avenue and Clares Street at the intersection. A study of the 41st Avenue corridor that evaluates alternative improvements, including signal coordination alternatives, is required to determine the extent to which 41st Avenue/Clares Street intersection operations can be improved.

The Wharf Road/Clares Street intersection will operate at an overall LOS D with 33.1 seconds average vehicle delay during the weekday PM peak hour and at LOS F with 120.3 seconds average vehicle delay during the Saturday MD peak hour. A southbound right turn lane added at this intersection, as discussed for the previous analysis scenario would achieve LOS C operations during the weekday PM and Saturday mid-day peak hours. Cumulative condition weekday PM and Saturday MD peak hour volumes at this intersection satisfy Caltrans peak hour signal warrants. Satisfactory intersection levels of service are achieved with the addition of a right turn lane on the southbound Wharf Road approach to Clares Street. It is recommended that the intersection be monitored by the City to determine if signals will ultimately be required as traffic increases.

The 49th Avenue/Capitola Road intersection is projected to operate at LOS D with 29.6 seconds of delay per vehicle during the Saturday mid-day peak hour. As with the other analysis scenarios, weekday PM and Saturday MD peak hour volumes at this intersection satisfy Caltrans peak hour signal warrants under cumulative conditions. Signalization of the intersection would result in LOS C operations during the weekday and Saturday peak hours. This intersection should be monitored by the City to determine if signals will ultimately be required.

The 41st Avenue/Highway 1 SB Off-Ramp intersection will operate at an overall LOS E (89.2 seconds average vehicle delay) during the Saturday peak hour under General Plan Buildout scenario. The 41st Avenue/northbound Highway 1 ramp intersection is projected to operate at LOS D with 40.1 seconds of delay during the Saturday peak hour. The City has identified the need to widen 41st Avenue over Highway 1 to a 6-lane bridge structure. In addition, at the 41st Avenue/southbound Highway 1 ramps intersection, a second lane from northbound 41st Avenue to the southbound Highway 1 on-ramp is required to achieve LOS C operations.

Traffic signals will be not warranted at the 46th Avenue intersections with Clares Street and Capitola Road based on the cumulative condition peak hour traffic volumes.

V. RECOMMENDATIONS

A. Improvements Warranted for Existing Condition (without project traffic)

1. Add an exclusive right turn lane on the southbound 41st Avenue approach to Clares Street;

2. Add an exclusive right turn lane on the southbound Wharf Road approach to Clares Street.

3. A study should be conducted of the 41st Avenue corridor to identify alternative improvements that would improve corridor operations and increase corridor capacity to serve existing as well as long-range traffic volume demand.

B. Project Condition Mitigation Measures

In addition to the two right turn lanes recommended to improve existing deficient conditions, the following improvements are recommended for the Project Condition:

1. Construct project frontage improvements along Wharf Road, as required by the City Public Works Department. These improvements should include, but not be limited to, the placement of curb, gutter and sidewalks in their future ultimate locations. In addition, project frontage improvements along Wharf Road should provide bike lanes on both sides of Wharf Road.

2. Provide pedestrian crosswalk at the intersection of Wharf Road/Clares Street intersection.

3. Install a STOP sign at the project driveway approach to Wharf Road.

4. Provide a 24-feet wide driveway on Wharf Road.

5. Relocate or close the existing walkway entrance to Rispin Mansion on Wharf Road (east side of the road). If relocation is possible, it should be relocated close to the future (proposed) crosswalk at the Wharf Road/Clares Street intersection. If relocation is not possible, it is recommended to close the existing walkway entrance and to provide a new

walkway entrance to the project site close to the future (proposed) crosswalk at the Wharf Road/Clares Street intersection.

7. Install signs to encourage pedestrians to use the crosswalk at the Wharf Road/Clares Street intersection.

8. It is recommended that the project contribute a fair share of the construction costs for the right turn lanes recommended to improve existing operations at the 41st Avenue/Clare Street intersection and the Wharf Road/Clares Street intersection. A fair share contribution from the project for the cost to study alternative improvements for the 41st Avenue corridor is also recommended.

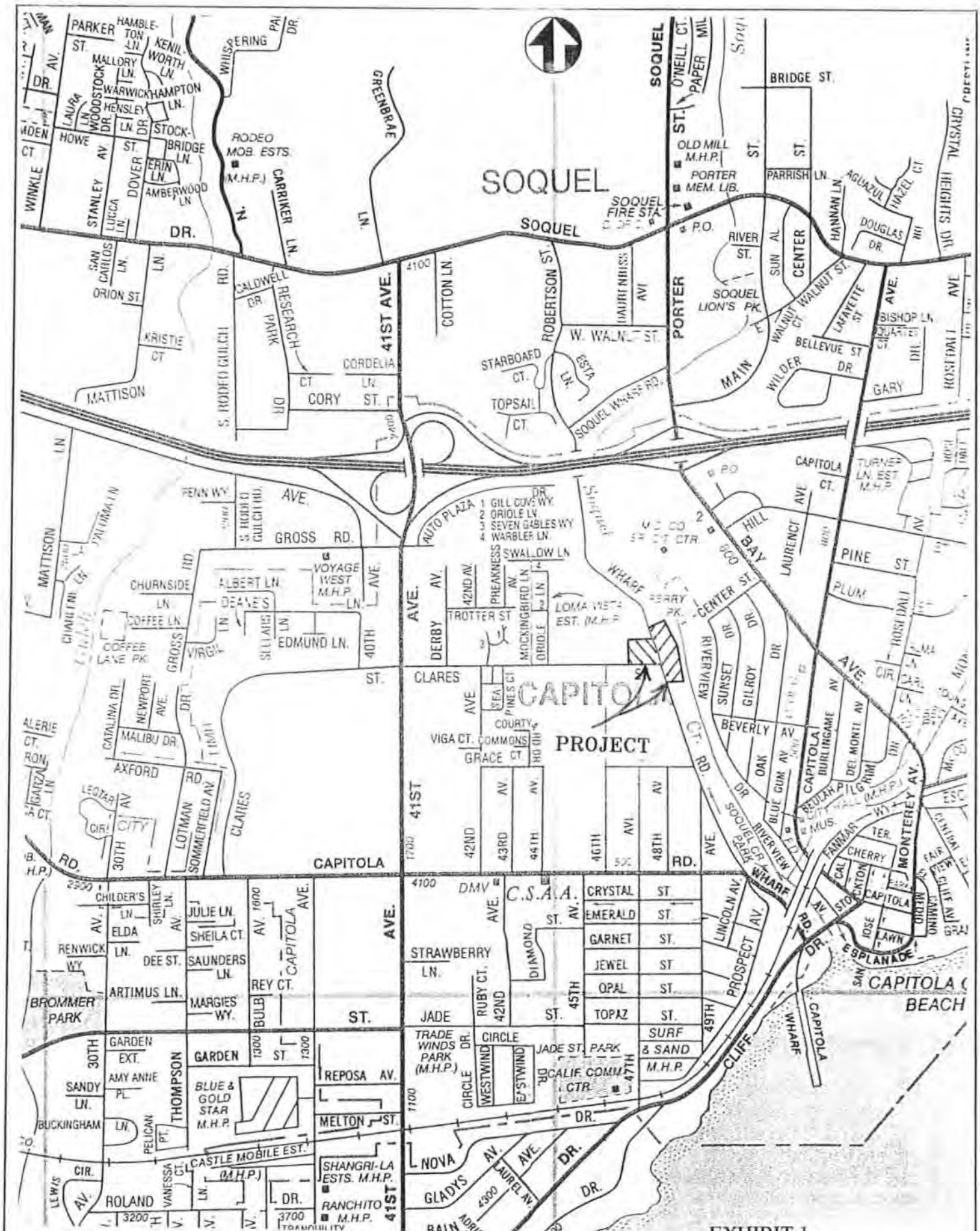
C. General Plan Buildout Mitigation Measures

In addition to the improvements recommended for Project Conditions, the following improvements are recommended for General Plan Buildout conditions:

1. The project should contribute a fair share of construction costs associated with the required improvements at 41st Avenue/Highway 1 interchange. This improvement includes the addition of a second exclusive right turn only lane on the northbound 41st Avenue approach and widening the bridge structure to six lanes.

2. City staff should monitor traffic conditions at the Wharf Road/Clares Street intersection to determine if signal will ultimately be required as traffic growth increases.

4. The City should monitor the 49th Avenue/Capitola Road intersection to determine if a signal will ultimately be required as traffic growth increases.


SOQUEL
PROJECT
CAPITOLA
CAPITOLA BEACH
SOQUEL DR.
41ST AVE.
BRIDGE ST.
PORTER ST.
CENTER ST.
MAIN ST.
CAPITOLA RD.
41ST
CLARES ST.
PARKER ST.
MATTISON
GROSS RD.
CORY ST.
CORDELIA CT.
ROBERTSON ST.
W. WALNUT ST.
PINE ST.
BAY AVE.
HILL AVE.
WHARF RD.
MONTEREY AV.
PROSPECT AV.
ESPLANADE
CLIFF DR.
SOQUEL FIRE STA.
P.O.
SOQUEL LION'S PK.
PORTER MEM. LIB.
OLD MILL M.H.P.
RODEO MOB. ESTS. (M.H.P.)
SOQUEL WOODS M.H.P.
VOYAGE WEST M.H.P.
LOMA VISTA EST. M.H.P.
CITY HALL (M.H.P.)
CAPITOLA BEACH
EXHIBIT 1 -
PROJECT LOCATION MAP

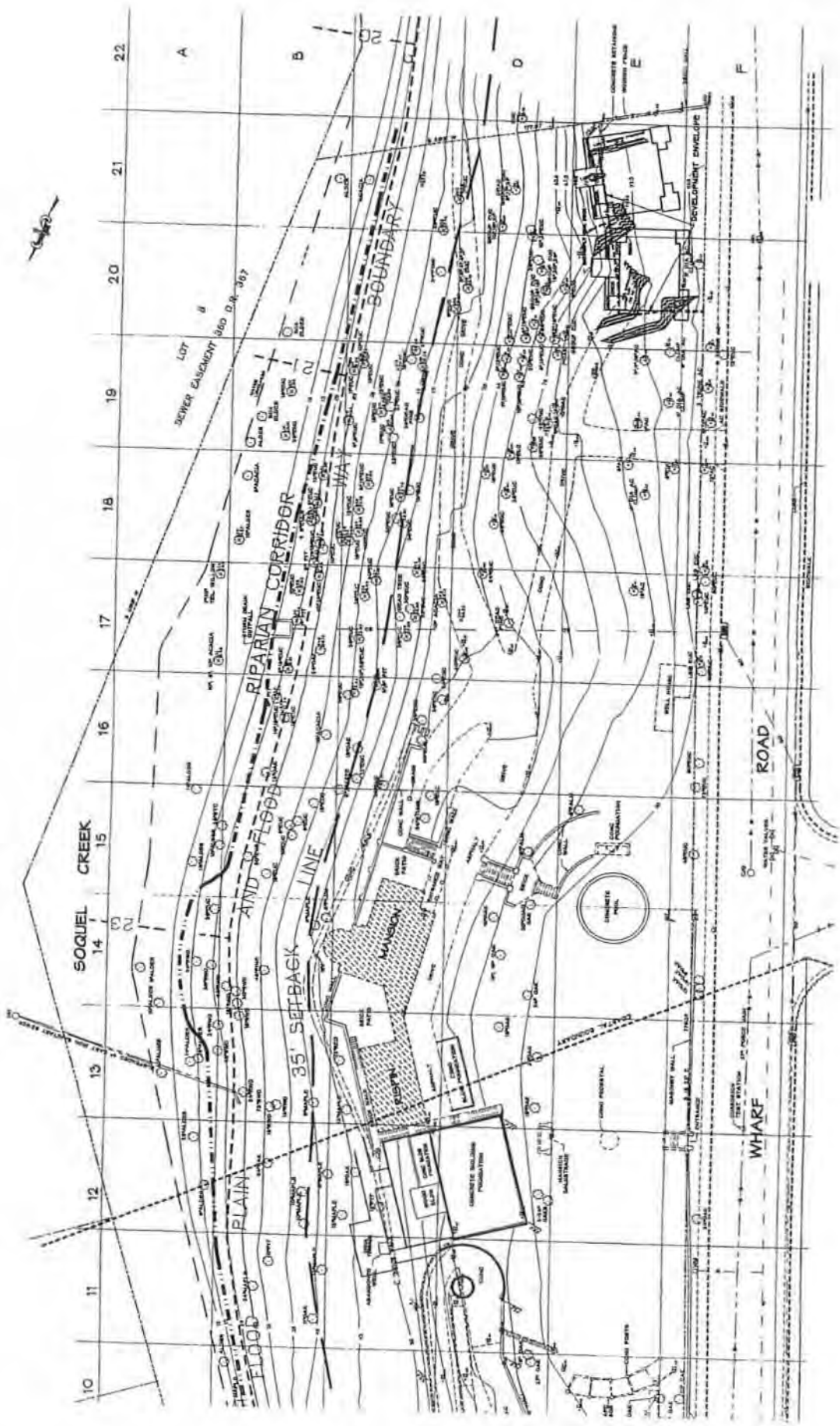


EXHIBIT 2-
PROJECT
SITE PLAN

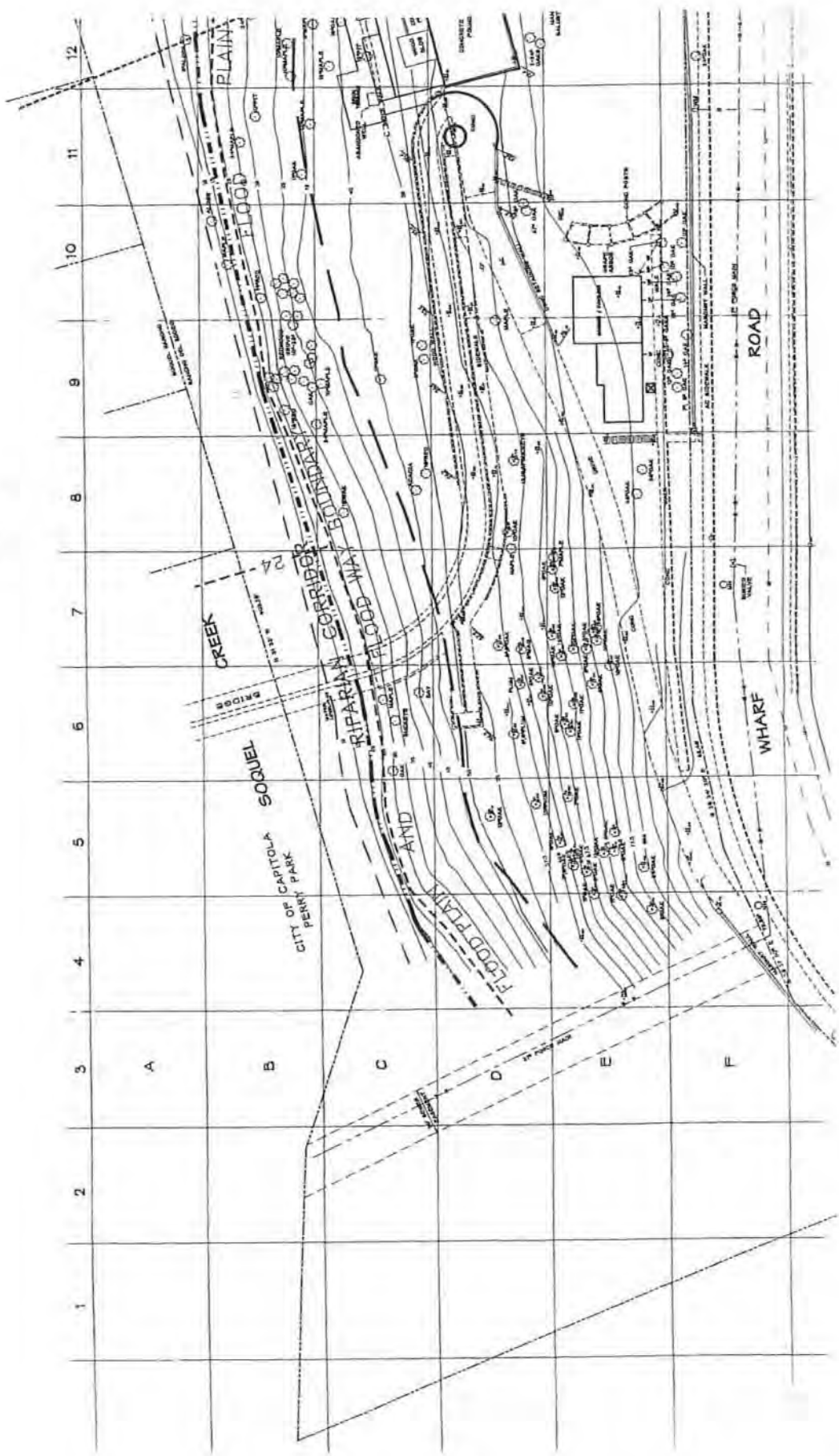


EXHIBIT 2
PROJECT
SITE PLAN

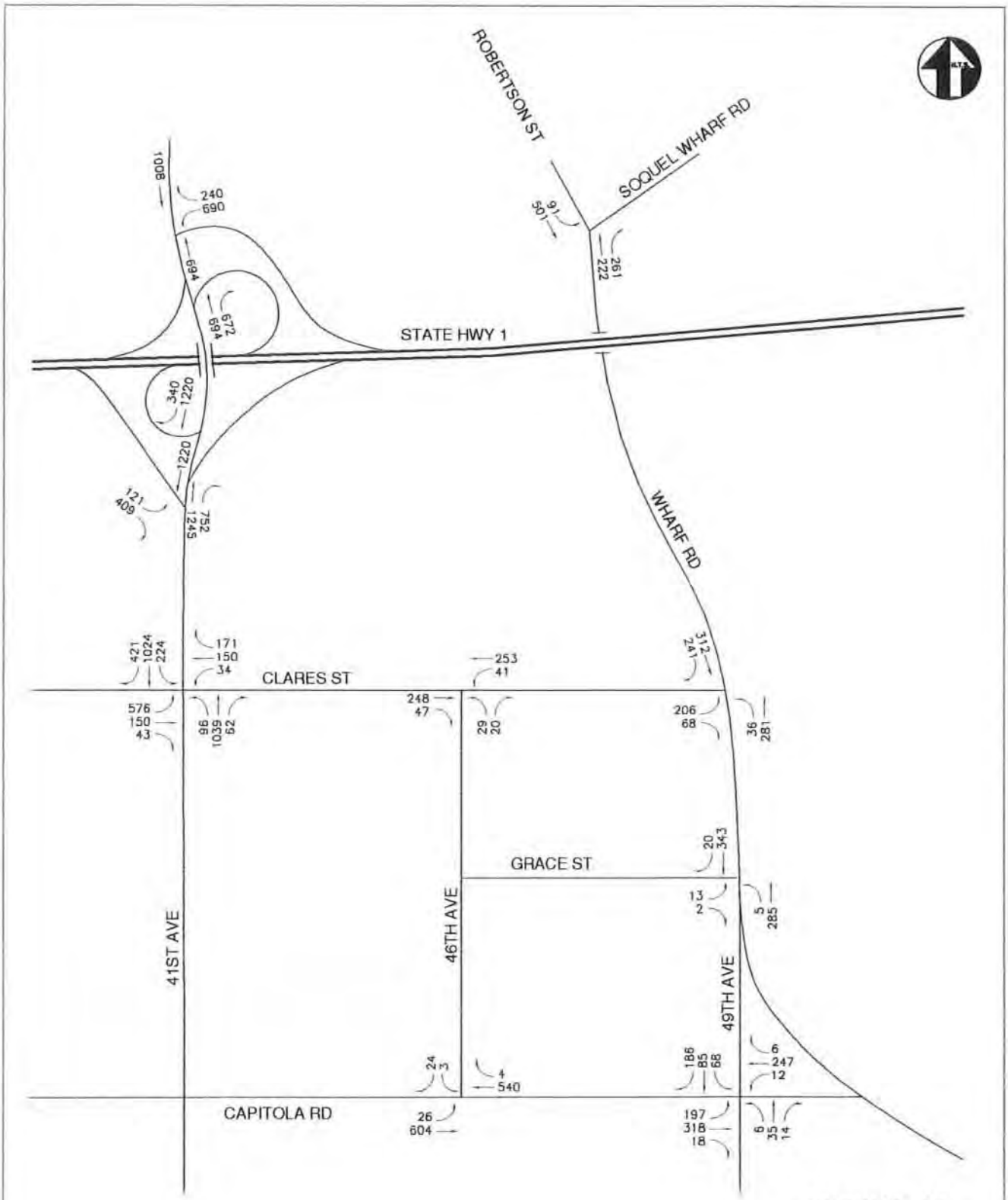
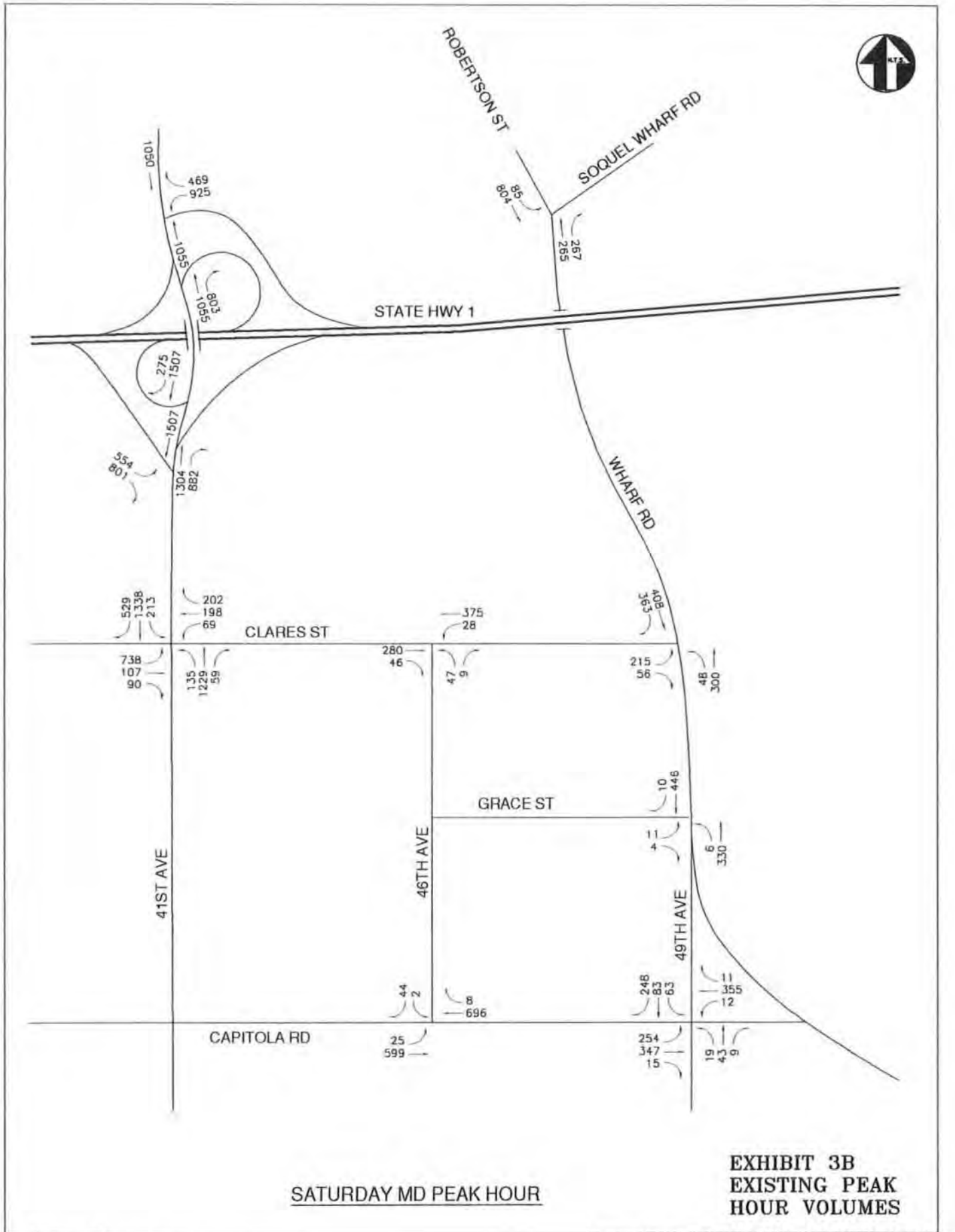


EXHIBIT 3A
EXISTING
PEAK HOUR
VOLUMES

PM PEAK HOUR

HIGGINS ASSOCIATES

Drawing: G:\2002\Jobs\051-100\A02-053\Exhibits\02-053-3A.dwg
Layout: EX-3A Sep 16, 2002, 3:04pm



SATURDAY MD PEAK HOUR

EXHIBIT 3B
EXISTING PEAK HOUR VOLUMES

HIGGINS ASSOCIATES

Drawing: G:\2002\Jobs\051-100\A02-053\Exhibits\02-053-3B.dwg
Layout: EX-3B Sep 16, 2002, 3:01pm

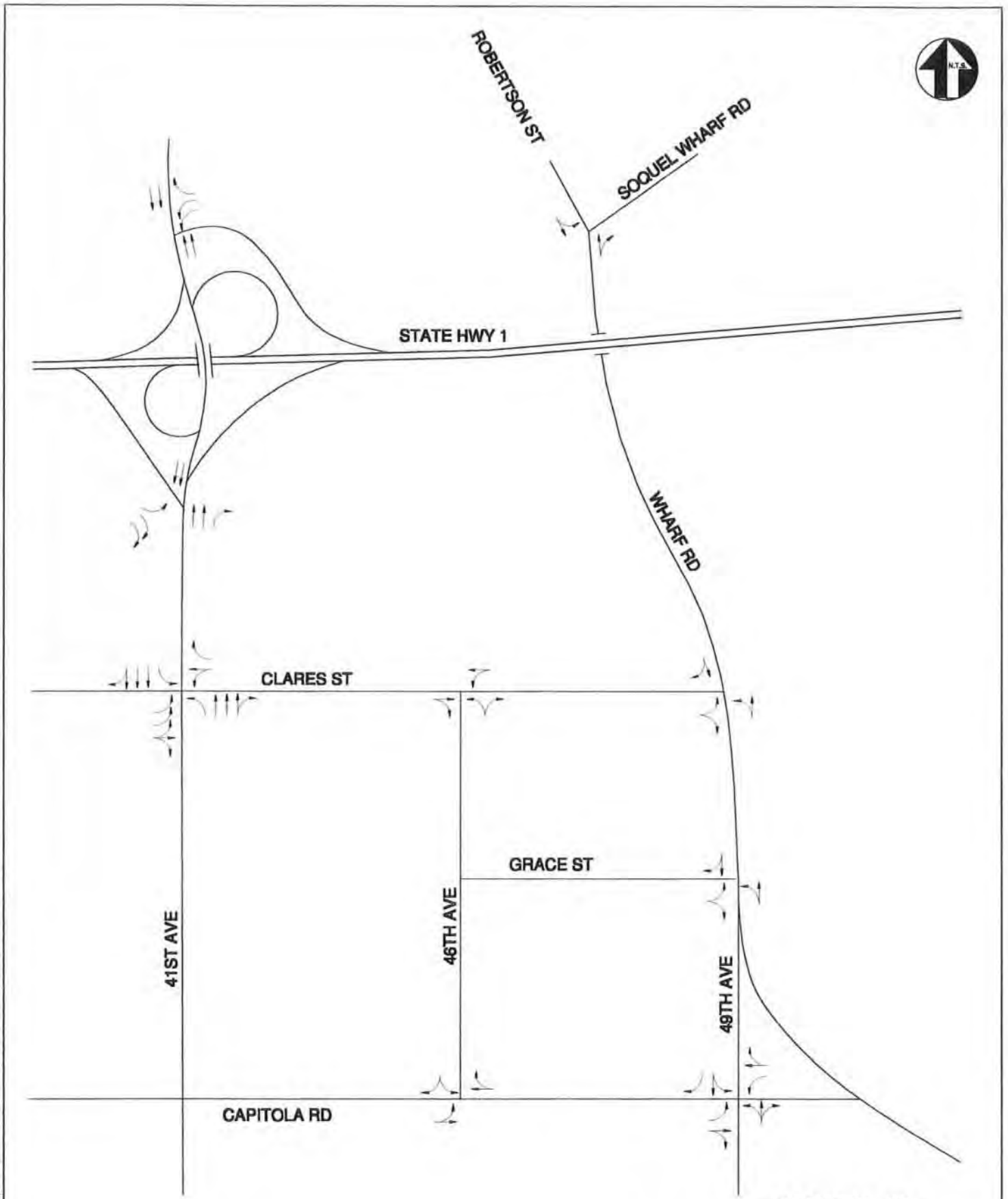


EXHIBIT 3C
EXISTING
INTERSECTION
LANE
CONFIGURATIONS

H:\1997\151-200\97-153\97-153 3C

9803.10

HIGGINS ASSOCIATES

EXHIBIT 4
ROAD SEGMENT LEVEL OF SERVICE SUMMARY

Facility	Location	Class	No. of Travel Lanes	Existing				Existing Plus Project				General Plan Buildout			
				PM Pk		Sat MD Pk		PM Pk		Sat MD Pk		PM Pk		Sat MD Pk	
				Vol	LOS	Vol	LOS	Vol	LOS	Vol	LOS	Vol	LOS	Vol	LOS
41st Ave	n/o Clares St	Arterial	6	3,455	B	4,218	C	3,465	B	4,279	B	**4,643**	**D**	**5,753**	**F**
	n/o Hwy 1 NB Off Ramp	Arterial	4	1,942	A	2,574	C	1,944	A	2,576	C	**2,860**	**F**	**3,920**	**F**
Clares St	w/o 46th Ave	Collector	2	577	A	748	B	587	A	781	C	649	B	864	C
	e/o 46th Ave	Collector	2	562	A	692	B	572	A	703	B	634	B	801	B
46th Ave	s/o Clares St	Collector	2	137	A	130	A	137	A	130	A	151	A	145	A
	n/o Capitola Rd	Collector	2	57	A	79	A	57	A	79	A	63	A	88	A
Capitola Rd	w/o 46th Ave	Arterial	2	1,194	B	1,364	C	1,196	B	1,369	C	1,328	C	**1,520**	**D**
	e/o 46th Ave	Arterial	2	1,151	B	1,305	C	1,153	B	1,310	C	1,279	C	**1,454**	**D**
Wharf Rd	n/o Clares St	Minor-Arterial	2	1,040	A	1,286	C	1,064	A	1,339	C	1,177	B	**1,480**	**D**
	s/o Clares St	Minor-Arterial	2	697	A	812	A	711	A	832	A	787	A	921	A

EXHIBIT 5-
PEAK HOUR INTERSECTION LEVELS OF SERVICE (LOS)

INTERSECTION	EXISTING TRAFFIC CONTROL	SCENARIO	EXISTING				EXISTING + PROJECT				GENERAL PLAN CONDITION			
			WEEKDAY PM PEAK		SATURDAY MD PEAK		WEEKDAY PM PEAK		SATURDAY MD PEAK		WEEKDAY PM PEAK		SATURDAY MD PEAK	
			DEL	LOS	DEL	LOS	DEL	LOS	DEL	LOS	DEL	LOS	DEL	LOS
1. Robertson St (N-S) Soquel Wharf Rd (WB)	NO CONTROL		8.7	A	8.9	A	8.7	A	8.9	A	8.9	A	9.1	A
2. 41st Ave (N-S) Clares St (E-W)	SIGNAL		**41.3**	**D**	**44.5**	**D**	**41.7**	**D**	**55.3**	**D**	**72.0**	**E**	**139.1**	**F**
		W/SB RT	**40.1**	**D**	**42.6**	**D**	**40.3**	**D**	**49.5**	**D**	**61.5**	**E**	**104.9**	**F**
3. 46th Ave (NB) Clares St (E-W)	2-WAY STOP	NB Approach	12.6	B	15.7	C	12.7	B	16.3	C	13.5	B	17.2	C
4. Wharf Rd (N-S) Clares St (EB)	3-WAY STOP		19.8	C	**64.9**	**F**	21.2	C	**77.1**	**F**	**33.1**	**D**	**120.3**	**F**
		W/SB RT	14.8	B	14.9	B	14.9	B	16.4	C	15.6	C	16.6	C
5. Wharf Rd (N-S) Grace St (EB)	2-WAY STOP	EB Approach	13.5	B	14.8	B	12.8	B	14.9	B	14.5	B	16.1	C
6. 49th Ave (N-S) Capitola Rd (E-W)	ALL-WAY STOP		14.5	B	21.1	C	14.5	B	21.2	C	17.1	C	**29.6**	**D**
		W/Signal									21.1	C	23.1	C
7. 46th Ave (SB) Capitola Rd (E-W)	2-WAY STOP	SB Approach	13.8	B	15.5	B	13.8	B	15.6	B	14.9	B	17.2	C
8. 41st Ave (N-S) Hwy 1 SB Off-Ramp	SIGNAL		10.6	B	26.3	C	10.6	B	26.7	C	16.2	B	**89.2**	**E**
		W/3rd NB & SB Lanes & 2nd NB RT to ramp									13.4	B	34.0	C
9. 41st Ave (N-S) Hwy 1 NB Off-Ramp	SIGNAL		15.8	B	19.3	B	15.8	B	19.3	B	19.0	B	**40.1**	**D**
		W/3rd NB & SB Lanes									17.5	B	24.7	C

Notes: 1. DEL - Delay (seconds per vehicle).
2. LOS - Level of service.
3. LT, T, RT - Left turn lane, Through lane, Right turn lane.
4. NB, SB, EB, WB - Northbound, Southbound, Eastbound, Westbound.
5. Level of service below line represents operating conditions with recommendations as described on Exhibit 7.

EXHIBIT 6-
RECOMMENDED INTERSECTION IMPROVEMENTS

INTERSECTION	EXISTING LANE CONFIG.	EXISTING TRAFFIC CONTROL	EXISTING	EXISTING + PROJECT	GENERAL PLAN CONDITION
1. Robertson St (N-S) Soquel Wharf Rd (WB)	NB: 1-T/R SB: 1-L/T	NO CONTROL	1. None Required.	1. None Required.	1. None Required.
2. 41st Ave (N-S) Clares St (E-W)	NB: 1-L;2-T;1-T/R SB: 1-L;2-T;1-T/R WB: 1-L/T;1-R EB: 2-L; 1-L/T/R	SIGNAL	1. Add SB RT lane. 2. Implement corridor improvements to increase corridor capacity.	1. Add SB RT lane. 2. Implement corridor improvements to increase corridor capacity.	1. Add SB RT lane. 2. Implement corridor improvements to increase corridor capacity.
3. 46th Ave (NB) Clares St (E-W)	NB: 1-L/R WB: 1-L/T EB: 1-T/R	2-WAY STOP	1. None Required.	1. None Required.	1. None Required.
4. Wharf Rd (N-S) Clares St (EB)	NB: 1-L/T SB: 1-T/R EB: 1-L/R	3-WAY STOP	1. Add SB RT lane.	1. Add SB RT lane. 2. Provide pedestrian X-walks.	1. Add SB RT lane. 2. Provide pedestrian X-walks. 3. Monitor the intersection for possible signalization.
5. Wharf Rd (N-S) Grace St (EB)	NB: 1-L/T SB: 1-T/R EB: 1-L/R	2-WAY STOP	1. None Required.	1. None Required.	1. None Required.
6. 49th Ave (N-S) Capitola Rd (E-W)	NB: 1-L/T/R SB: 1-L/T; 1-R WB: 1-L; 1-T/R EB: 1-L;1-T/R	ALL-WAY STOP	1. None Required.	1. None Required.	1. Monitor the intersection for possible signalization.
7. 46th Ave (SB) Capitola Rd (E-W)	SB: 1-L/R WB: 1-T/R EB: 1-L/T	2-WAY STOP	1. None Required.	1. None Required.	1. None Required.
8. 41st Ave (N-S) Hwy 1 SB Off-Ramp	NB: 2-T;1-R SB: 2-T EB: 1-L;2-R	SIGNAL	1. None Required.	1. None Required.	1. Widen 41st Avenue bridge to provide 3 thru lanes NB & SB. 2. Provide a 2nd. exclusive RT lane on NB approach.
9. 41st Ave (N-S) Hwy 1 NB Off-Ramp	NB: 2-T SB: 2-T WB: 2-L;1-R	SIGNAL	1. None Required.	1. None Required.	1. Widen 41st Avenue bridge to provide 3 thru lanes NB & SB.

Notes: 1. L, T, R - Left, Through, Right
2. NB, SB, EB, WB - Northbound, Southbound, Eastbound, Westbound.

EXHIBIT 7A-
PROJECT TRIP GENERATION RATES

		WEEKDAY					SATURDAY				
			PM PEAK HOUR					MD PEAK HOUR			
LAND USE	UNIT	DAILY	PEAK HOUR	% OF ADT	IN	OUT	DAILY	PEAK HOUR	% OF ADT	IN	OUT
INN AT RISPIN MANSION											
1. Bed and Breakfast	per room	9.11	0.58	6%	53%	47%	8.84	0.76	9%	45%	55%
2. Meeting/Wedding Facilities	per person						3.0	0.50	20%	100%	0%

EXHIBIT 7B-
PROJECT TRIP GENERATION SUMMARY

		WEEKDAY					SATURDAY				
			PM PEAK HOUR					MD PEAK HOUR			
LAND USE	SIZE	DAILY VOL.	PEAK HOUR VOL.	% OF ADT	IN	OUT	DAILY VOL.	PEAK HOUR VOL.	% OF ADT	IN	OUT
INN AT RISPIN MANSION											
1. Bed and Breakfast	27 rooms	246	16	6%	9	7	239	21	9%	9	12
2. Meeting/Wedding Facilities	50 people	0					150	30	20%	25	5
TOTAL PROJECT TRIPS		**246**	**16**	**6%**	**9**	**7**	**389**	**51**	**13%**	**34**	**17**

Note:
1. Bed and Breakfast trip generation rates based on Motel (ITE Land Use Code 320) trip generation rates published by ITE; Trip Generation Manual, 6th Edition.
2. Wedding facility trip generation rate based on auto occupancy of 2 persons/vehicle with maximum of 2 weddings per Saturday.
3. 1 ksf = 1,000 square feet.

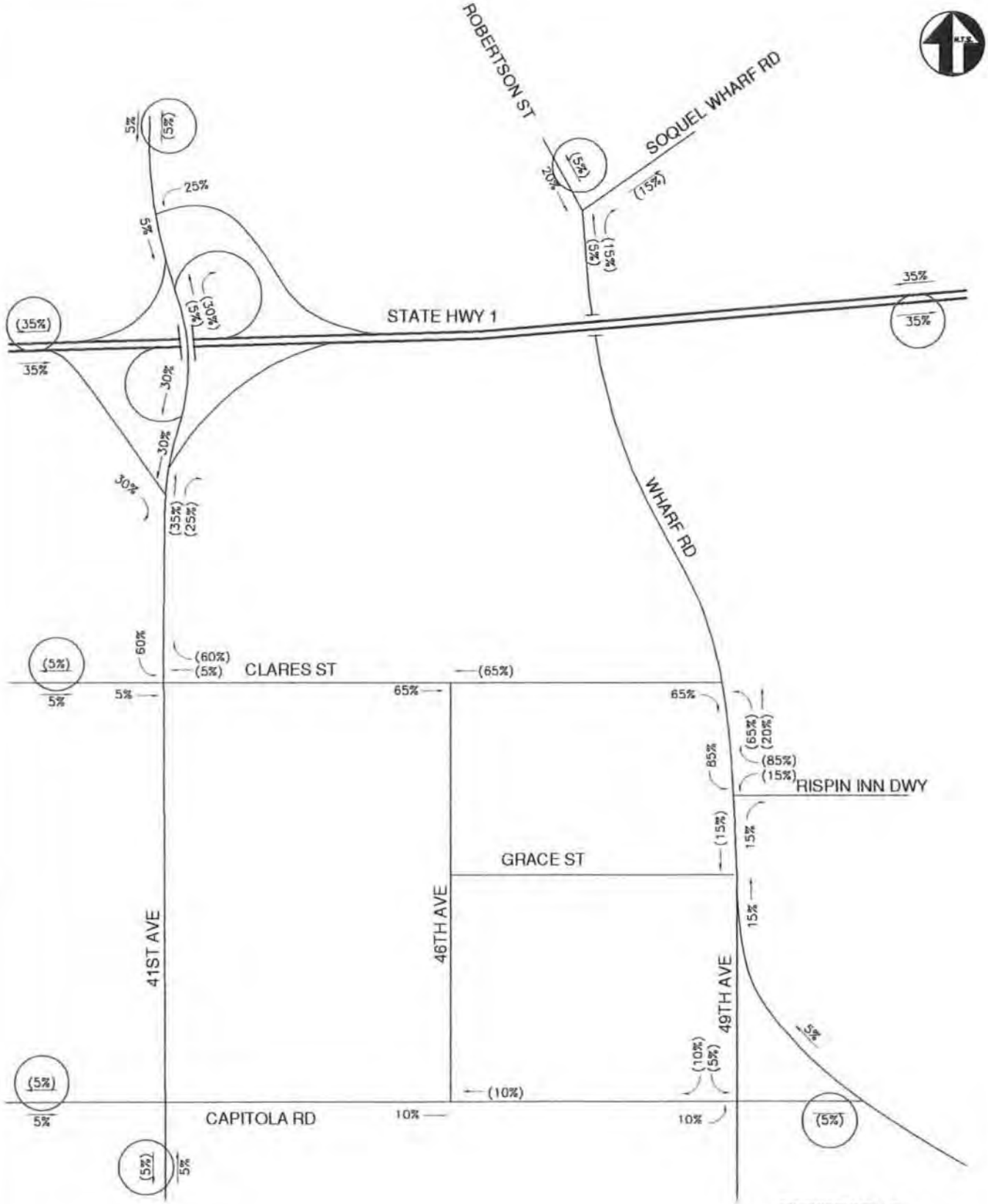
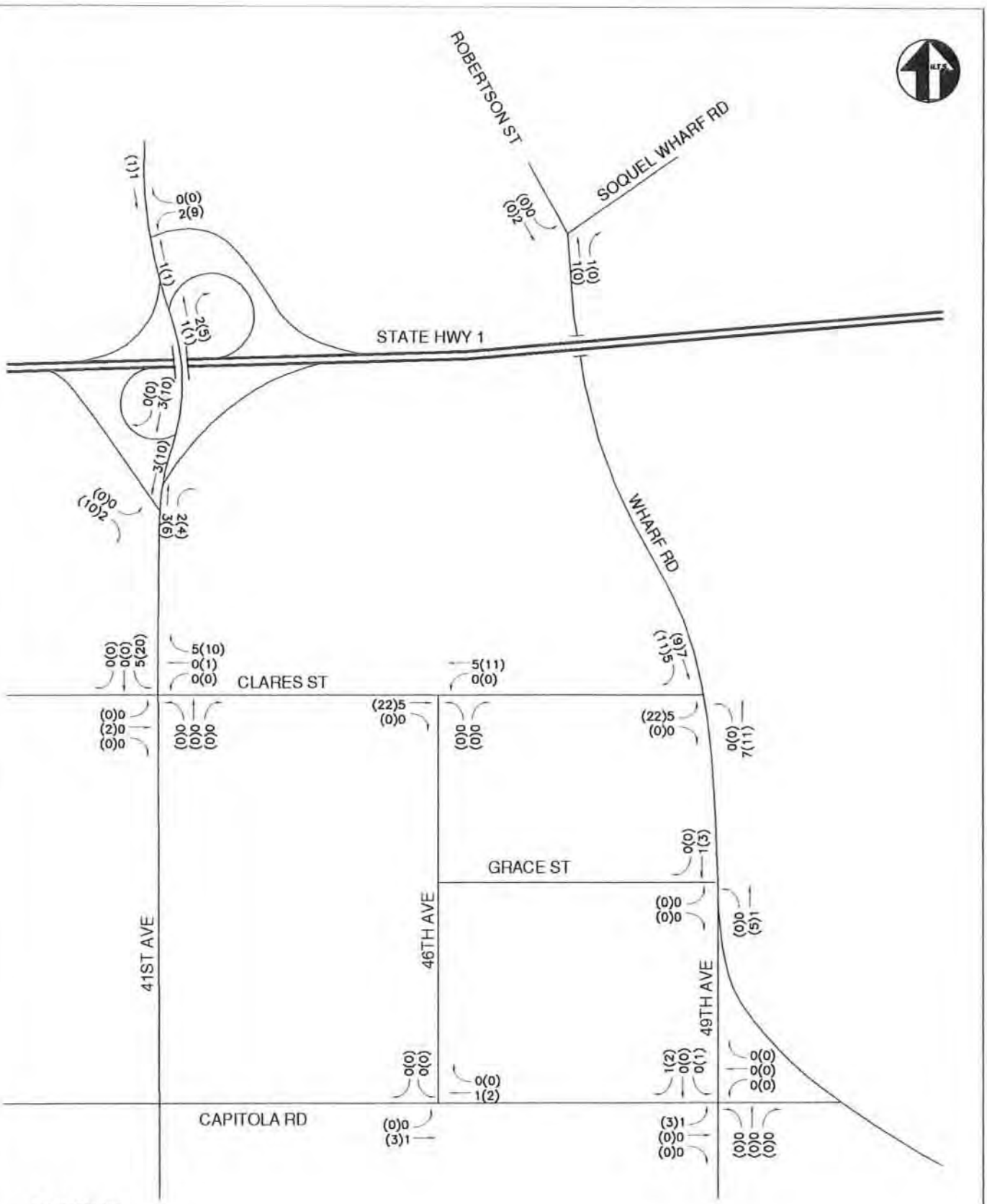


EXHIBIT 8
PROJECT TRIP DISTRIBUTION (INN AT RISPIN MANSION)

HIGGINS ASSOCIATES

Drawing: G:\2002\Jobs\051-100\A02-053\Exhibits\02-053-8.dwg
Layout: EX-8 Sep 18, 2002, 4:17pm



LEGEND:

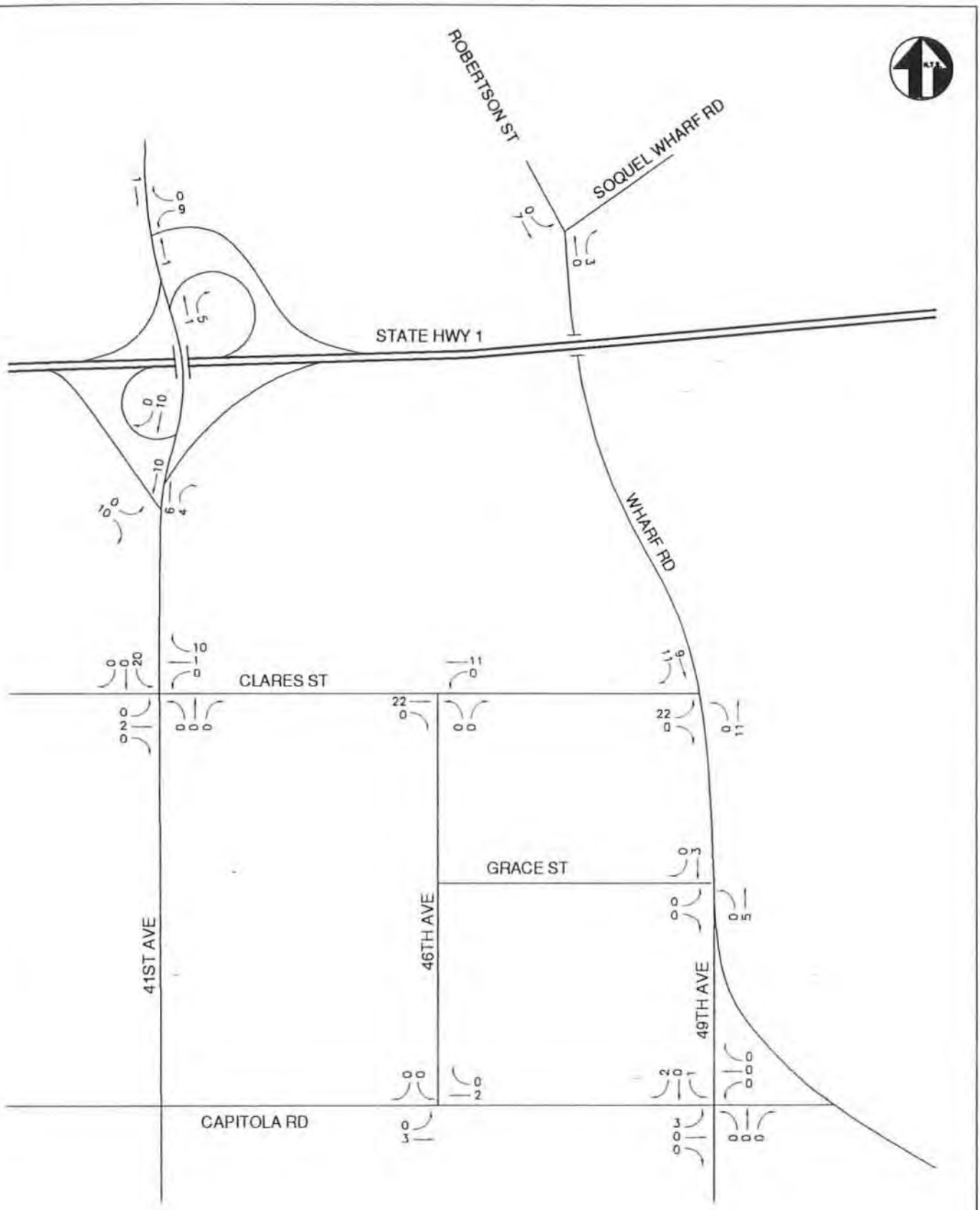
XX = WEEKDAY PM

(XX) = SATURDAY MD

EXHIBIT 9
PROJECT TRIP ASSIGNMENT

HIGGINS ASSOCIATES

Drawing: G:\2002\Jobs\051-100\A02-053\Exhibits\02-053-9.dwg
Layout: EX-9 Sep 18, 2002, 3:50pm

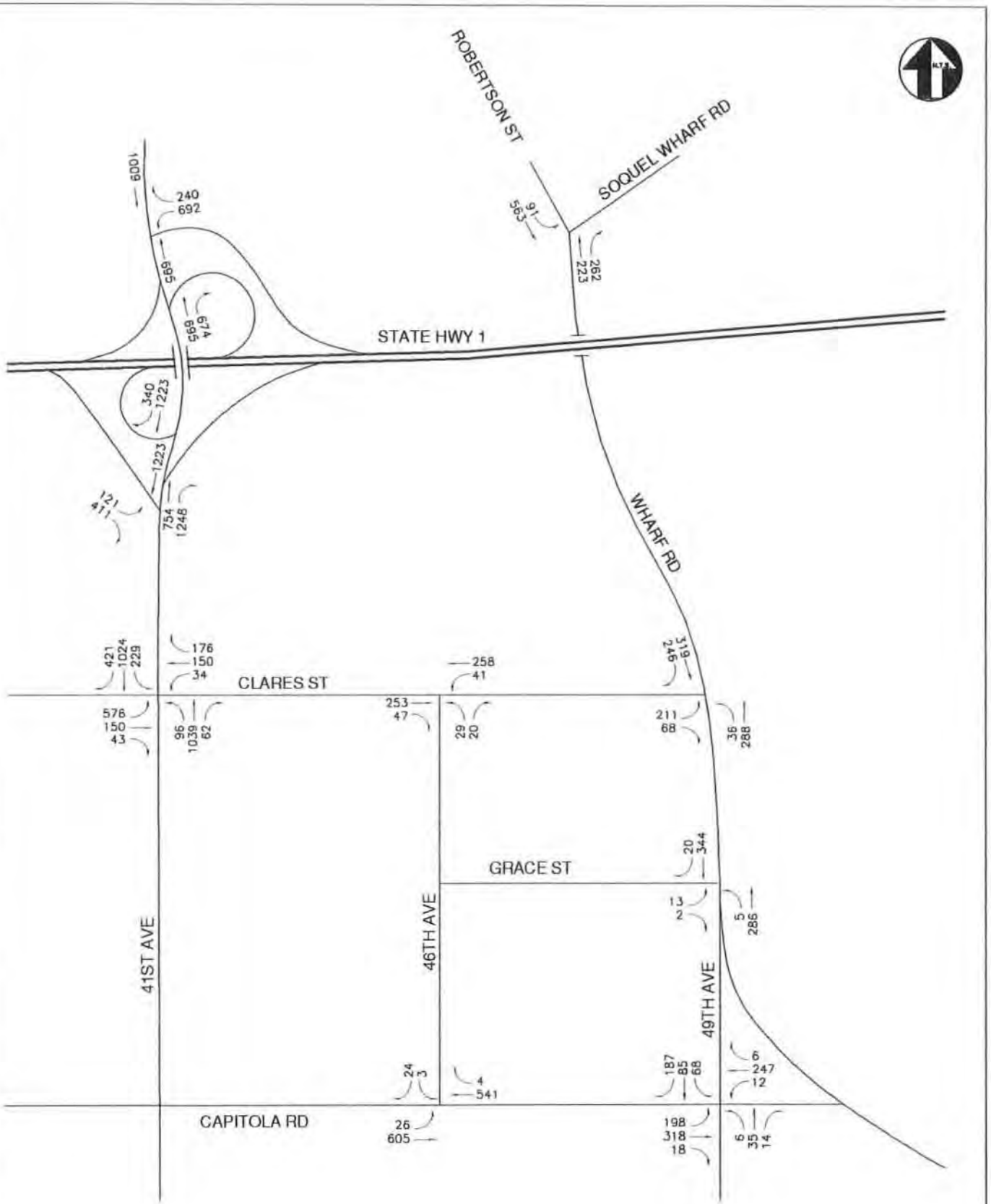


SATURDAY MD PEAK HOUR

EXHIBIT 9B
PROJECT TRIP ASSIGNMENT

HIGGINS ASSOCIATES

Drawing: C:\2002\Jobs\051-100\A02-053\Exhibits\02-053-10B.dwg
Layout: EX-10B Sep 16, 2002, 3:19pm

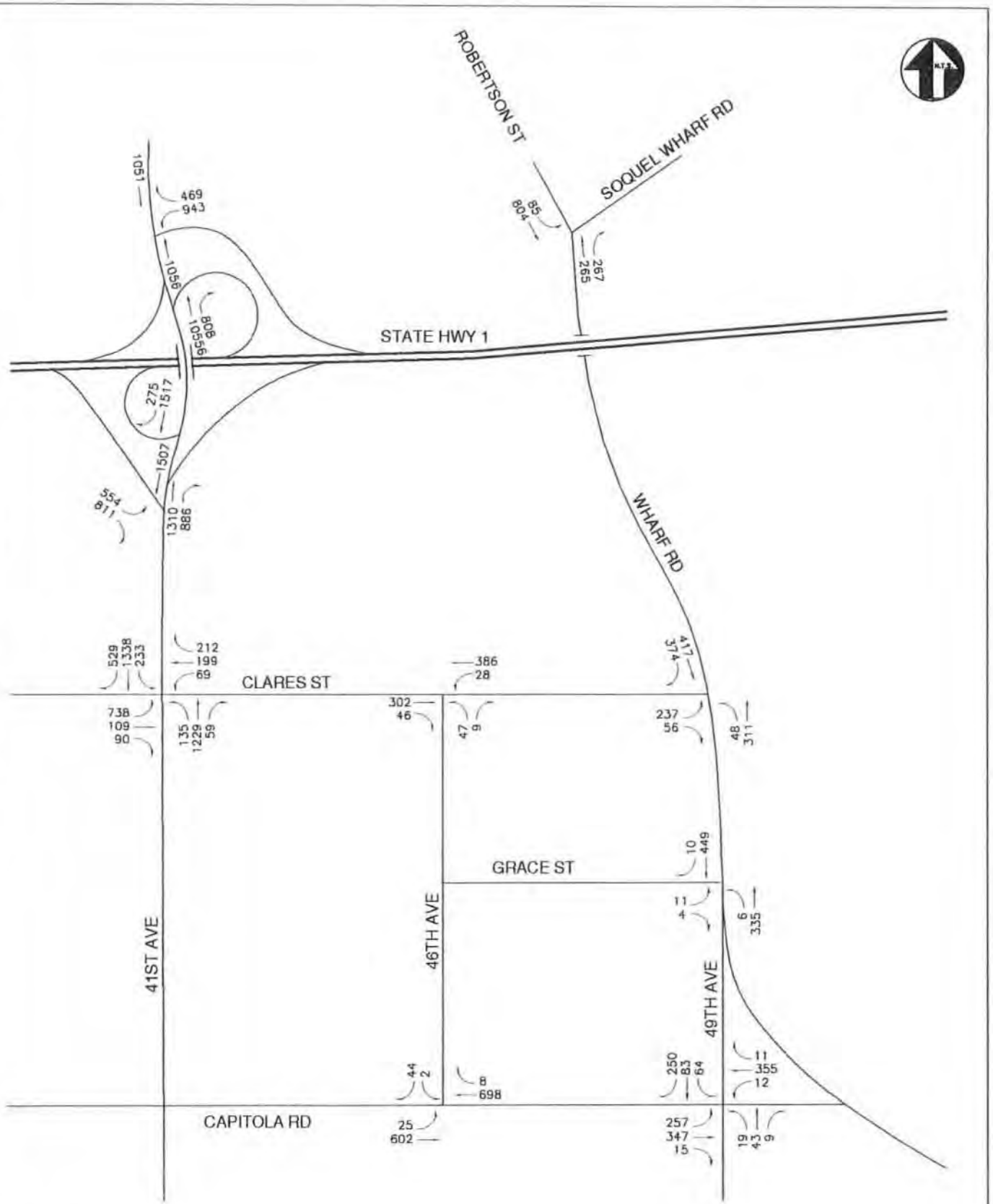


PM PEAK HOUR

EXHIBIT 10A
EXISTING PLUS PROJECT
PEAK HOUR VOLUMES

HIGGINS ASSOCIATES

Drawing: C:\2002\Jobs\051-100\A02-053\Exhibits\02-053-10A.dwg
Layout: EX-10A Sep 18, 2002, 4:15pm



SATURDAY MD PEAK HOUR

EXHIBIT 10B
EXISTING PLUS PROJECT
PEAK HOUR VOLUMES

HIGGINS ASSOCIATES

Drawing: C:\2002\Jobs\051-100\A02-053\Exhibits\02-053-10B.dwg
Layout: EX-10B Sep 18, 2002, 4:15pm

EXHIBIT 11A-
RECOMMENDED PARKING REQUIREMENT

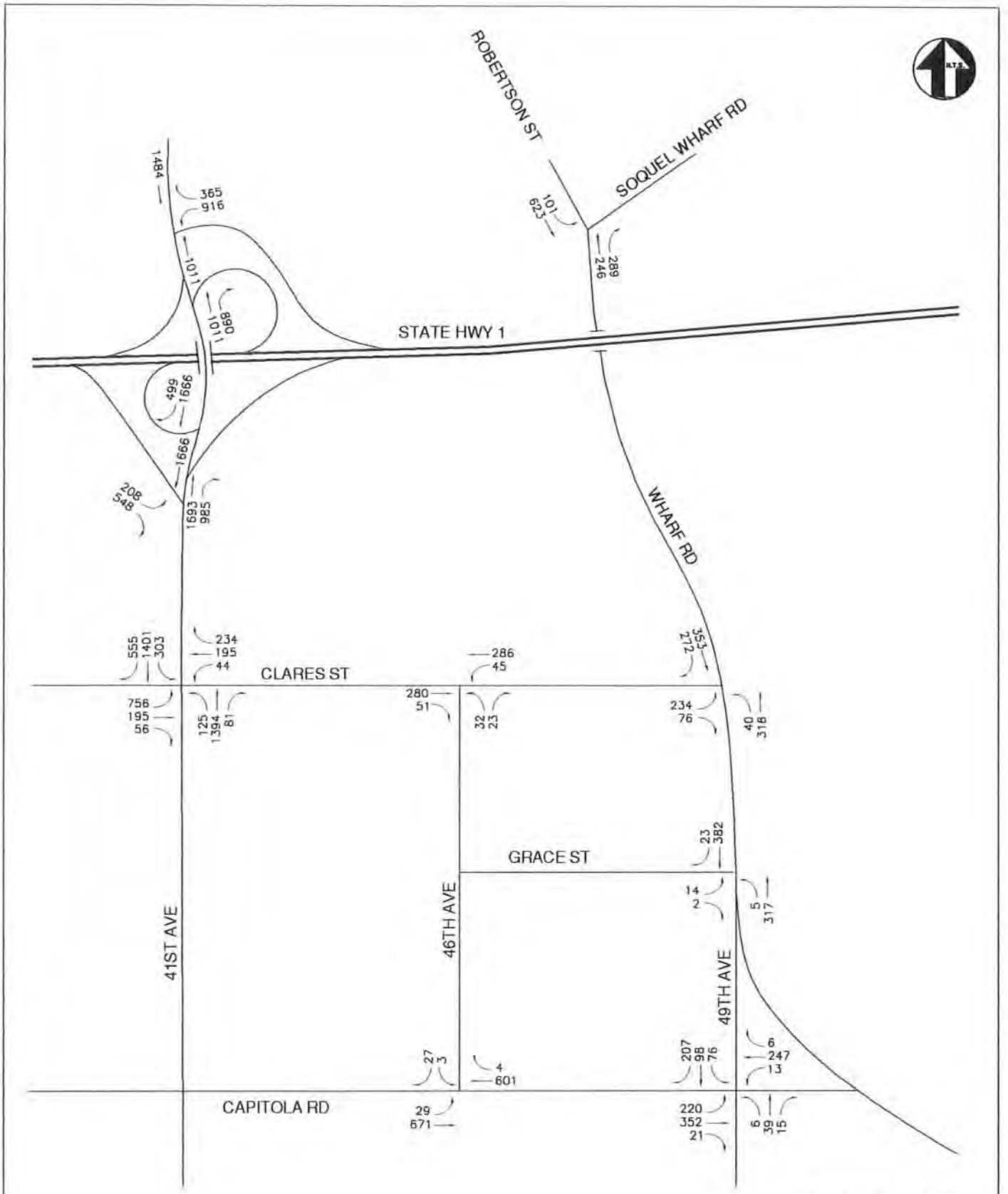
	NO.	PEAK PARKING RATE	PEAK PARKING DEMAND
A. HOTEL PARKING REQUIREMENT -			
PER ROOM	27	1	27
PER EMPLOYEE	4	0.25	1
HOTEL TOTAL REQUIREMENT			28
B. WEDDING PARKING REQUIREMENT - BASED ON 1 SPACE PER TWO ATTENDEES, WITH A MAXIMUM OF 50 ATTENDEES PLUS 2 SPACES FOR CATERERS.			27
C. LIBRARY PARKING REQUIREMENT -			
PER 600 S.F.	7.2	1	7
PER STAFF	3	1	3
LIBRARY TOTAL REQUIREMENT			10

Note: 1. Parking demand for Library obtained from Zoning Ordinace Provisions for Parking, 1981.

EXHIBIT 11B-
WORST-CASE PARKING ANALYSIS - SATURDAY

	PARKING DEMAND (WITHOUT WEDDING)				PARKING DEMAND (WITH WEDDING)				
	HOTEL				HOTEL				
HOUR OF DAY	% OF PEAK	OCCUPIED SPACES	TEMP LIBRARY	TOTAL	% OF PEAK	OCCUPIED SPACES	WEDDING	TEMP LIBRARY	TOTAL
0:00	100%	28	0	28	100%	28	0	0	28
1:00	100%	28	0	28	100%	28	0	0	28
2:00	100%	28	0	28	100%	28	0	0	28
3:00	100%	28	0	28	100%	28	0	0	28
4:00	100%	28	0	28	100%	28	0	0	28
5:00	100%	28	0	28	100%	28	0	0	28
6:00	90%	25	0	25	90%	25	0	0	25
7:00	70%	20	0	20	70%	20	0	0	20
8:00	60%	17	0	17	60%	17	0	0	17
9:00	50%	14	3	17	50%	14	0	3	17
10:00	40%	11	10	21	40%	11	20	10	41
11:00	35%	10	10	20	35%	10	27	10	47
12:00	30%	8	10	18	30%	8	27	10	45
13:00	30%	8	10	18	30%	8	27	10	45
14:00	35%	10	10	20	35%	10	5	10	25
15:00	40%	11	10	21	40%	11	5	10	26
16:00	50%	14	10	24	50%	14	20	10	44
17:00	60%	17	10	27	60%	17	27	10	54
18:00	70%	20	0	20	70%	20	27	0	47
19:00	80%	22	0	22	80%	22	27	0	49
20:00	90%	25	0	25	90%	25	27	0	52
21:00	95%	27	0	27	95%	27	5	0	32
22:00	100%	28	0	28	100%	28	0	0	28
23:00	100%	28	0	28	100%	28	0	0	28
MAX PARKING DEMAND		28	10	28		28	27	10	54
PROP. PARKING SUPPLY		50	10	60		50	27	10	87
MAX. SURPLUS/(DEFICIT)				32					33

Note:
1. Hourly parking demand (Saturday) for hotel obtained from The Urban Institute Shared Parking.
2. Analysis assumes that the library will close by 6:00 PM.
3. The parking lot will be striped with 62 spaces with 2 spaces designated for a trash enclosure. Therefore, a total plarking supply of 60 spaces is assumed under normal operations and 87 spaces are assumed for special events.


ROBERTSON ST
SOQUEL WHARF RD
STATE HWY 1
WHARF RD
CLARES ST
GRACE ST
CAPITOLA RD
41ST AVE
46TH AVE
49TH AVE
1484
365
916
1011
890
1011
499
1666
1666
208
548
1693
985
101
623
289
246
555
1401
303
234
195
44
286
45
272
253
756
195
56
125
1394
81
280
51
32
23
234
76
40
318
23
382
14
2
5
317
27
3
4
601
207
98
76
6
247
13
29
671
220
352
21
6
39
15
PM PEAK HOUR
EXHIBIT 12A
GENERAL PLAN
PEAK HOUR
VOLUMES
HIGGINS ASSOCIATES
Drawing: C:\2002\Jobs\051-100\A02-053\Exhibits\02-053-12A.dwg
Layout: EX-12A
Sep 16, 2002, 4:47pm

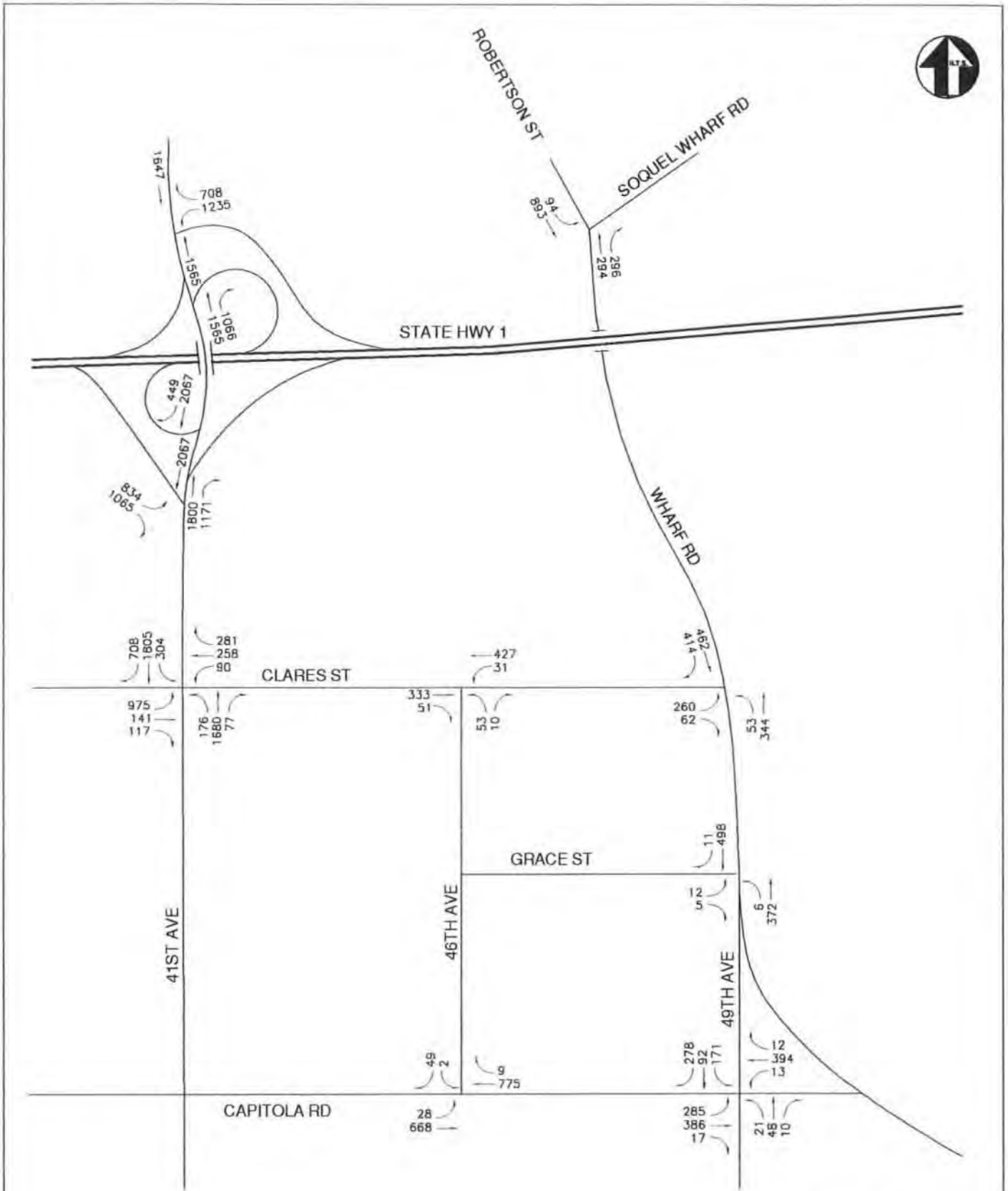


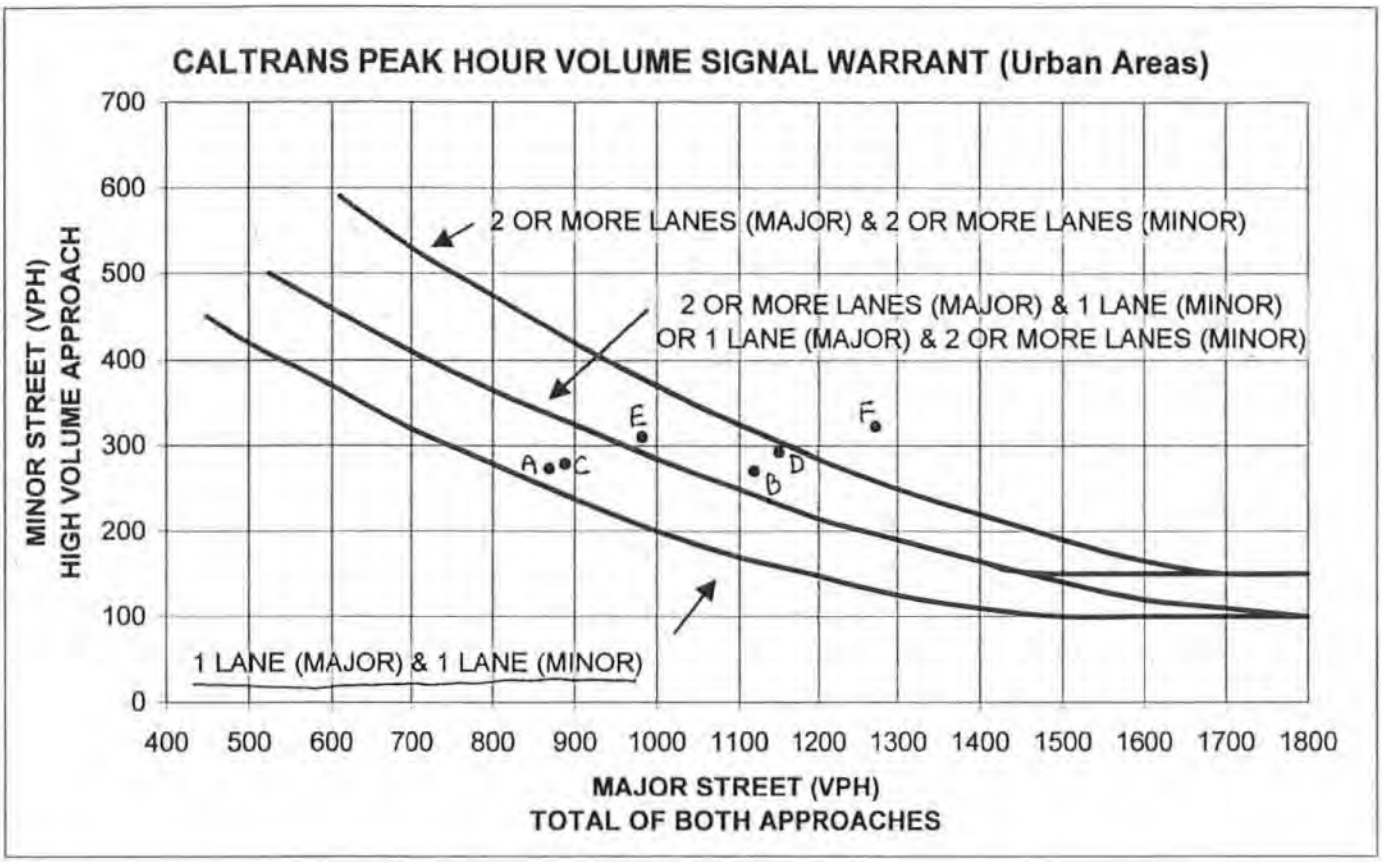
EXHIBIT 12B
GENERAL PLAN
PEAK HOUR
VOLUMES

SATURDAY MD PEAK HOUR

HIGGINS ASSOCIATES

Drawing: G:\2002\Jobs\051-100\A02-053\Exhibits\02-053-12B.dwg
Layout: EX-12B Sep 16, 2002, 4:56pm

Wharf Rd/Clares St



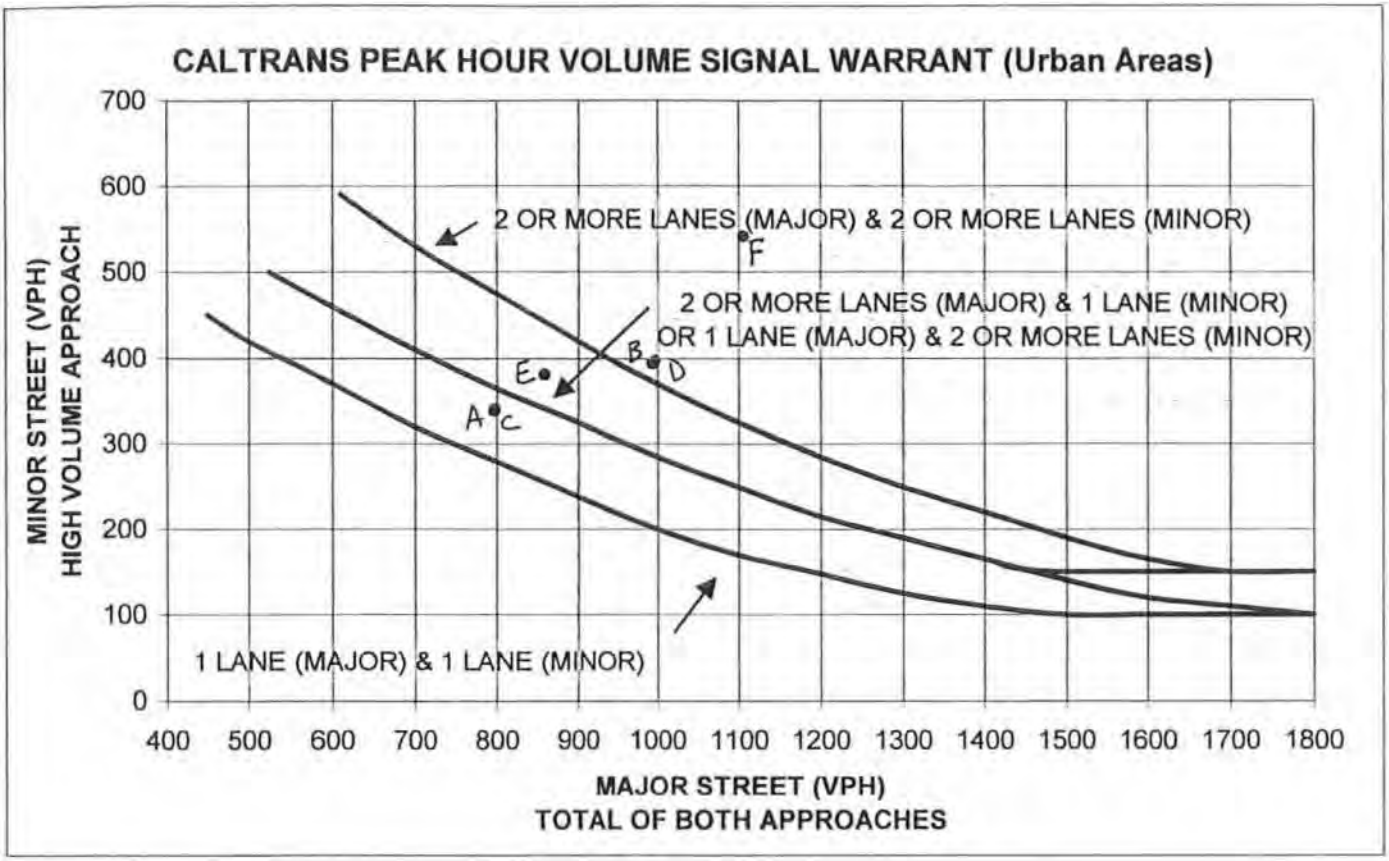
Scenario	Major Street	Minor Street	
	North/South	East/West	
A. Existing PM	870	274	Yes
B. Existing Sat MD	1119	271	Yes
C. Exi + Project PM	889	279	Yes
D. Ex + Project Sat MD	1150	293	Yes
E. Cumulative PM	983	310	Yes
F. Cumulative Sat MD	1273	322	Yes

Notes:

1. 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

2. Bold line applies to intersection geometry.

Capitola Rd/49th Ave



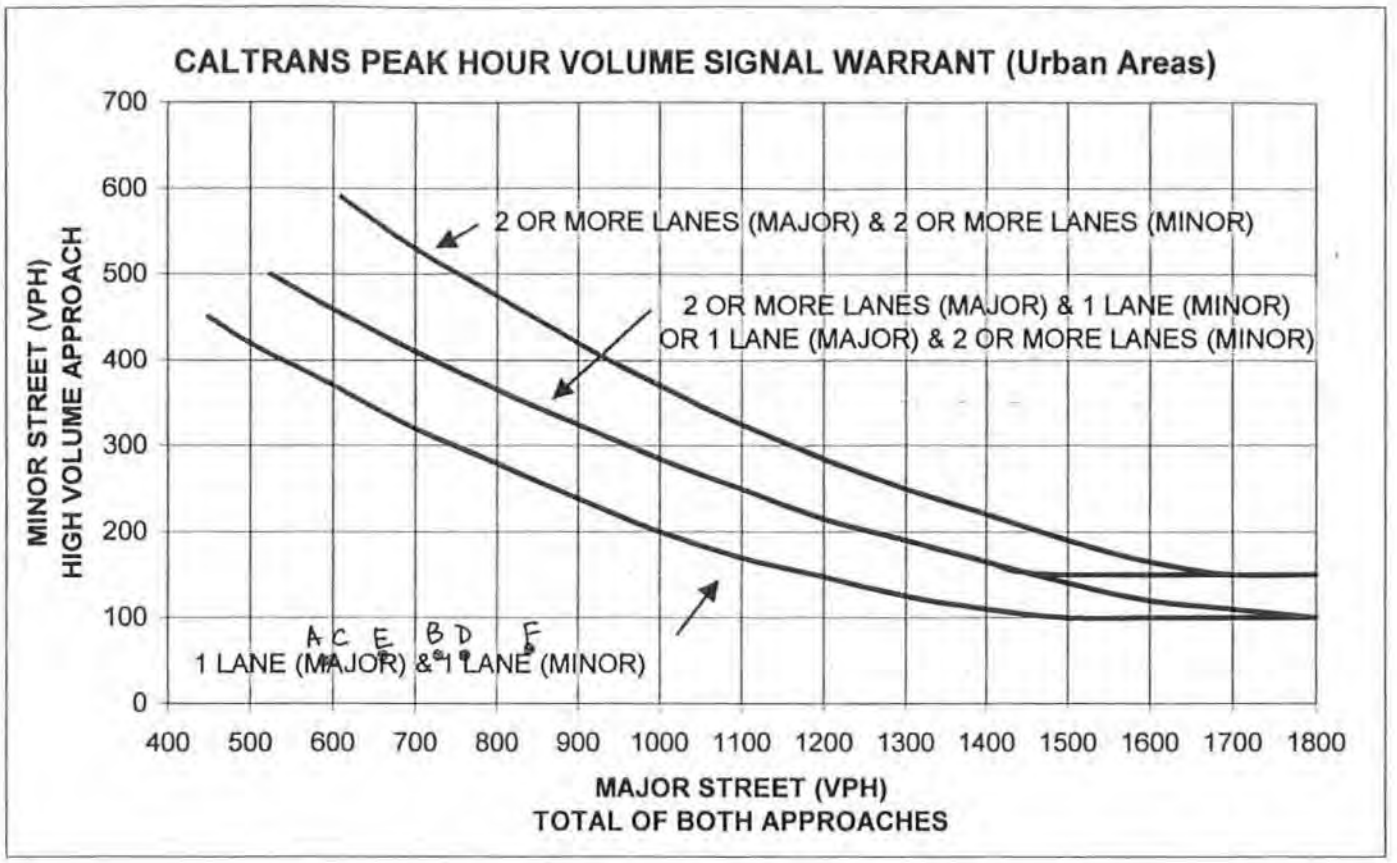
Scenario	Major Street	Minor Street
	East/West	North/South
A. Existing PM	798	339
B. Existing Sat MD	994	394
C. Exi + Project PM	799	340
D. Ex + Project Sat MD	997	397
E. Cumulative PM	859	381
F. Cumulative Sat MD	1107	541

Notes:

1. 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

2. Bold line applies to intersection geometry.

Clares St/46th Ave



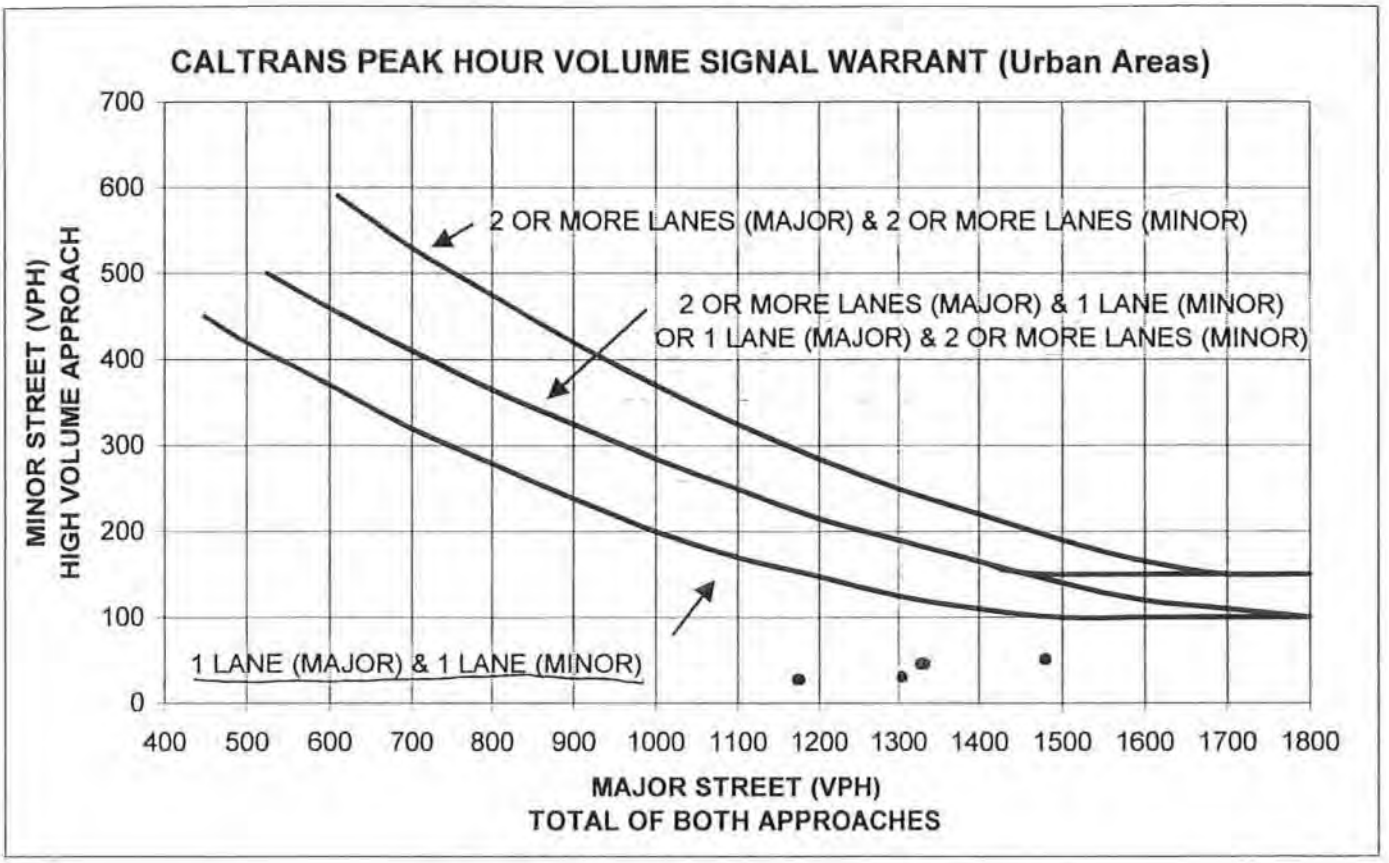
Scenario	Major Street East/West	Minor Street North/South	
A. Existing PM	589	49	No
B. Existing Sat MD	729	56	No
C. Exi + Project PM	599	49	No
D. Ex + Project Sat MD	762	56	No
E. Cumulative PM	662	55	No
F. Cumulative Sat MD	842	63	No

Notes:

1. 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

2. Bold line applies to intersection geometry.

Capitola Rd/46th Ave



Scenario	Major Street East/West	Minor Street North/South	
A. Existing PM	1174	27	No
B. Existing Sat MD	1328	46	No
C. Exi + Project PM	1176	27	No
D. Ex + Project Sat MD	1333	46	No
E. Cumulative PM	1305	30	No
F. Cumulative Sat MD	1480	51	No

Notes:

1. 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

2. Bold line applies to intersection geometry.

APPENDIX A

LEVEL OF SERVICE THRESHOLD VOLUMES FOR VARIOUS ROADWAY TYPES TOTAL PEAK HOUR VOLUME IN BOTH DIRECTIONS (PHV)

ROADWAY TYPE	CODE	LOS A	LOS B	LOS C	LOS D	LOS E
8-Lane Freeway	8F	5,100	7,900	11,200	13,600	14,600
6-Lane Freeway	6F	3,900	5,900	8,500	10,200	11,000
8-Lane Expressway	8E	3,500	5,400	7,500	9,000	9,800
6-Lane Expressway	6E	2,800	4,200	5,600	6,700	7,400
4-Lane Freeway	4F	2,600	4,000	5,700	6,900	7,400
8-Lane Divided Arterial (w/ left-turn lane)	9	4,000	4,700	5,400	6,100	6,800
6-Lane Divided Arterial (w/ left-turn lane)	7	3,200	3,800	4,300	4,900	5,400
4-Lane Expressway	4E	1,800	2,700	3,600	4,500	5,000
4-Lane Divided Arterial (w/ left-turn lane)	5	2,200	2,500	2,900	3,250	3,600
4-Lane Undivided Arterial (no left-turn lane)	4	1,600	1,900	2,200	2,400	2,700
2-Lane Rural Highway		400	800	1,200	1,700	2,500
2-Lane Arterial (w/left turn lane)	3	1,100	1,250	1,450	1,600	1,800
2-Lane Collector	2	600	750	900	1,050	1,200
2-Lane Local *	1	120	140	160	180	200
1-Lane Freeway Ramp**	1	500	750	1,050	1,300	1,500
2-Lane Freeway Ramp**		1,000	1,500	2,100	2,600	2,800

Note:
1. Non-directional peak hour volume (PHV) is normally about 10 percent of the daily volume. Directional split is assumed 60/40.
2. Based on *Highway Capacity Manual, Special Report 209*, Transportation Research Board, 1985.
3. * The capacity limitation is related to neighborhood quality-of-life rather than the physical carrying capacity of the road. This assumes a standard suburban neighborhood, 40 foot roadway width and 25 mile per hour speed limit with normal speed violation rates.
4. ** Capacities given for each service level assume the same level of service for the adjoining merging roadway as well as level of service being determined by volume-to-capacity and not attainable speed. Level of service will be controlled by freeway level of service if worse than ramp.
5. All volumes are approximate and assume ideal roadway characteristics.

APPENDIX B

LEVEL OF SERVICE (LOS) DESCRIPTION
SIGNALIZED INTERSECTIONS

The capacity of an urban street is related primarily to the signal timing and the geometric characteristics of the facility as well as to the composition of traffic on the facility. Geometrics are a fixed characteristic of a facility. Thus, while traffic composition may vary somewhat over time, the capacity of a facility is generally a stable value that can be significantly improved only by initiating geometric improvements. A traffic signal essentially allocates time among conflicting traffic movements that seek to use the same space. The way in which time is allocated significantly affects the operation and the capacity of the intersection and its approaches.

The methodology for signalized intersection is designed to consider individual intersection approaches and individual lane groups within approaches. A lane group consists of one or more lanes on an intersection approach. The outputs from application of the method described in the HCM 2000 are reported on the basis of each lane. For a given lane group at a signalized intersection, three indications are displayed: green, yellow and red. The red indication may include a short period during which all indications are red, referred to as an all-red interval and the yellow indication forms the change and clearance interval between two green phases.

The methodology for analyzing the capacity and level of service must consider a wide variety of prevailing conditions, including the amount and distribution of traffic movements, traffic composition, geometric characteristics, and details of intersection signalization. The methodology addresses the capacity, LOS, and other performance measures for lane groups and the intersection approaches and the LOS for the intersection as a whole.

Capacity is evaluated in terms of the ratio of demand flow rate to capacity (v/c ratio), whereas LOS is evaluated on the basis of control delay per vehicle (in seconds per vehicle). The methodology does not take into account the potential impact of downstream congestion on intersection operation, nor does the methodology detect and adjust for the impacts of turn-pocket overflows on through traffic and intersection operation.

LEVEL OF SERVICE (LOS) CRITERIA FOR SIGNALIZED INTERSECTIONS

(Reference Highway Capacity Manual 2000)

Level of Service	Control Delay (seconds / vehicle)
A	<10
B	>10 - 20
C	>20 - 35
D	>35 - 55
E	>55 - 80
F	>80

APPENDIX C

LEVEL OF SERVICE (LOS) DESCRIPTION
UNSIGNALIZED INTERSECTIONS WITH TWO-WAY STOP CONTROL (TWSC)

TWSC intersections are widely used and stop signs are used to control vehicle movements at such intersections. At TWSC intersections, the stop-controlled approaches are referred to as the minor street approaches; they can be either public streets or private driveways. The intersection approaches that are not controlled by stop signs are referred to as the major street approaches. A three-leg intersection is considered to be a standard type of TWSC intersection if the single minor street approach (i.e. the stem of the T configuration) is controlled by a stop sign. Three-leg intersections where two of the three approaches are controlled by stop signs are a special form of unsignalized intersection control.

At TWSC intersections, drivers on the controlled approaches are required to select gaps in the major street flow through which to execute crossing or turning maneuvers on the basis of judgement. In the presence of a queue, each driver on the controlled approach must use some time to move into the front-of-queue position and prepare to evaluate gaps in the major street flow. Capacity analysis at TWSC intersections depends on a clear description and understanding of the interaction of drivers on the minor or stop-controlled approach with drivers on the major street. Both gap acceptance and empirical models have been developed to describe this interaction.

Thus, the capacity of the controlled legs is based on three factors:

- the distribution of gaps in the major street traffic stream,;
- driver judgement in selecting gaps through which to execute the desired maneuvers; and
- the follow-up time required by each driver in a queue.

The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, in the absence of incident, control, traffic or geometric delay. Average control delay for any particular minor movement is a function of the capacity of the approach and the degree of saturation and referred to as level of service.

LEVEL OF SERVICE (LOS) CRITERIA FOR TWSC INTERSECTIONS

(Reference Highway Capacity Manual 2000)

Level of Service	Control Delay (seconds / vehicle)
A	**0 - 10**
B	**>10 - 15**
C	**>15 - 25**
D	**>25 - 35**
E	**>35 - 50**
F	**>50**

APPENDIX D

LEVEL OF SERVICE (LOS) DESCRIPTION
UNSIGNALIZED INTERSECTIONS WITH ALL-WAY STOP CONTROL (AWSC)

AWSC intersections require every vehicle to stop at the intersection before proceeding. Since each driver must stop, the judgement as to whether to proceed into the intersection is a function of traffic conditions on the other approaches. While giving priority to the driver on the right is a recognized rule in some areas, it is not a good descriptor of actual intersection operations. What happens is the development of a consensus of right-of-way that alternates between the drivers on the intersection approaches, a consensus that depends primarily on the intersection geometry and the arrival patterns at the stop line.

If no traffic is present on the other approaches, a driver can proceed immediately after the stop is made. If there is traffic on one or more of the other approaches, a driver proceeds only after determining that there are no vehicles currently in the intersection and that it is the driver's turn to proceed. Since no traffic signal controls the stream movement or allocates the right-of-way to each conflicting stream, the rate of departure is controlled by the interaction between the traffic streams themselves.

For AWSC intersections, the average control delay (in seconds per vehicle) is used as the primary measure of performance. Control delay is the increased time of travel for a vehicle approaching and passing through an AWSC intersection, compared with a free-flow vehicle if it were not required to slow down or stop at the intersection.

The criteria for AWSC intersections have different threshold values than do those for signalized intersections primarily because drivers expect different level of performance from different kinds of traffic control devices (i.e traffic signals, two way stop or all way stop etc.). The expectation is that a signalized intersection is designed to carry higher traffic volumes than an AWSC intersection and a higher level of control delay is acceptable at a signalized intersection for the same LOS.

For AWSC analysis using HCM 2000 method, the LOS shown reflects the worst movement of the intersection and not average delay.

LEVEL OF SERVICE (LOS) CRITERIA FOR AWSC INTERSECTIONS
(Reference Highway Capacity Manual 2000)

Level of Service	Control Delay (seconds / vehicle)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

APPENDIX E
LEVEL OF SERVICE CALCULATIONS

41ST AVENUE/HIGHWAY 1 NORTHBOUND OFF-RAMP

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 41st Ave/Hwy 1 NB Off-ramp

Cycle (sec):	90	Critical Vol./Cap. (X):	0.537	
Loss Time (sec):	6 (Y+R = 4 sec)	Average Delay (sec/veh):	15.8	
Optimal Cycle:	29	Level Of Service:	B	

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 0	0 0	2	0 0	0 0	0	0 0	2	0 0	0 1
Volume Module:												
Base Vol:	0	694	0	0	1008	0	0	0	0	690	0	240
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	694	0	0	1008	0	0	0	0	690	0	240
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	731	0	0	1061	0	0	0	0	726	0	253
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	731	0	0	1061	0	0	0	0	726	0	253
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	731	0	0	1061	0	0	0	0	726	0	253
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	3610	0	0	3610	0	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.20	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.21	0.00	0.16
Crit Moves:	****				****					****		
Green/Cycle:	0.00	0.55	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.39	0.00	0.39
Volume/Cap:	0.00	0.37	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.54	0.00	0.41
Uniform Del:	0.0	11.6	0.0	0.0	13.1	0.0	0.0	0.0	0.0	21.4	0.0	20.1
IncremntDel:	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.4	0.0	0.4
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	11.7	0.0	0.0	13.4	0.0	0.0	0.0	0.0	21.8	0.0	20.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	11.7	0.0	0.0	13.4	0.0	0.0	0.0	0.0	21.8	0.0	20.5
DesignQueue:	0	17	0	0	26	0	0	0	0	23	0	8

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 41st Ave/Hwy 1 NB Off-ramp

Cycle (sec):	90	Critical Vol./Cap. (X):	0.656
Loss Time (sec):	6 (Y+R = 4 sec)	Average Delay (sec/veh):	19.3
Optimal Cycle:	37	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 0	0 0	2	0 0	0 0	0	0 0	2	0 0	0 1
Volume Module:												
Base Vol:	0	1055	0	0	1050	0	0	0	0	925	0	469
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1055	0	0	1050	0	0	0	0	925	0	469
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1111	0	0	1105	0	0	0	0	974	0	494
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1111	0	0	1105	0	0	0	0	974	0	494
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1111	0	0	1105	0	0	0	0	974	0	494
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	3610	0	0	3610	0	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.31	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.28	0.00	0.31
Crit Moves:	****				****							****
Green/Cycle:	0.00	0.47	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.47	0.00	0.47
Volume/Cap:	0.00	0.66	0.00	0.00	0.66	0.00	0.00	0.00	0.00	0.60	0.00	0.66
Uniform Del:	0.0	18.5	0.0	0.0	18.4	0.0	0.0	0.0	0.0	17.8	0.0	18.5
IncremntDel:	0.0	1.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.6	0.0	2.1
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	19.4	0.0	0.0	19.4	0.0	0.0	0.0	0.0	18.4	0.0	20.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	19.4	0.0	0.0	19.4	0.0	0.0	0.0	0.0	18.4	0.0	20.6
DesignQueue:	0	32	0	0	32	0	0	0	0	28	0	14

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 41st Ave/Hwy 1 NB Off-ramp

Cycle (sec):	90	Critical Vol./Cap. (X):	0.538
Loss Time (sec):	6 (Y+R = 4 sec)	Average Delay (sec/veh):	15.8
Optimal Cycle:	29	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 0	0 0	2	0 0	0 0	0	0 0	2	0 0	0 1
Volume Module:												
Base Vol:	0	695	0	0	1009	0	0	0	0	692	0	240
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	695	0	0	1009	0	0	0	0	692	0	240
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	732	0	0	1062	0	0	0	0	728	0	253
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	732	0	0	1062	0	0	0	0	728	0	253
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	732	0	0	1062	0	0	0	0	728	0	253
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	3610	0	0	3610	0	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.20	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.21	0.00	0.16
Crit Moves:	****				****					****		
Green/Cycle:	0.00	0.55	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.39	0.00	0.39
Volume/Cap:	0.00	0.37	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.54	0.00	0.40
Uniform Del:	0.0	11.6	0.0	0.0	13.1	0.0	0.0	0.0	0.0	21.4	0.0	20.1
IncremntDel:	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.4	0.0	0.4
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	11.7	0.0	0.0	13.4	0.0	0.0	0.0	0.0	21.8	0.0	20.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	11.7	0.0	0.0	13.4	0.0	0.0	0.0	0.0	21.8	0.0	20.5
DesignQueue:	0	17	0	0	26	0	0	0	0	24	0	8

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 41st Ave/Hwy 1 NB Off-ramp

Cycle (sec):	90	Critical Vol./Cap. (X):	0.656	
Loss Time (sec):	6 (Y+R = 4 sec)	Average Delay (sec/veh):	19.3	
Optimal Cycle:	37	Level Of Service:	B	

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 0	0 0	2	0 0	0 0	0	0 0	2	0 0	0 1
Volume Module:												
Base Vol:	0	1056	0	0	1051	0	0	0	0	934	0	469
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1056	0	0	1051	0	0	0	0	934	0	469
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1112	0	0	1106	0	0	0	0	983	0	494
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1112	0	0	1106	0	0	0	0	983	0	494
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1112	0	0	1106	0	0	0	0	983	0	494
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	3610	0	0	3610	0	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.31	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.28	0.00	0.31
Crit Moves:	****				****							****
Green/Cycle:	0.00	0.47	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.47	0.00	0.47
Volume/Cap:	0.00	0.66	0.00	0.00	0.66	0.00	0.00	0.00	0.00	0.60	0.00	0.66
Uniform Del:	0.0	18.5	0.0	0.0	18.4	0.0	0.0	0.0	0.0	17.8	0.0	18.5
IncremntDel:	0.0	1.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.6	0.0	2.1
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	19.4	0.0	0.0	19.4	0.0	0.0	0.0	0.0	18.5	0.0	20.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	19.4	0.0	0.0	19.4	0.0	0.0	0.0	0.0	18.5	0.0	20.6
DesignQueue:	0	32	0	0	32	0	0	0	0	28	0	14

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 41st Ave/Hwy 1 NB Off-ramp

Cycle (sec):	90	Critical Vol./Cap. (X):	0.759
Loss Time (sec):	6 (Y+R = 4 sec)	Average Delay (sec/veh):	19.0
Optimal Cycle:	49	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 0	0 0	2	0 0	0 0	0	0 0	2	0	0 0 1
Volume Module:												
Base Vol:	0	1011	0	0	1484	0	0	0	0	916	0	365
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1011	0	0	1484	0	0	0	0	916	0	365
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1064	0	0	1562	0	0	0	0	964	0	384
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1064	0	0	1562	0	0	0	0	964	0	384
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1064	0	0	1562	0	0	0	0	964	0	384
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	3610	0	0	3610	0	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.29	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.28	0.00	0.24
Crit Moves:	****				****					****		
Green/Cycle:	0.00	0.57	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.36	0.00	0.36
Volume/Cap:	0.00	0.52	0.00	0.00	0.76	0.00	0.00	0.00	0.00	0.76	0.00	0.66
Uniform Del:	0.0	11.8	0.0	0.0	14.6	0.0	0.0	0.0	0.0	25.2	0.0	24.0
IncremntDel:	0.0	0.2	0.0	0.0	1.7	0.0	0.0	0.0	0.0	2.7	0.0	2.7
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	12.0	0.0	0.0	16.3	0.0	0.0	0.0	0.0	27.9	0.0	26.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	12.0	0.0	0.0	16.3	0.0	0.0	0.0	0.0	27.9	0.0	26.7
DesignQueue:	0	25	0	0	38	0	0	0	0	33	0	13

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 41st Ave/Hwy 1 NB Off-ramp

Cycle (sec):	90	Critical Vol./Cap. (X):	1.009
Loss Time (sec):	6 (Y+R = 4 sec)	Average Delay (sec/veh):	40.1
Optimal Cycle:	180	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 0	0 0	2	0 0	0 0	0	0 0	2	0 0	0 1
Volume Module:												
Base Vol:	0	1565	0	0	1647	0	0	0	0	1235	0	708
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1565	0	0	1647	0	0	0	0	1235	0	708
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1647	0	0	1734	0	0	0	0	1300	0	745
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1647	0	0	1734	0	0	0	0	1300	0	745
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1647	0	0	1734	0	0	0	0	1300	0	745
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	3610	0	0	3610	0	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.46	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.37	0.00	0.46
Crit Moves:	****				****							****
Green/Cycle:	0.00	0.48	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.46	0.00	0.46
Volume/Cap:	0.00	0.96	0.00	0.00	1.01	0.00	0.00	0.00	0.00	0.81	0.00	1.01
Uniform Del:	0.0	22.7	0.0	0.0	23.6	0.0	0.0	0.0	0.0	21.1	0.0	24.4
IncremntDel:	0.0	13.3	0.0	0.0	23.9	0.0	0.0	0.0	0.0	3.3	0.0	35.3
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	36.0	0.0	0.0	47.5	0.0	0.0	0.0	0.0	24.3	0.0	59.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	36.0	0.0	0.0	47.5	0.0	0.0	0.0	0.0	24.3	0.0	59.8
DesignQueue:	0	49	0	0	52	0	0	0	0	39	0	23

w/ mitigation add 3rd NB & 3rd SB lanes

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

****

Intersection #1 41st Ave/Hwy 1 NB Off-ramp

****

Cycle (sec): 90 Critical Vol./Cap. (X): 0.618
Loss Time (sec): 6 (Y+R = 4 sec) Average Delay (sec/veh): 17.5
Optimal Cycle: 34 Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	3	0 0	0 0	3	0 0	0 0	0	0 0	2	0 0	1
Volume Module:												
Base Vol:	0	1011	0	0	1484	0	0	0	0	916	0	365
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1011	0	0	1484	0	0	0	0	916	0	365
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1064	0	0	1562	0	0	0	0	964	0	384
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1064	0	0	1562	0	0	0	0	964	0	384
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1064	0	0	1562	0	0	0	0	964	0	384
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	0.00	3.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	5187	0	0	5187	0	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.21	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.28	0.00	0.24
Crit Moves:	****				****					****		
Green/Cycle:	0.00	0.49	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.45	0.00	0.45
Volume/Cap:	0.00	0.42	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.62	0.00	0.53
Uniform Del:	0.0	14.9	0.0	0.0	16.9	0.0	0.0	0.0	0.0	19.1	0.0	18.1
IncremntDel:	0.0	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.8	0.0	0.8
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	15.0	0.0	0.0	17.4	0.0	0.0	0.0	0.0	19.8	0.0	18.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	15.0	0.0	0.0	17.4	0.0	0.0	0.0	0.0	19.8	0.0	18.9
DesignQueue:	0	29	0	0	43	0	0	0	0	29	0	11

****

w/mitigation add 3rd NB & 3rd SB lanes

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 41st Ave/Hwy 1 NB Off-ramp

Cycle (sec):	90		Critical Vol./Cap. (X):		0.853
Loss Time (sec):	6 (Y+R = 4 sec)		Average Delay (sec/veh):		24.7
Optimal Cycle:	70		Level Of Service:		C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	3	0 0	0 0	3	0 0	0 0	0	0 0	2 0	0	0 1
Volume Module:												
Base Vol:	0	1565	0	0	1647	0	0	0	0	1235	0	708
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1565	0	0	1647	0	0	0	0	1235	0	708
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1647	0	0	1734	0	0	0	0	1300	0	745
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1647	0	0	1734	0	0	0	0	1300	0	745
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1647	0	0	1734	0	0	0	0	1300	0	745
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	0.00	3.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	5187	0	0	5187	0	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.32	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.37	0.00	0.46
Crit Moves:	****				****							****
Green/Cycle:	0.00	0.39	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.54	0.00	0.54
Volume/Cap:	0.00	0.81	0.00	0.00	0.85	0.00	0.00	0.00	0.00	0.69	0.00	0.85
Uniform Del:	0.0	24.4	0.0	0.0	25.0	0.0	0.0	0.0	0.0	15.1	0.0	17.6
IncremntDel:	0.0	2.6	0.0	0.0	3.7	0.0	0.0	0.0	0.0	1.1	0.0	8.1
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	26.9	0.0	0.0	28.7	0.0	0.0	0.0	0.0	16.1	0.0	25.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	26.9	0.0	0.0	28.7	0.0	0.0	0.0	0.0	16.1	0.0	25.7
DesignQueue:	0	54	0	0	57	0	0	0	0	33	0	19

APPENDIX F
LEVEL OF SERVICE CALCULATIONS

41ST AVENUE/HIGHWAY 1 SOUTHBOUND OFF-RAMP

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 41st Ave/Hwy 1 SB Off-ramp

Cycle (sec): 90 Critical Vol./Cap. (X): 0.687
Loss Time (sec): 6 (Y+R = 4 sec) Average Delay (sec/veh): 10.6
Optimal Cycle: 40 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 1	0 0	2	0 0	1 0	0	0 2	0 0	0	0 0
Volume Module:												
Base Vol:	0	1245	752	0	1220	0	121	0	409	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1245	752	0	1220	0	121	0	409	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1311	792	0	1284	0	127	0	431	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1311	792	0	1284	0	127	0	431	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1311	792	0	1284	0	127	0	431	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	1.00	0.95	1.00	0.95	1.00	0.75	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	0.00	2.00	0.00	1.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	0	3610	1615	0	3610	0	1805	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.36	0.49	0.00	0.36	0.00	0.07	0.00	0.15	0.00	0.00	0.00
Crit Moves:			****	****					****			
Green/Cycle:	0.00	0.71	0.71	0.00	0.71	0.00	0.22	0.00	0.22	0.00	0.00	0.00
Volume/Cap:	0.00	0.51	0.69	0.00	0.50	0.00	0.32	0.00	0.69	0.00	0.00	0.00
Uniform Del:	0.0	5.8	7.3	0.0	5.8	0.0	29.4	0.0	32.2	0.0	0.0	0.0
IncremntDel:	0.0	0.2	1.8	0.0	0.2	0.0	0.5	0.0	3.2	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	0.0	6.0	9.0	0.0	5.9	0.0	29.9	0.0	35.5	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	6.0	9.0	0.0	5.9	0.0	29.9	0.0	35.5	0.0	0.0	0.0
DesignQueue:	0	21	13	0	20	0	5	0	17	0	0	0

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 41st Ave/Hwy 1 SB Off-ramp

Cycle (sec): 90 Critical Vol./Cap. (X): 0.962
Loss Time (sec): 6 (Y+R = 4 sec) Average Delay (sec/veh): 26.3
Optimal Cycle: 141 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 1	0 0	2	0 0	1 0	0	0 2	0 0	0	0 0 0
Volume Module:												
Base Vol:	0	1304	882	0	1507	0	554	0	801	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1304	882	0	1507	0	554	0	801	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1373	928	0	1586	0	583	0	843	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1373	928	0	1586	0	583	0	843	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1373	928	0	1586	0	583	0	843	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	1.00	0.95	1.00	0.95	1.00	0.75	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	0.00	2.00	0.00	1.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	0	3610	1615	0	3610	0	1805	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.38	0.57	0.00	0.44	0.00	0.32	0.00	0.30	0.00	0.00	0.00
Crit Moves:			****	****			****					
Green/Cycle:	0.00	0.60	0.60	0.00	0.60	0.00	0.34	0.00	0.34	0.00	0.00	0.00
Volume/Cap:	0.00	0.64	0.96	0.00	0.74	0.00	0.96	0.00	0.88	0.00	0.00	0.00
Uniform Del:	0.0	11.8	17.1	0.0	13.0	0.0	29.3	0.0	28.2	0.0	0.0	0.0
IncremntDel:	0.0	0.6	20.3	0.0	1.4	0.0	27.3	0.0	9.8	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	0.0	12.4	37.4	0.0	14.4	0.0	56.6	0.0	38.0	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	12.4	37.4	0.0	14.4	0.0	56.6	0.0	38.0	0.0	0.0	0.0
DesignQueue:	0	31	21	0	36	0	21	0	30	0	0	0

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 41st Ave/Hwy 1 SB Off-ramp

Cycle (sec): 90 Critical Vol./Cap. (X): 0.690
Loss Time (sec): 6 (Y+R = 4 sec) Average Delay (sec/veh): 10.6
Optimal Cycle: 40 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2 0	1	0 0	2 0	0	1 0	0 0	2	0 0	0 0	0
Volume Module:												
Base Vol:	0	1248	754	0	1223	0	121	0	411	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1248	754	0	1223	0	121	0	411	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1314	794	0	1287	0	127	0	433	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1314	794	0	1287	0	127	0	433	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1314	794	0	1287	0	127	0	433	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	1.00	0.95	1.00	0.95	1.00	0.75	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	0.00	2.00	0.00	1.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	0	3610	1615	0	3610	0	1805	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.36	0.49	0.00	0.36	0.00	0.07	0.00	0.15	0.00	0.00	0.00
Crit Moves:			****	****					****			
Green/Cycle:	0.00	0.71	0.71	0.00	0.71	0.00	0.22	0.00	0.22	0.00	0.00	0.00
Volume/Cap:	0.00	0.51	0.69	0.00	0.50	0.00	0.32	0.00	0.69	0.00	0.00	0.00
Uniform Del:	0.0	5.8	7.3	0.0	5.8	0.0	29.4	0.0	32.2	0.0	0.0	0.0
IncremntDel:	0.0	0.2	1.8	0.0	0.2	0.0	0.5	0.0	3.3	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	0.0	6.0	9.1	0.0	5.9	0.0	29.9	0.0	35.5	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	6.0	9.1	0.0	5.9	0.0	29.9	0.0	35.5	0.0	0.0	0.0
DesignQueue:	0	21	13	0	20	0	5	0	17	0	0	0

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 41st Ave/Hwy 1 SB Off-ramp

Cycle (sec):	90	Critical Vol./Cap. (X):	0.965	
Loss Time (sec):	6 (Y+R = 4 sec)	Average Delay (sec/veh):	26.7	
Optimal Cycle:	145	Level Of Service:	C	

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 1	0 0	2	0 0	1 0	0	0 2	0 0	0	0 0
Volume Module:												
Base Vol:	0	1310	886	0	1517	0	554	0	811	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1310	886	0	1517	0	554	0	811	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1379	933	0	1597	0	583	0	854	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1379	933	0	1597	0	583	0	854	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1379	933	0	1597	0	583	0	854	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	1.00	0.95	1.00	0.95	1.00	0.75	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	0.00	2.00	0.00	1.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	0	3610	1615	0	3610	0	1805	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.38	0.58	0.00	0.44	0.00	0.32	0.00	0.30	0.00	0.00	0.00
Crit Moves:			****	****			****					
Green/Cycle:	0.00	0.60	0.60	0.00	0.60	0.00	0.33	0.00	0.33	0.00	0.00	0.00
Volume/Cap:	0.00	0.64	0.96	0.00	0.74	0.00	0.96	0.00	0.90	0.00	0.00	0.00
Uniform Del:	0.0	11.7	17.2	0.0	13.0	0.0	29.4	0.0	28.5	0.0	0.0	0.0
IncremntDel:	0.0	0.6	20.8	0.0	1.4	0.0	27.9	0.0	11.1	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	0.0	12.4	38.0	0.0	14.4	0.0	57.3	0.0	39.6	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	12.4	38.0	0.0	14.4	0.0	57.3	0.0	39.6	0.0	0.0	0.0
DesignQueue:	0	31	22	0	36	0	21	0	30	0	0	0

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 41st Ave/Hwy 1 SB Off-ramp

Cycle (sec):	90	Critical Vol./Cap. (X):	0.905
Loss Time (sec):	6 (Y+R = 4 sec)	Average Delay (sec/veh):	16.2
Optimal Cycle:	93	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 1	0 0	2	0 0	1 0	0	0 2	0 0	0	0 0
Volume Module:												
Base Vol:	0	1693	985	0	1666	0	208	0	548	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1693	985	0	1666	0	208	0	548	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1782	1037	0	1754	0	219	0	577	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1782	1037	0	1754	0	219	0	577	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1782	1037	0	1754	0	219	0	577	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	1.00	0.95	1.00	0.95	1.00	0.75	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	0.00	2.00	0.00	1.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	0	3610	1615	0	3610	0	1805	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.49	0.64	0.00	0.49	0.00	0.12	0.00	0.20	0.00	0.00	0.00
Crit Moves:			****	****					****			
Green/Cycle:	0.00	0.71	0.71	0.00	0.71	0.00	0.22	0.00	0.22	0.00	0.00	0.00
Volume/Cap:	0.00	0.70	0.91	0.00	0.69	0.00	0.54	0.00	0.91	0.00	0.00	0.00
Uniform Del:	0.0	7.5	10.6	0.0	7.4	0.0	30.8	0.0	34.0	0.0	0.0	0.0
IncremntDel:	0.0	0.9	10.3	0.0	0.8	0.0	1.5	0.0	16.5	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	0.0	8.4	20.9	0.0	8.2	0.0	32.3	0.0	50.5	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	8.4	20.9	0.0	8.2	0.0	32.3	0.0	50.5	0.0	0.0	0.0
DesignQueue:	0	30	18	0	29	0	9	0	23	0	0	0

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 41st Ave/Hwy 1 SB Off-ramp

Cycle (sec):	90	Critical Vol./Cap. (X):	1.339
Loss Time (sec):	6 (Y+R = 4 sec)	Average Delay (sec/veh):	89.2
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 1	0 0	2	0 0	1 0	0	0 2	0 0	0	0 0
Volume Module:												
Base Vol:	0	1800	1171	0	2067	0	834	0	1065	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1800	1171	0	2067	0	834	0	1065	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1895	1233	0	2176	0	878	0	1121	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1895	1233	0	2176	0	878	0	1121	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1895	1233	0	2176	0	878	0	1121	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	1.00	0.95	1.00	0.95	1.00	0.75	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	0.00	2.00	0.00	1.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	0	3610	1615	0	3610	0	1805	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.52	0.76	0.00	0.60	0.00	0.49	0.00	0.39	0.00	0.00	0.00
Crit Moves:			****	****			****					
Green/Cycle:	0.00	0.57	0.57	0.00	0.57	0.00	0.36	0.00	0.36	0.00	0.00	0.00
Volume/Cap:	0.00	0.92	1.34	0.00	1.06	0.00	1.34	0.00	1.09	0.00	0.00	0.00
Uniform Del:	0.0	17.5	19.3	0.0	19.3	0.0	28.7	0.0	28.7	0.0	0.0	0.0
IncremntDel:	0.0	7.4	159.9	0.0	37.0	0.0	162.7	0.0	54.3	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	0.0	24.9	179.2	0.0	56.4	0.0	191.3	0.0	82.9	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	24.9	179.2	0.0	56.4	0.0	191.3	0.0	82.9	0.0	0.0	0.0
DesignQueue:	0	47	32	0	55	0	32	0	39	0	0	0

w/ mitigations add 3rd SB & 3rd NB lanes, add 2nd NB RT to Fairf

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 41st Ave/Hwy 1 SB Off-ramp

Cycle (sec):	90	Critical Vol./Cap. (X):	0.608
Loss Time (sec):	6 (Y+R = 4 sec)	Average Delay (sec/veh):	13.4
Optimal Cycle:	33	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	3	0 2	0 0	3	0 0	1 0	0	0 2	0 0	0	0 0
Volume Module:												
Base Vol:	0	1693	985	0	1666	0	208	0	548	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1693	985	0	1666	0	208	0	548	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1782	1037	0	1754	0	219	0	577	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1782	1037	0	1754	0	219	0	577	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1782	1037	0	1754	0	219	0	577	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	0.75	1.00	0.91	1.00	0.95	1.00	0.75	1.00	1.00	1.00
Lanes:	0.00	3.00	2.00	0.00	3.00	0.00	1.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	0	5187	2842	0	5187	0	1805	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.34	0.36	0.00	0.34	0.00	0.12	0.00	0.20	0.00	0.00	0.00
Crit Moves:			****	****					****			
Green/Cycle:	0.00	0.60	0.60	0.00	0.60	0.00	0.33	0.00	0.33	0.00	0.00	0.00
Volume/Cap:	0.00	0.57	0.61	0.00	0.56	0.00	0.36	0.00	0.61	0.00	0.00	0.00
Uniform Del:	0.0	11.0	11.4	0.0	10.9	0.0	22.7	0.0	25.1	0.0	0.0	0.0
IncremntDel:	0.0	0.3	0.6	0.0	0.2	0.0	0.4	0.0	1.2	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	0.0	11.2	12.0	0.0	11.1	0.0	23.1	0.0	26.2	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	11.2	12.0	0.0	11.1	0.0	23.1	0.0	26.2	0.0	0.0	0.0
DesignQueue:	0	39	22	0	38	0	8	0	20	0	0	0

w/ mitigation add 3rd NB & 3rd SB lanes; add 2nd RT to Ramp

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

****

Intersection #2 41st Ave/Hwy 1 SB Off-ramp

****

Cycle (sec): 90 Critical Vol./Cap. (X): 0.986
Loss Time (sec): 6 (Y+R = 4 sec) Average Delay (sec/veh): 34.0
Optimal Cycle: 180 Level Of Service: C

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 3	0	2	0 0 3	0	0	1 0	0	0 2	0 0	0	0 0
Volume Module:												
Base Vol:	0	1800	1171	0	2067	0	834	0	1065	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1800	1171	0	2067	0	834	0	1065	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1895	1233	0	2176	0	878	0	1121	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1895	1233	0	2176	0	878	0	1121	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1895	1233	0	2176	0	878	0	1121	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	0.75	1.00	0.91	1.00	0.95	1.00	0.75	1.00	1.00	1.00
Lanes:	0.00	3.00	2.00	0.00	3.00	0.00	1.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	0	5187	2842	0	5187	0	1805	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.37	0.43	0.00	0.42	0.00	0.49	0.00	0.39	0.00	0.00	0.00
Crit Moves:			****	****			****					
Green/Cycle:	0.00	0.44	0.44	0.00	0.44	0.00	0.49	0.00	0.49	0.00	0.00	0.00
Volume/Cap:	0.00	0.83	0.99	0.00	0.95	0.00	0.99	0.00	0.80	0.00	0.00	0.00
Uniform Del:	0.0	22.2	24.9	0.0	24.3	0.0	22.5	0.0	19.1	0.0	0.0	0.0
IncremntDel:	0.0	2.7	22.0	0.0	10.1	0.0	26.6	0.0	3.3	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	0.0	25.0	46.9	0.0	34.4	0.0	49.0	0.0	22.4	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	25.0	46.9	0.0	34.4	0.0	49.0	0.0	22.4	0.0	0.0	0.0
DesignQueue:	0	58	38	0	68	0	25	0	31	0	0	0

****

APPENDIX G
LEVEL OF SERVICE CALCULATIONS

46TH AVENUE/CAPITOLA ROAD

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Capitola Rd/46th Ave

Average Delay (sec/veh): 13.8 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	3	0	24	26	604	0	0	540	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	3	0	24	26	604	0	0	540	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	3	0	25	27	636	0	0	568	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	3	0	25	27	636	0	0	568	4
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1261	xxxx	571	573	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	190	xxxx	524	1010	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	186	xxxx	524	1010	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	436	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	13.8	xxxxx	8.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			13.8			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Capitola Rd/46th Ave

Average Delay (sec/veh): 15.5 Worst Case Level Of Service: C

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	0	0	0		0	0	1!	0	0		0	1	0	0	0		0	0	0	1	0	
Volume Module:																								
Base Vol:	0		0		0		2		0		44		25		599		0		0		696		8	
Growth Adj:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	0		0		0		2		0		44		25		599		0		0		696		8	
User Adj:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95	
PHF Volume:	0		0		0		2		0		46		26		631		0		0		733		8	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
Final Vol.:	0		0		0		2		0		46		26		631		0		0		733		8	
Critical Gap Module:																								
Critical Gp:	xxxxx	xxxx	xxxxx				6.4	xxxx		6.2			4.1	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
FollowUpTim:	xxxxx	xxxx	xxxxx				3.5	xxxx		3.3			2.2	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
Capacity Module:																								
Cnflict Vol:	xxxx	xxxx	xxxxx				1420	xxxx		737			741	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Potent Cap.:	xxxx	xxxx	xxxxx				152	xxxx		422			875	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Move Cap.:	xxxx	xxxx	xxxxx				148	xxxx		422			875	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Level Of Service Module:																								
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx							9.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
LOS by Move:	*	*	*	*	*	*							A	*	*	*	*	*						
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	391	xxxxx							xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	15.5	xxxxx							9.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
Shared LOS:	*	*	*	*	C	*							A	*	*	*	*	*						
ApproachDel:	xxxxxx			15.5									xxxxxx			xxxxxx								
ApproachLOS:	*			C									*			*								

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Capitola Rd/46th Ave

Average Delay (sec/veh): 13.8 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0	0	0 0 1!	0 0		0 1	0 0 0		0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	3	0	24	26	605	0	0	541	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	3	0	24	26	605	0	0	541	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	3	0	25	27	637	0	0	569	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	3	0	25	27	637	0	0	569	4
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1263	xxxx	572	574	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	189	xxxx	524	1009	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	185	xxxx	524	1009	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	435	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	13.8	xxxxx	8.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			13.8			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Capitola Rd/46th Ave

Average Delay (sec/veh): 15.6 Worst Case Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	2	0	44	25	602	0	0	698	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	2	0	44	25	602	0	0	698	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	2	0	46	26	634	0	0	735	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	2	0	46	26	634	0	0	735	8
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1425	xxxx	739	743	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	151	xxxx	421	873	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	147	xxxx	421	873	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	389	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	15.6	xxxxx	9.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	C	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			15.6			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Capitola Rd/46th Ave

Average Delay (sec/veh): 14.9 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 0 1!	0 0		0 1	0 0 0		0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	3	0	27	29	671	0	0	601	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	3	0	27	29	671	0	0	601	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	3	0	28	31	706	0	0	633	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	3	0	28	31	706	0	0	633	4
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1402	xxxx	635	637	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	156	xxxx	482	956	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	152	xxxx	482	956	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	396	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	14.9	xxxxx	8.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			14.9			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

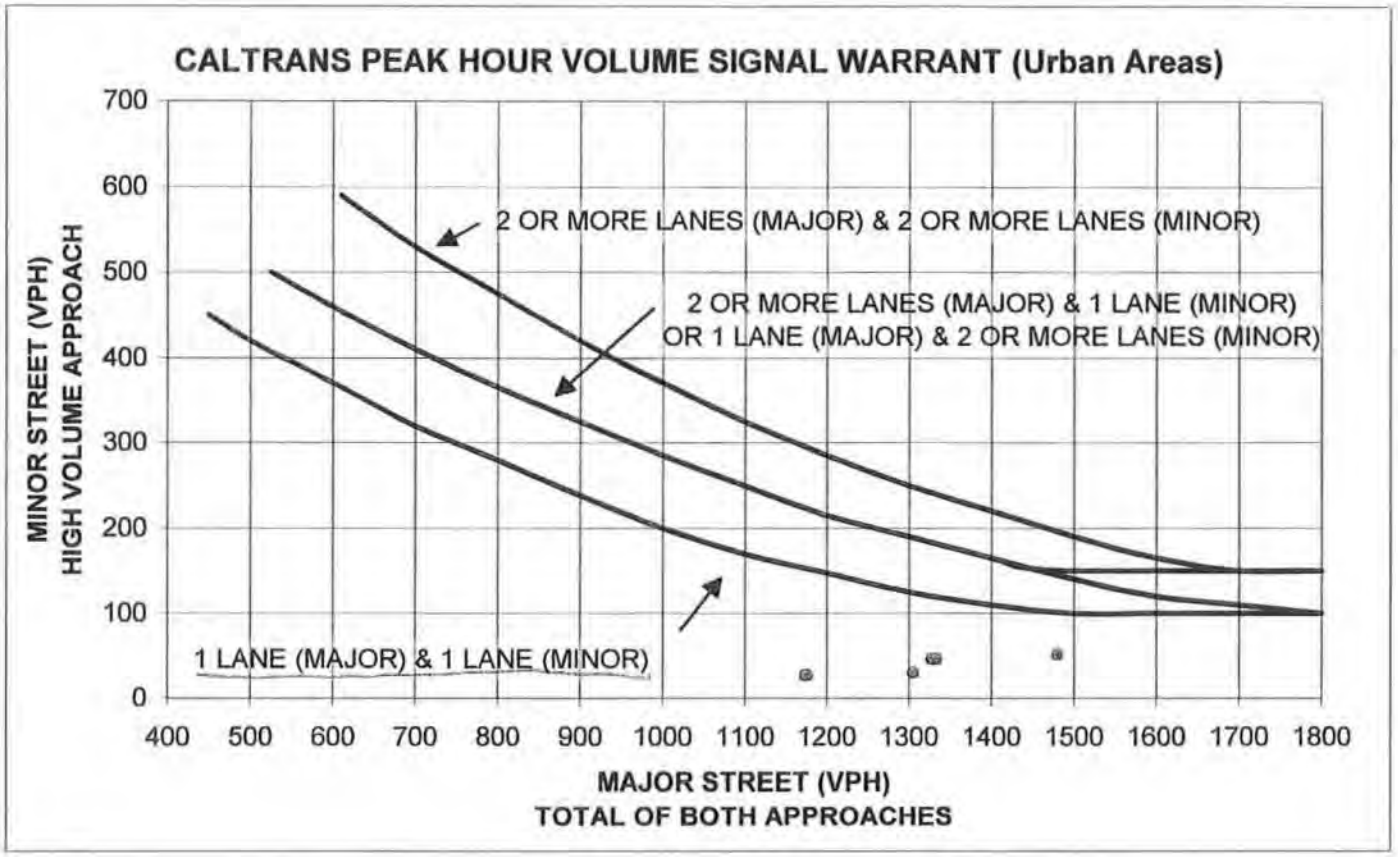
Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Capitola Rd/46th Ave

Average Delay (sec/veh): 17.2 Worst Case Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0	0	0 0 1!	0 0	0	0 1 0	0 0	0	0 0 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	2	0	49	28	668	0	0	775	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	2	0	49	28	668	0	0	775	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	2	0	52	29	703	0	0	816	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	2	0	52	29	703	0	0	816	9
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1583	xxxx	821	825	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	121	xxxx	378	814	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	117	xxxx	378	814	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	348	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	17.2	xxxxx	9.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	C	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			17.2			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Capitola Rd/46th Ave



Scenario	Major Street East/West	Minor Street North/South	
A. Existing PM	1174	27	No
B. Existing Sat MD	1328	46	No
C. Exi + Project PM	1176	27	No
D. Ex + Project Sat MD	1333	46	No
E. Cumulative PM	1305	30	No
F. Cumulative Sat MD	1480	51	No

Notes:

1. 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

2. Bold line applies to intersection geometry.

APPENDIX H
LEVEL OF SERVICE CALCULATIONS

49TH AVENUE/CAPITOLA ROAD

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #8 Capitola Rd/49th Ave

Cycle (sec):	100	Critical Vol./Cap. (X):		0.613
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):		14.5
Optimal Cycle:	0	Level Of Service:		B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 1	0 0	1	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	6	35	14	68	85	186	197	318	18	12	247	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	35	14	68	85	186	197	318	18	12	247	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	6	37	15	72	89	196	207	335	19	13	260	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	37	15	72	89	196	207	335	19	13	260	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	6	37	15	72	89	196	207	335	19	13	260	6
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.11	0.64	0.25	0.44	0.56	1.00	1.00	0.95	0.05	1.00	0.98	0.02
Final Sat.:	50	290	116	219	273	564	529	546	31	491	523	13
Capacity Analysis Module:												
Vol/Sat:	0.13	0.13	0.13	0.33	0.33	0.35	0.39	0.61	0.61	0.03	0.50	0.50
Crit Moves:		****				****		****				****
Delay/Veh:	11.2	11.2	11.2	12.9	12.9	11.8	13.5	17.6	17.6	9.9	15.1	15.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.2	11.2	11.2	12.9	12.9	11.8	13.5	17.6	17.6	9.9	15.1	15.1
LOS by Move:	B	B	B	B	B	B	B	C	C	A	C	C
ApproachDel:		11.2			12.3			16.1			14.9	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		11.2			12.3			16.1			14.9	
LOS by Appr:		B			B			C			B	

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #8 Capitola Rd/49th Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.767
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 21.1
Optimal Cycle: 0 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 1	0 0	1	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	19	43	9	63	83	248	254	347	15	12	355	11
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	19	43	9	63	83	248	254	347	15	12	355	11
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	20	45	9	66	87	261	267	365	16	13	374	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	45	9	66	87	261	267	365	16	13	374	12
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	20	45	9	66	87	261	267	365	16	13	374	12
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.27	0.60	0.13	0.43	0.57	1.00	1.00	0.96	0.04	1.00	0.97	0.03
Final Sat.:	107	241	51	197	260	518	489	506	22	459	487	15
Capacity Analysis Module:												
Vol/Sat:	0.19	0.19	0.19	0.34	0.34	0.50	0.55	0.72	0.72	0.03	0.77	0.77
Crit Moves:	****					****			****		****	
Delay/Veh:	12.9	12.9	12.9	13.9	13.9	15.5	18.1	24.4	24.4	10.5	28.4	28.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.9	12.9	12.9	13.9	13.9	15.5	18.1	24.4	24.4	10.5	28.4	28.4
LOS by Move:	B	B	B	B	B	C	C	C	C	B	D	D
ApproachDel:		12.9			14.9			21.8			27.8	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		12.9			14.9			21.8			27.8	
LOS by Appr:		B			B			C			D	

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #8 Capitola Rd/49th Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.614
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 14.5
Optimal Cycle: 0 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 1	0 0	1	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	6	35	14	68	85	187	198	318	18	12	247	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	35	14	68	85	187	198	318	18	12	247	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	6	37	15	72	89	197	208	335	19	13	260	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	37	15	72	89	197	208	335	19	13	260	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	6	37	15	72	89	197	208	335	19	13	260	6
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.11	0.64	0.25	0.44	0.56	1.00	1.00	0.95	0.05	1.00	0.98	0.02
Final Sat.:	50	290	116	219	273	564	528	546	31	491	523	13
Capacity Analysis Module:												
Vol/Sat:	0.13	0.13	0.13	0.33	0.33	0.35	0.39	0.61	0.61	0.03	0.50	0.50
Crit Moves:		****				****		****			****	
Delay/Veh:	11.2	11.2	11.2	12.9	12.9	11.8	13.5	17.7	17.7	9.9	15.1	15.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.2	11.2	11.2	12.9	12.9	11.8	13.5	17.7	17.7	9.9	15.1	15.1
LOS by Move:	B	B	B	B	B	B	B	C	C	A	C	C
ApproachDel:		11.2			12.3			16.1			14.9	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		11.2			12.3			16.1			14.9	
LOS by Appr:		B			B			C			B	

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #8 Capitola Rd/49th Ave

Cycle (sec):	100	Critical Vol./Cap. (X):	0.768	
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	21.2	
Optimal Cycle:	0	Level Of Service:	C	

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 1	0 0	1	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	19	43	9	64	83	250	257	347	15	12	355	11
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	19	43	9	64	83	250	257	347	15	12	355	11
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	20	45	9	67	87	263	271	365	16	13	374	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	45	9	67	87	263	271	365	16	13	374	12
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	20	45	9	67	87	263	271	365	16	13	374	12
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.27	0.60	0.13	0.44	0.56	1.00	1.00	0.96	0.04	1.00	0.97	0.03
Final Sat.:	107	241	51	199	258	518	488	506	22	458	486	15
Capacity Analysis Module:												
Vol/Sat:	0.19	0.19	0.19	0.34	0.34	0.51	0.55	0.72	0.72	0.03	0.77	0.77
Crit Moves:	****					****		****			****	
Delay/Veh:	12.9	12.9	12.9	14.0	14.0	15.7	18.4	24.5	24.5	10.5	28.5	28.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.9	12.9	12.9	14.0	14.0	15.7	18.4	24.5	24.5	10.5	28.5	28.5
LOS by Move:	B	B	B	B	B	C	C	C	C	B	D	D
ApproachDel:		12.9			15.0			22.0			28.0	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		12.9			15.0			22.0			28.0	
LOS by Appr:		B			C			C			D	

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #8 Capitola Rd/49th Ave

Cycle (sec):	100	Critical Vol./Cap. (X):	0.707
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	17.1
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 1	0 0	1	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	6	39	15	76	98	207	220	352	21	13	274	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	39	15	76	98	207	220	352	21	13	274	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	6	41	16	80	103	218	232	371	22	14	288	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	41	16	80	103	218	232	371	22	14	288	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	6	41	16	80	103	218	232	371	22	14	288	6
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.10	0.65	0.25	0.44	0.56	1.00	1.00	0.94	0.06	1.00	0.98	0.02
Final Sat.:	43	281	108	208	269	544	511	524	31	471	502	11
Capacity Analysis Module:												
Vol/Sat:	0.15	0.15	0.15	0.38	0.38	0.40	0.45	0.71	0.71	0.03	0.57	0.57
Crit Moves:		****				****			****		****	
Delay/Veh:	11.8	11.8	11.8	14.2	14.2	13.0	15.1	22.4	22.4	10.3	17.8	17.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.8	11.8	11.8	14.2	14.2	13.0	15.1	22.4	22.4	10.3	17.8	17.8
LOS by Move:	B	B	B	B	B	B	C	C	C	B	C	C
ApproachDel:		11.8			13.5			19.7			17.5	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		11.8			13.5			19.7			17.5	
LOS by Appr:		B			B			C			C	

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #8 Capitola Rd/49th Ave

Cycle (sec):	100	Critical Vol./Cap. (X):	0.891
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	29.6
Optimal Cycle:	0	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 1	0 0	1	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	21	48	10	71	92	278	285	386	17	13	394	12
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	21	48	10	71	92	278	285	386	17	13	394	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	22	51	11	75	97	293	300	406	18	14	415	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	22	51	11	75	97	293	300	406	18	14	415	13
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	22	51	11	75	97	293	300	406	18	14	415	13
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.26	0.61	0.13	0.44	0.56	1.00	1.00	0.96	0.04	1.00	0.97	0.03
Final Sat.:	103	235	49	192	249	499	467	482	21	438	466	14
Capacity Analysis Module:												
Vol/Sat:	0.22	0.22	0.22	0.39	0.39	0.59	0.64	0.84	0.84	0.03	0.89	0.89
Crit Moves:		****				****			****		****	
Delay/Veh:	14.0	14.0	14.0	15.4	15.4	18.6	22.7	36.5	36.5	10.9	44.5	44.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.0	14.0	14.0	15.4	15.4	18.6	22.7	36.5	36.5	10.9	44.5	44.5
LOS by Move:	B	B	B	C	C	C	C	E	E	B	E	E
ApproachDel:		14.0			17.4			30.8			43.5	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		14.0			17.4			30.8			43.5	
LOS by Appr:		B			C			D			E	

w/ mitigation - Signalize

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #8 Capitola Rd/49th Ave

Cycle (sec):	100	Critical Vol./Cap. (X):	0.419
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	21.1
Optimal Cycle:	32	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 1	0 0	1	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	6	39	15	76	98	207	220	352	21	13	274	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	39	15	76	98	207	220	352	21	13	274	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	6	41	16	80	103	218	232	371	22	14	288	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	41	16	80	103	218	232	371	22	14	288	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	6	41	16	80	103	218	232	371	22	14	288	6
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.94	0.94	0.94	0.85	0.85	0.85	0.95	0.99	0.99	0.95	1.00	1.00
Lanes:	0.10	0.65	0.25	0.44	0.56	1.00	1.00	0.94	0.06	1.00	0.98	0.02
Final Sat.:	180	1167	449	709	914	1615	1805	1779	106	1805	1854	41
Capacity Analysis Module:												
Vol/Sat:	0.04	0.04	0.04	0.11	0.11	0.13	0.13	0.21	0.21	0.01	0.16	0.16
Crit Moves:						****	****				****	
Green/Cycle:	0.32	0.32	0.32	0.32	0.32	0.32	0.31	0.65	0.65	0.02	0.37	0.37
Volume/Cap:	0.11	0.11	0.11	0.35	0.35	0.42	0.42	0.32	0.32	0.32	0.42	0.42
Uniform Del:	23.8	23.8	23.8	25.9	25.9	26.6	27.6	7.6	7.6	48.0	23.4	23.4
IncremntDel:	0.1	0.1	0.1	0.4	0.4	0.5	0.5	0.2	0.2	4.2	0.4	0.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	23.9	23.9	23.9	26.3	26.3	27.1	28.1	7.7	7.7	52.3	23.8	23.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.9	23.9	23.9	26.3	26.3	27.1	28.1	7.7	7.7	52.3	23.8	23.8
DesignQueue:	0	2	1	3	4	8	9	8	0	1	10	0

w/ mitigation - Signalize

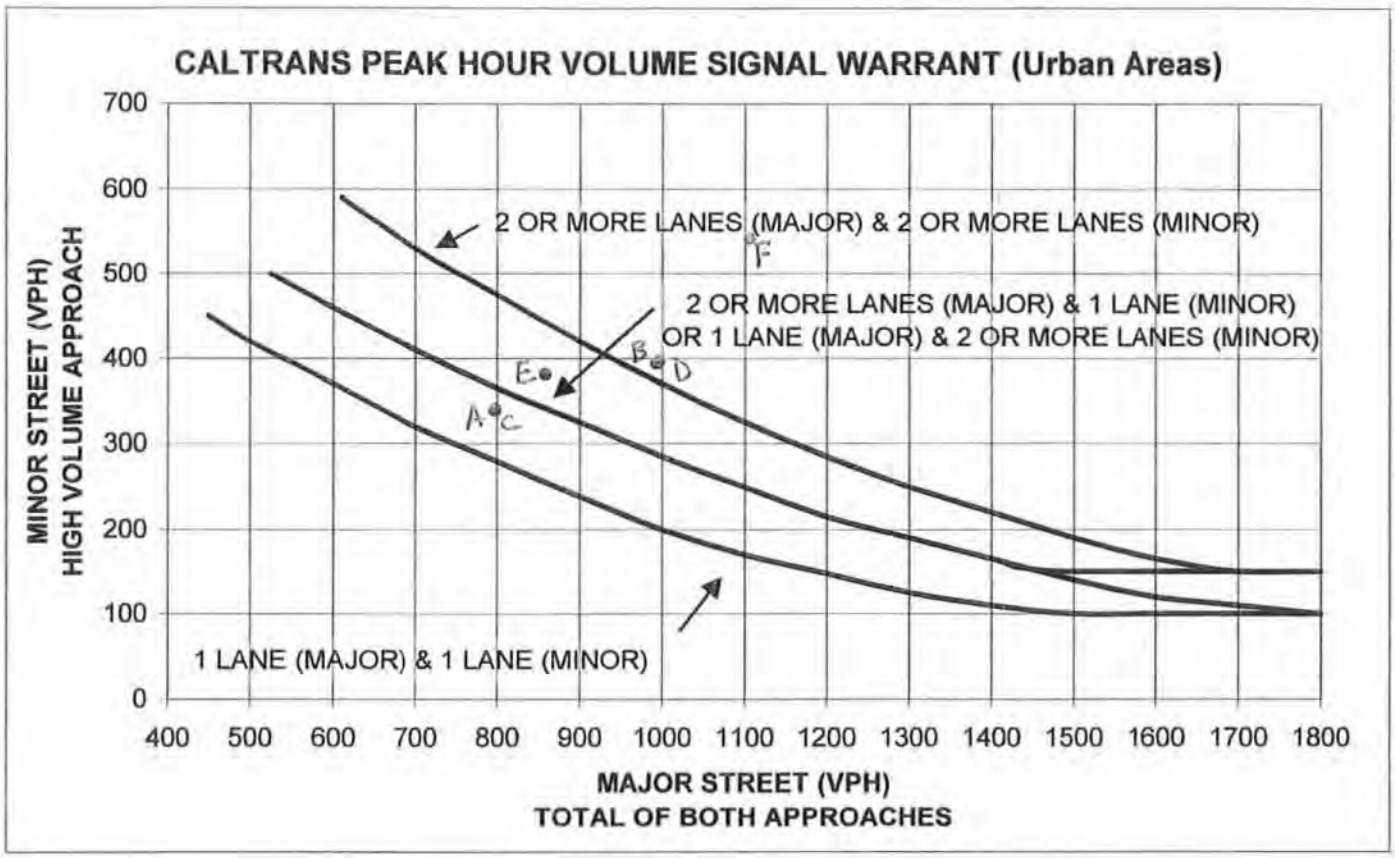
Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #8 Capitola Rd/49th Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.573
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 23.1
Optimal Cycle: 44 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 1	0 0	1	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	21	48	10	71	92	278	285	386	17	13	394	12
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	21	48	10	71	92	278	285	386	17	13	394	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	22	51	11	75	97	293	300	406	18	14	415	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	22	51	11	75	97	293	300	406	18	14	415	13
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	22	51	11	75	97	293	300	406	18	14	415	13
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.90	0.90	0.85	0.85	0.85	0.95	0.99	0.99	0.95	1.00	1.00
Lanes:	0.26	0.61	0.13	0.44	0.56	1.00	1.00	0.96	0.04	1.00	0.97	0.03
Final Sat.:	456	1043	217	703	912	1615	1805	1809	80	1805	1836	56
Capacity Analysis Module:												
Vol/Sat:	0.05	0.05	0.05	0.11	0.11	0.18	0.17	0.22	0.22	0.01	0.23	0.23
Crit Moves:						****	****				****	
Green/Cycle:	0.32	0.32	0.32	0.32	0.32	0.32	0.29	0.66	0.66	0.02	0.39	0.39
Volume/Cap:	0.15	0.15	0.15	0.34	0.34	0.57	0.57	0.34	0.34	0.34	0.57	0.57
Uniform Del:	24.6	24.6	24.6	26.2	26.2	28.6	30.2	7.4	7.4	48.2	23.7	23.7
IncremntDel:	0.1	0.1	0.1	0.4	0.4	1.6	1.5	0.2	0.2	5.0	1.1	1.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	24.7	24.7	24.7	26.6	26.6	30.1	31.8	7.5	7.5	53.1	24.8	24.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	24.7	24.7	24.7	26.6	26.6	30.1	31.8	7.5	7.5	53.1	24.8	24.8
DesignQueue:	1	2	0	3	4	12	12	8	0	1	15	0

Capitola Rd/49th Ave



Scenario	Major Street East/West	Minor Street North/South
A. Existing PM	798	339
B. Existing Sat MD	994	394
C. Exi + Project PM	799	340
D. Ex + Project Sat MD	997	397
E. Cumulative PM	859	381
F. Cumulative Sat MD	1107	541

Notes:

1. 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

2. Bold line applies to intersection geometry.

APPENDIX I
LEVEL OF SERVICE CALCULATIONS

WHARF ROAD/GRACE STREET

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 Wharf Rd/Grace St

Average Delay (sec/veh): 13.5 Worst Case Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	1 0	0	0	0	0	0	1 0	0	0	1! 0	0	0	0	0	0
Volume Module:																
Base Vol:	5	285	0		0	343	20		13	0	2		0	0	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	5	285	0		0	343	20		13	0	2		0	0	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95	
PHF Volume:	5	300	0		0	361	21		14	0	2		0	0	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Final Vol.:	5	300	0		0	361	21		14	0	2		0	0	0	
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		6.4	xxxx	6.2		xxxxx	xxxx	xxxxx	
FollowUpTim:	2.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx		3.5	xxxx	3.3		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	382	xxxx	xxxxx		xxxx	xxxx	xxxxx		682	xxxx	372		xxxx	xxxx	xxxxx	
Potent Cap.:	1187	xxxx	xxxxx		xxxx	xxxx	xxxxx		418	xxxx	679		xxxx	xxxx	xxxxx	
Move Cap.:	1187	xxxx	xxxxx		xxxx	xxxx	xxxxx		417	xxxx	679		xxxx	xxxx	xxxxx	
Level Of Service Module:																
Stopped Del:	8.0	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	A	*	*		*	*	*		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	440	xxxxx		xxxx	xxxx	xxxxx	
Shrd StpDel:	8.0	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	13.5	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	A	*	*		*	*	*		*	B	*		*	*	*	
ApproachDel:		xxxxxx				xxxxxx				13.5				xxxxxx		
ApproachLOS:		*				*				B				*		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 Wharf Rd/Grace St

Average Delay (sec/veh): 14.8 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	0	0	0 0 0	1	0	0 0 1!	0	0	0 0 0	0	0
Volume Module:												
Base Vol:	6 330	0		0 446	10		11	0	4	0	0	0
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6 330	0		0 446	10		11	0	4	0	0	0
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95 0.95	0.95		0.95 0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	6 347	0		0 469	11		12	0	4	0	0	0
Reduct Vol:	0 0	0		0 0	0		0	0	0	0	0	0
Final Vol.:	6 347	0		0 469	11		12	0	4	0	0	0
Critical Gap Module:												
Critical Gp:	4.1 xxxx	xxxxx		xxxxx xxxx	xxxxx		6.4 xxxx		6.2	xxxxx xxxx	xxxxx	
FollowUpTim:	2.2 xxxx	xxxxx		xxxxx xxxx	xxxxx		3.5 xxxx		3.3	xxxxx xxxx	xxxxx	
Capacity Module:												
Cnflict Vol:	480 xxxx	xxxxx		xxxx xxxx	xxxxx		835 xxxx		475	xxxx xxxx	xxxxx	
Potent Cap.:	1093 xxxx	xxxxx		xxxx xxxx	xxxxx		341 xxxx		594	xxxx xxxx	xxxxx	
Move Cap.:	1093 xxxx	xxxxx		xxxx xxxx	xxxxx		339 xxxx		594	xxxx xxxx	xxxxx	
Level Of Service Module:												
Stopped Del:	8.3 xxxx	xxxxx		xxxxx xxxx	xxxxx		xxxxx xxxx		xxxxx	xxxxx xxxx	xxxxx	
LOS by Move:	A	*		* *	*		*	*	*	*	*	*
Movement:	LT - LTR	- RT		LT - LTR	- RT		LT - LTR		- RT	LT - LTR		- RT
Shared Cap.:	xxxx xxxx	xxxxx		xxxx xxxx	xxxxx		xxxx	383	xxxxx	xxxx xxxx	xxxxx	
Shrd StpDel:	8.3 xxxx	xxxxx		xxxxx xxxx	xxxxx		xxxxx	14.8	xxxxx	xxxxx xxxx	xxxxx	
Shared LOS:	A	*		* *	*		*	B	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			14.8			xxxxxx		
ApproachLOS:	*			*			B			*		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 Wharf Rd/Grace St

Average Delay (sec/veh): 12.8 Worst Case Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	1	0	0 0	0	0	0	1 0	0	0	1!	0 0	0	0	0	0 0
Volume Module:																
Base Vol:	5	286	0		0	344	20		13	0	2		0	0	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	5	286	0		0	344	20		13	0	2		0	0	0	
User Adj:	0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	5	272	0		0	327	19		12	0	2		0	0	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Final Vol.:	5	272	0		0	327	19		12	0	2		0	0	0	
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx			6.4	xxxx		6.2	xxxxx	xxxx	xxxxx	
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx			3.5	xxxx		3.3	xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	346	xxxx	xxxxx	xxxx	xxxx	xxxxx			618	xxxx		336	xxxx	xxxx	xxxxx	
Potent Cap.:	1224	xxxx	xxxxx	xxxx	xxxx	xxxxx			456	xxxx		710	xxxx	xxxx	xxxxx	
Move Cap.:	1224	xxxx	xxxxx	xxxx	xxxx	xxxxx			455	xxxx		710	xxxx	xxxx	xxxxx	
Level Of Service Module:																
Stopped Del:	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*				
Movement:	LT	-	LTR	- RT	LT	-	LTR	- RT	LT	-	LTR	- RT	LT	-	LTR	- RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	478	xxxxx	xxxx	xxxx	xxxxx				
Shrd StpDel:	8.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	12.8	xxxxx	xxxxx	xxxx	xxxxx				
Shared LOS:	A	*	*	*	*	*	*	B	*	*	*	*				
ApproachDel:	xxxxxx			xxxxxx			12.8			xxxxxx						
ApproachLOS:	*			*			B			*						

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 Wharf Rd/Grace St

Average Delay (sec/veh): 14.9 Worst Case Level Of Service: B

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Uncontrolled						Uncontrolled						Stop Sign						Stop Sign					
Rights:	Include						Include						Include						Include					
Lanes:	0	1	0	0	0		0	0	0	1	0		0	0	1!	0	0		0	0	0	0	0	
Volume Module:																								
Base Vol:	6	335		0			0	449		10			11		0		4		0		0		0	
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	6	335		0			0	449		10			11		0		4		0		0		0	
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	0.95	0.95		0.95			0.95	0.95		0.95			0.95		0.95		0.95		0.95		0.95		0.95	
PHF Volume:	6	353		0			0	473		11			12		0		4		0		0		0	
Reduct Vol:	0	0		0			0	0		0			0		0		0		0		0		0	
Final Vol.:	6	353		0			0	473		11			12		0		4		0		0		0	
Critical Gap Module:																								
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx							6.4	xxxx		6.2	xxxxx	xxxx	xxxxx					
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx							3.5	xxxx		3.3	xxxxx	xxxx	xxxxx					
Capacity Module:																								
Cnflict Vol:	483	xxxx	xxxxx	xxxx	xxxx	xxxxx							843	xxxx		478	xxxx	xxxx	xxxxx					
Potent Cap.:	1090	xxxx	xxxxx	xxxx	xxxx	xxxxx							337	xxxx		592	xxxx	xxxx	xxxxx					
Move Cap.:	1090	xxxx	xxxxx	xxxx	xxxx	xxxxx							335	xxxx		592	xxxx	xxxx	xxxxx					
Level Of Service Module:																								
Stopped Del:	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*												
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	379	xxxxx	xxxx	xxxx	xxxxx												
Shrd StpDel:	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	14.9	xxxxx	xxxxx	xxxx	xxxxx												
Shared LOS:	A	*	*	*	*	*	*	B	*	*	*	*												
ApproachDel:	xxxxxx			xxxxxx			14.9			xxxxxx														
ApproachLOS:	*			*			B			*														

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 Wharf Rd/Grace St

Average Delay (sec/veh): 14.5 Worst Case Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	1	0	0 0	0	0	0	1 0	0	0	1!	0 0	0	0	0	0 0
Volume Module:																
Base Vol:	5	317		0	0	382		23	14		0	2	0		0	0
Growth Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Initial Bse:	5	317		0	0	382		23	14		0	2	0		0	0
User Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
PHF Adj:	0.95	0.95		0.95	0.95	0.95		0.95	0.95		0.95	0.95	0.95		0.95	0.95
PHF Volume:	5	334		0	0	402		24	15		0	2	0		0	0
Reduct Vol:	0	0		0	0	0		0	0		0	0	0		0	0
Final Vol.:	5	334		0	0	402		24	15		0	2	0		0	0
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx		6.4	xxxx		6.2	xxxxx	xxxx	xxxxx		
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx		3.5	xxxx		3.3	xxxxx	xxxx	xxxxx		
Capacity Module:																
Cnflict Vol:	426	xxxx	xxxxx	xxxx	xxxx	xxxxx		758	xxxx		414	xxxx	xxxx	xxxxx		
Potent Cap.:	1144	xxxx	xxxxx	xxxx	xxxx	xxxxx		378	xxxx		642	xxxx	xxxx	xxxxx		
Move Cap.:	1144	xxxx	xxxxx	xxxx	xxxx	xxxxx		376	xxxx		642	xxxx	xxxx	xxxxx		
Level Of Service Module:																
Stopped Del:	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*				
Movement:	LT	-	LTR	- RT	LT	-	LTR	- RT	LT	-	LTR	- RT	LT	-	LTR	- RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	397	xxxxx	xxxx	xxxx	xxxxx				
Shrd StpDel:	8.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	14.5	xxxxx	xxxxx	xxxx	xxxxx				
Shared LOS:	A	*	*	*	*	*	*	B	*	*	*	*				
ApproachDel:	xxxxxx			xxxxxx			14.5			xxxxxx						
ApproachLOS:	*			*			B			*						

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 Wharf Rd/Grace St

Average Delay (sec/veh): 16.1 Worst Case Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	0 0		0 0 0 1	0		0 0 1!	0 0		0 0 0	0 0	
Volume Module:												
Base Vol:	6	372	0	0	498	11	12	0	5	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	372	0	0	498	11	12	0	5	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	6	392	0	0	524	12	13	0	5	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	6	392	0	0	524	12	13	0	5	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	536	xxxx	xxxxx	xxxx	xxxx	xxxxx	934	xxxx	530	xxxx	xxxx	xxxxx
Potent Cap.:	1042	xxxx	xxxxx	xxxx	xxxx	xxxxx	297	xxxx	553	xxxx	xxxx	xxxxx
Move Cap.:	1042	xxxx	xxxxx	xxxx	xxxx	xxxxx	296	xxxx	553	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	343	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	16.1	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	A	*	*	*	*	*	*	C	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			16.1			xxxxxx		
ApproachLOS:	*			*			C			*		

APPENDIX J
LEVEL OF SERVICE CALCULATIONS

WHARF ROAD/CLARES STREET

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Clares St/Wharf Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.821
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	19.8
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0	0 0	0	0 0	0 1	0	0 0	1! 0	0	0 0	0 0 0
Volume Module:												
Base Vol:	36	281	0	0	312	241	206	0	68	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	36	281	0	0	312	241	206	0	68	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	38	296	0	0	328	254	217	0	72	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	296	0	0	328	254	217	0	72	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	38	296	0	0	328	254	217	0	72	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.11	0.89	0.00	0.00	0.56	0.44	0.75	0.01	0.24	0.00	0.00	0.00
Final Sat.:	71	554	0	0	400	309	425	0	140	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.53	0.53	xxxx	xxxx	0.82	0.82	0.51	0.00	0.51	xxxx	xxxx	xxxx
Crit Moves:		****				****	****					
Delay/Veh:	14.4	14.4	0.0	0.0	25.7	25.7	14.3	14.3	14.3	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.4	14.4	0.0	0.0	25.7	25.7	14.3	14.3	14.3	0.0	0.0	0.0
LOS by Move:	B	B	*	*	D	D	B	B	B	*	*	*
ApproachDel:		14.4			25.7			14.3			xxxxxx	
Delay Adj:		1.00			1.00			1.00			xxxxx	
ApprAdjDel:		14.4			25.7			14.3			xxxxxx	
LOS by Appr:		B			D			B			*	

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Clares St/Wharf Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	1.152
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	64.9
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	0	0 0	0 1	0	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	48	300	0	0	408	363	215	0	56	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	48	300	0	0	408	363	215	0	56	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	51	316	0	0	429	382	226	0	59	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	51	316	0	0	429	382	226	0	59	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	51	316	0	0	429	382	226	0	59	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.14	0.86	0.00	0.00	0.53	0.47	0.79	xxxx	0.21	0.00	0.00	0.00
Final Sat.:	84	528	0	0	373	332	441	-0	115	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.60	0.60	xxxx	xxxx	1.15	1.15	0.51	-0.00	0.51	xxxx	xxxx	xxxx
Crit Moves:		****			****			****				
Delay/Veh:	16.8	16.8	0.0	0.0	104	104.0	15.6	15.6	15.6	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	16.8	16.8	0.0	0.0	104	104.0	15.6	15.6	15.6	0.0	0.0	0.0
LOS by Move:	C	C	*	*	F	F	C	C	C	*	*	*
ApproachDel:		16.8			104.0			15.6			xxxxxx	
Delay Adj:		1.00			1.00			1.00			xxxxx	
ApprAdjDel:		16.8			104.0			15.6			xxxxxx	
LOS by Appr:		C			F			C			*	

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Clares St/Wharf Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.844
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	21.2
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	0	0 0	0 1	0	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	36	288	0	0	319	246	211	0	68	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	36	288	0	0	319	246	211	0	68	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	38	303	0	0	336	259	222	0	72	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	303	0	0	336	259	222	0	72	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	38	303	0	0	336	259	222	0	72	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.11	0.89	0.00	0.00	0.56	0.44	0.75	0.01	0.24	0.00	0.00	0.00
Final Sat.:	69	551	0	0	398	307	426	0	137	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.55	0.55	xxxx	xxxx	0.84	0.84	0.52	0.00	0.52	xxxx	xxxx	xxxx
Crit Moves:	****				****		****					
Delay/Veh:	14.8	14.8	0.0	0.0	28.1	28.1	14.7	14.7	14.7	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.8	14.8	0.0	0.0	28.1	28.1	14.7	14.7	14.7	0.0	0.0	0.0
LOS by Move:	B	B	*	*	D	D	B	B	B	*	*	*
ApproachDel:		14.8			28.1			14.7			xxxxxx	
Delay Adj:		1.00			1.00			1.00			xxxxx	
ApprAdjDel:		14.8			28.1			14.7			xxxxxx	
LOS by Appr:		B			D			B			*	

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Clares St/Wharf Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	1.209
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	77.1
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	0	0 0	0 1	0	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	48	311	0	0	417	374	237	0	56	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	48	311	0	0	417	374	237	0	56	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	51	327	0	0	439	394	249	0	59	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	51	327	0	0	439	394	249	0	59	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	51	327	0	0	439	394	249	0	59	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.13	0.87	0.00	0.00	0.53	0.47	0.81	0.00	0.19	0.00	0.00	0.00
Final Sat.:	81	522	0	0	363	326	448	0	106	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.63	0.63	xxxx	xxxx	1.21	1.21	0.56	xxxx	0.56	xxxx	xxxx	xxxx
Crit Moves:		****			****		****					
Delay/Veh:	18.0	18.0	0.0	0.0	126	126.2	16.9	0.0	16.9	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.0	18.0	0.0	0.0	126	126.2	16.9	0.0	16.9	0.0	0.0	0.0
LOS by Move:	C	C	*	*	F	F	C	*	C	*	*	*
ApproachDel:		18.0			126.2			16.9			xxxxxx	
Delay Adj:		1.00			1.00			1.00			xxxxx	
ApprAdjDel:		18.0			126.2			16.9			xxxxxx	
LOS by Appr:		C			F			C			*	

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Clares St/Wharf Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.970
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	33.1
Optimal Cycle:	0	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	0	0 0	0 1	0	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	40	318	0	0	353	272	234	0	76	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	40	318	0	0	353	272	234	0	76	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	42	335	0	0	372	286	246	0	80	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	42	335	0	0	372	286	246	0	80	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	42	335	0	0	372	286	246	0	80	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.11	0.89	0.00	0.00	0.56	0.44	0.75	0.00	0.25	0.00	0.00	0.00
Final Sat.:	67	529	0	0	383	295	420	0	137	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.63	0.63	xxxx	xxxx	0.97	0.97	0.59	xxxx	0.59	xxxx	xxxx	xxxx
Crit Moves:		****			****		****					
Delay/Veh:	18.0	18.0	0.0	0.0	49.6	49.6	17.4	0.0	17.4	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.0	18.0	0.0	0.0	49.6	49.6	17.4	0.0	17.4	0.0	0.0	0.0
LOS by Move:	C	C	*	*	E	E	C	*	C	*	*	*
ApproachDel:		18.0			49.6			17.4			xxxxxx	
Delay Adj:		1.00			1.00			1.00			xxxxx	
ApprAdjDel:		18.0			49.6			17.4			xxxxxx	
LOS by Appr:		C			E			C			*	

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Clares St/Wharf Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	1.391
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	120.3
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	0	0 0	0 1	0	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	53	344	0	0	462	414	260	0	62	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	53	344	0	0	462	414	260	0	62	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	56	362	0	0	486	436	274	0	65	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	56	362	0	0	486	436	274	0	65	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	56	362	0	0	486	436	274	0	65	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.13	0.87	0.00	0.00	0.53	0.47	0.81	0.00	0.19	0.00	0.00	0.00
Final Sat.:	79	511	0	0	350	313	441	0	105	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.71	0.71	xxxx	xxxx	1.39	1.39	0.62	xxxx	0.62	xxxx	xxxx	xxxx
Crit Moves:		****				****	****					
Delay/Veh:	21.9	21.9	0.0	0.0	202	202.1	19.1	0.0	19.1	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.9	21.9	0.0	0.0	202	202.1	19.1	0.0	19.1	0.0	0.0	0.0
LOS by Move:	C	C	*	*	F	F	C	*	C	*	*	*
ApproachDel:		21.9			202.1			19.1			xxxxxx	
Delay Adj:		1.00			1.00			1.00			xxxxx	
ApprAdjDel:		21.9			202.1			19.1			xxxxxx	
LOS by Appr:		C			F			C			*	

w/ mitigation - add SB RT

Level Of Service Computation Report
1994 HCM Operations Method (Base Volume Alternative)

****

Intersection #5 Clares St/Wharf Rd

****

Cycle (sec): 100 Critical Vol./Cap. (X): 0.532
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 14.8
Optimal Cycle: 49 Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	0	0 0	1 0	1	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	36	281	0	0	312	241	206	0	68	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	36	281	0	0	312	241	206	0	68	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	38	296	0	0	328	254	217	0	72	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	296	0	0	328	254	217	0	72	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	38	296	0	0	328	254	217	0	72	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.99	0.99	1.00	1.00	1.00	0.85	0.84	1.00	0.84	1.00	1.00	1.00
Lanes:	0.11	0.89	0.00	0.00	1.00	1.00	0.75	0.00	0.25	0.00	0.00	0.00
Final Sat.:	214	1667	0	0	1900	1615	1193	0	394	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.18	0.18	0.00	0.00	0.17	0.16	0.18	0.00	0.18	0.00	0.00	0.00
Crit Moves:	****				****		****					
Green/Cycle:	0.33	0.66	0.00	0.00	0.32	0.32	0.34	0.00	0.34	0.00	0.00	0.00
Volume/Cap:	0.53	0.27	0.00	0.00	0.53	0.48	0.53	0.00	0.53	0.00	0.00	0.00
Uniform Del:	20.5	5.4	0.0	0.0	20.9	20.5	20.1	0.0	20.1	0.0	0.0	0.0
IncremntDel:	0.7	0.0	0.0	0.0	0.7	0.6	0.8	0.0	0.8	0.0	0.0	0.0
Delay Adj:	0.85	0.85	0.00	0.00	0.85	0.85	0.85	0.00	0.85	0.00	0.00	0.00
Delay/Veh:	18.1	4.6	0.0	0.0	18.5	18.0	17.9	0.0	17.9	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.1	4.6	0.0	0.0	18.5	18.0	17.9	0.0	17.9	0.0	0.0	0.0
DesignQueue:	1	6	0	0	13	10	8	0	3	0	0	0

****

w/mitigation add SB RT

Level Of Service Computation Report
1994 HCM Operations Method (Base Volume Alternative)

Intersection #5 Clares St/Wharf Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.611
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	14.9
Optimal Cycle:	59	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	0	0 0	1 0	1	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	48	300	0	0	408	363	215	0	56	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	48	300	0	0	408	363	215	0	56	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	51	316	0	0	429	382	226	0	59	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	51	316	0	0	429	382	226	0	59	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	51	316	0	0	429	382	226	0	59	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.99	0.99	1.00	1.00	1.00	0.85	0.84	1.00	0.84	1.00	1.00	1.00
Lanes:	0.14	0.86	0.00	0.00	1.00	1.00	0.79	0.00	0.21	0.00	0.00	0.00
Final Sat.:	259	1622	0	0	1900	1615	1259	0	328	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.19	0.19	0.00	0.00	0.23	0.24	0.18	0.00	0.18	0.00	0.00	0.00
Crit Moves:	****					****	****					
Green/Cycle:	0.32	0.71	0.00	0.00	0.39	0.39	0.29	0.00	0.29	0.00	0.00	0.00
Volume/Cap:	0.61	0.28	0.00	0.00	0.58	0.61	0.61	0.00	0.61	0.00	0.00	0.00
Uniform Del:	21.9	4.1	0.0	0.0	18.4	18.7	23.1	0.0	23.1	0.0	0.0	0.0
IncremntDel:	1.3	0.0	0.0	0.0	0.9	1.3	1.7	0.0	1.7	0.0	0.0	0.0
Delay Adj:	0.85	0.85	0.00	0.00	0.85	0.85	0.85	0.00	0.85	0.00	0.00	0.00
Delay/Veh:	19.9	3.5	0.0	0.0	16.6	17.2	21.3	0.0	21.3	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.9	3.5	0.0	0.0	16.6	17.2	21.3	0.0	21.3	0.0	0.0	0.0
DesignQueue:	2	5	0	0	16	14	9	0	2	0	0	0

w/mitigation add SB RT

Level Of Service Computation Report
1994 HCM Operations Method (Base Volume Alternative)

Intersection #5 Clares St/Wharf Rd

Cycle (sec):	100	Critical Vol./Cap. (X):	0.543
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	14.9
Optimal Cycle:	50	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	0	0 0	1 0	1	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	36	288	0	0	319	246	211	0	68	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	36	288	0	0	319	246	211	0	68	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	38	303	0	0	336	259	222	0	72	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	303	0	0	336	259	222	0	72	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	38	303	0	0	336	259	222	0	72	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.99	0.99	1.00	1.00	1.00	0.85	0.84	1.00	0.84	1.00	1.00	1.00
Lanes:	0.11	0.89	0.00	0.00	1.00	1.00	0.76	0.00	0.24	0.00	0.00	0.00
Final Sat.:	209	1672	0	0	1900	1615	1200	0	387	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.18	0.18	0.00	0.00	0.18	0.16	0.19	0.00	0.19	0.00	0.00	0.00
Crit Moves:	****				****		****					
Green/Cycle:	0.33	0.66	0.00	0.00	0.33	0.33	0.34	0.00	0.34	0.00	0.00	0.00
Volume/Cap:	0.54	0.28	0.00	0.00	0.54	0.49	0.54	0.00	0.54	0.00	0.00	0.00
Uniform Del:	20.6	5.4	0.0	0.0	21.0	20.6	20.3	0.0	20.3	0.0	0.0	0.0
IncremntDel:	0.8	0.0	0.0	0.0	0.8	0.6	0.9	0.0	0.9	0.0	0.0	0.0
Delay Adj:	0.85	0.85	0.00	0.00	0.85	0.85	0.85	0.00	0.85	0.00	0.00	0.00
Delay/Veh:	18.3	4.6	0.0	0.0	18.6	18.1	18.1	0.0	18.1	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.3	4.6	0.0	0.0	18.6	18.1	18.1	0.0	18.1	0.0	0.0	0.0
DesignQueue:	1	6	0	0	13	10	8	0	3	0	0	0

w/ mitigation - add SB RT

Level Of Service Computation Report
1994 HCM Operations Method (Base Volume Alternative)

Intersection #5 Clares St/Wharf Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.639
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 15.4
Optimal Cycle: 63 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	0	0 0	1 0	1	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	48	311	0	0	417	374	237	0	56	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	48	311	0	0	417	374	237	0	56	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	51	327	0	0	439	394	249	0	59	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	51	327	0	0	439	394	249	0	59	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	51	327	0	0	439	394	249	0	59	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.99	0.99	1.00	1.00	1.00	0.85	0.84	1.00	0.84	1.00	1.00	1.00
Lanes:	0.13	0.87	0.00	0.00	1.00	1.00	0.81	0.00	0.19	0.00	0.00	0.00
Final Sat.:	251	1630	0	0	1900	1615	1284	0	303	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.20	0.20	0.00	0.00	0.23	0.24	0.19	0.00	0.19	0.00	0.00	0.00
Crit Moves:	****					****	****					
Green/Cycle:	0.31	0.70	0.00	0.00	0.38	0.38	0.30	0.00	0.30	0.00	0.00	0.00
Volume/Cap:	0.64	0.29	0.00	0.00	0.61	0.64	0.64	0.00	0.64	0.00	0.00	0.00
Uniform Del:	22.4	4.4	0.0	0.0	18.9	19.2	22.8	0.0	22.8	0.0	0.0	0.0
IncremntDel:	1.6	0.0	0.0	0.0	1.1	1.6	2.0	0.0	2.0	0.0	0.0	0.0
Delay Adj:	0.85	0.85	0.00	0.00	0.85	0.85	0.85	0.00	0.85	0.00	0.00	0.00
Delay/Veh:	20.6	3.8	0.0	0.0	17.1	17.9	21.4	0.0	21.4	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	20.6	3.8	0.0	0.0	17.1	17.9	21.4	0.0	21.4	0.0	0.0	0.0
DesignQueue:	2	6	0	0	16	14	10	0	2	0	0	0

w/mitigation add SB RT

Level Of Service Computation Report
1994 HCM Operations Method (Base Volume Alternative)

Intersection #5 Clares St/Wharf Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.602
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 15.6
Optimal Cycle: 57 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	0	0 0	1	0 1	0 0	1! 0	0	0 0	0	0 0 0
Volume Module:												
Base Vol:	40	318	0	0	353	272	234	0	76	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	40	318	0	0	353	272	234	0	76	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	42	335	0	0	372	286	246	0	80	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	42	335	0	0	372	286	246	0	80	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	42	335	0	0	372	286	246	0	80	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.99	0.99	1.00	1.00	1.00	0.85	0.84	1.00	0.84	1.00	1.00	1.00
Lanes:	0.11	0.89	0.00	0.00	1.00	1.00	0.75	0.00	0.25	0.00	0.00	0.00
Final Sat.:	210	1671	0	0	1900	1615	1198	0	389	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.20	0.20	0.00	0.00	0.20	0.18	0.21	0.00	0.21	0.00	0.00	0.00
Crit Moves:	****				****		****					
Green/Cycle:	0.33	0.66	0.00	0.00	0.33	0.33	0.34	0.00	0.34	0.00	0.00	0.00
Volume/Cap:	0.60	0.30	0.00	0.00	0.60	0.55	0.60	0.00	0.60	0.00	0.00	0.00
Uniform Del:	21.1	5.6	0.0	0.0	21.5	21.0	20.7	0.0	20.7	0.0	0.0	0.0
IncremntDel:	1.2	0.0	0.0	0.0	1.2	0.9	1.4	0.0	1.4	0.0	0.0	0.0
Delay Adj:	0.85	0.85	0.00	0.00	0.85	0.85	0.85	0.00	0.85	0.00	0.00	0.00
Delay/Veh:	19.1	4.8	0.0	0.0	19.5	18.8	19.0	0.0	19.0	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.1	4.8	0.0	0.0	19.5	18.8	19.0	0.0	19.0	0.0	0.0	0.0
DesignQueue:	2	7	0	0	15	11	9	0	3	0	0	0

w/mitigation add NB RT

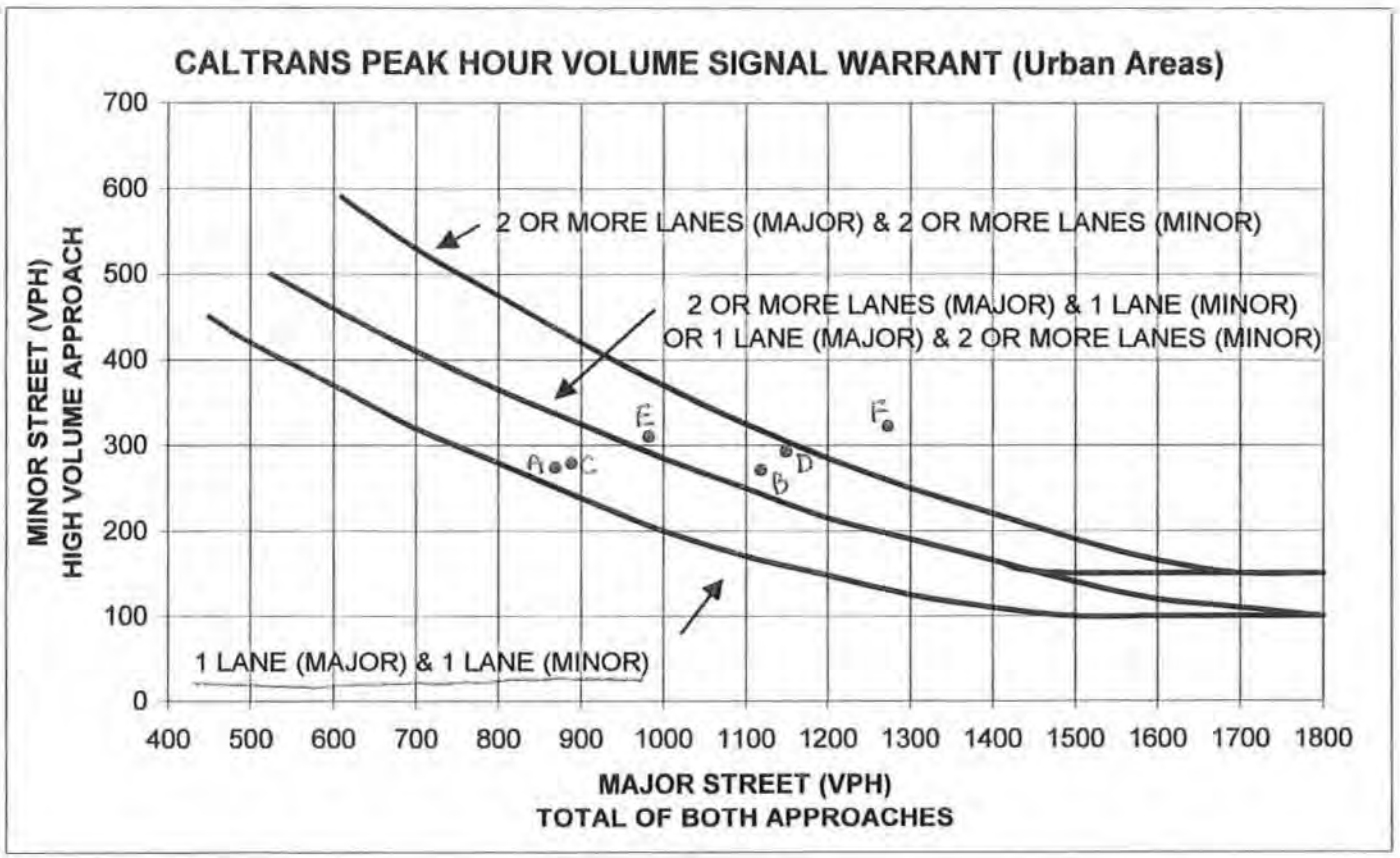
Level Of Service Computation Report
1994 HCM Operations Method (Base Volume Alternative)

Intersection #5 Clares St/Wharf Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.706
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 16.6
Optimal Cycle: 77 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	0	0 0	1 0	1	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	53	344	0	0	462	414	260	0	62	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	53	344	0	0	462	414	260	0	62	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	56	362	0	0	486	436	274	0	65	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	56	362	0	0	486	436	274	0	65	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	56	362	0	0	486	436	274	0	65	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.99	0.99	1.00	1.00	1.00	0.85	0.84	1.00	0.84	1.00	1.00	1.00
Lanes:	0.13	0.87	0.00	0.00	1.00	1.00	0.81	0.00	0.19	0.00	0.00	0.00
Final Sat.:	251	1630	0	0	1900	1615	1281	0	306	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.22	0.22	0.00	0.00	0.26	0.27	0.21	0.00	0.21	0.00	0.00	0.00
Crit Moves:	****					****	****					
Green/Cycle:	0.31	0.70	0.00	0.00	0.38	0.38	0.30	0.00	0.30	0.00	0.00	0.00
Volume/Cap:	0.71	0.32	0.00	0.00	0.67	0.71	0.71	0.00	0.71	0.00	0.00	0.00
Uniform Del:	22.9	4.5	0.0	0.0	19.5	19.8	23.5	0.0	23.5	0.0	0.0	0.0
IncremntDel:	2.6	0.0	0.0	0.0	1.7	2.5	3.2	0.0	3.2	0.0	0.0	0.0
Delay Adj:	0.85	0.85	0.00	0.00	0.85	0.85	0.85	0.00	0.85	0.00	0.00	0.00
Delay/Veh:	22.1	3.9	0.0	0.0	18.2	19.4	23.2	0.0	23.2	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	22.1	3.9	0.0	0.0	18.2	19.4	23.2	0.0	23.2	0.0	0.0	0.0
DesignQueue:	2	6	0	0	18	16	11	0	3	0	0	0

Wharf Rd/Clares St



Scenario	Major Street North/South	Minor Street East/West	
A. Existing PM	870	274	Yes
B. Existing Sat MD	1119	271	Yes
C. Exi + Project PM	889	279	Yes
D. Ex + Project Sat MD	1150	293	Yes
E. Cumulative PM	983	310	Yes
F. Cumulative Sat MD	1273	322	Yes

Notes:

1. 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

2. Bold line applies to intersection geometry.

APPENDIX K
LEVEL OF SERVICE CALCULATIONS

46TH AVENUE/CLARES STREET

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Clares St/46th St

Average Delay (sec/veh): 12.6 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 0 0 0			0 0 0 1 0			0 1 0 0 0		
Volume Module:												
Base Vol:	29	0	20	0	0	0	0	248	47	41	253	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	29	0	20	0	0	0	0	248	47	41	253	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	31	0	21	0	0	0	0	261	49	43	266	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	31	0	21	0	0	0	0	261	49	43	266	0
Critical Gap Module:												
Critical Gp:	6.4	xxxx	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	xxxx	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	638	xxxx	286	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	311	xxxx	xxxxx
Potent Cap.:	444	xxxx	758	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1261	xxxx	xxxxx
Move Cap.:	432	xxxx	758	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1261	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	524	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	12.6	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.0	xxxx	xxxxx
Shared LOS:	*	B	*	*	*	*	*	*	*	A	*	*
ApproachDel:		12.6			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		B			*			*			*	

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Clares St/46th St

Average Delay (sec/veh): 15.7 Worst Case Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0 0		0 0 0	0 0		0 0 0	1 0		0 1	0 0	0
Volume Module:												
Base Vol:	47	0	9	0	0	0	0	280	46	28	375	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	47	0	9	0	0	0	0	280	46	28	375	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	49	0	9	0	0	0	0	295	48	29	395	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	49	0	9	0	0	0	0	295	48	29	395	0
Critical Gap Module:												
Critical Gp:	6.4	xxxx	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	xxxx	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	773	xxxx	319	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	343	xxxx	xxxxx
Potent Cap.:	370	xxxx	726	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1227	xxxx	xxxxx
Move Cap.:	363	xxxx	726	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1227	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	395	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	15.7	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.0	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	A	*	*
ApproachDel:		15.7			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		C			*			*			*	

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Clares St/46th St

Average Delay (sec/veh): 12.7 Worst Case Level Of Service: B

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	0	0	0		0	0	0	1	0		0	1	0	0	0	
Volume Module:																								
Base Vol:	29		0		20		0		0		0		0		253		47		41		258		0	
Growth Adj:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	29		0		20		0		0		0		0		253		47		41		258		0	
User Adj:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95	
PHF Volume:	31		0		21		0		0		0		0		266		49		43		272		0	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
Final Vol.:	31		0		21		0		0		0		0		266		49		43		272		0	
Critical Gap Module:																								
Critical Gp:	6.4	xxxx			6.2		xxxxx	xxxx	xxxxx		xxxxx		xxxx	xxxxx			4.1		xxxx	xxxxx				
FollowUpTim:	3.5	xxxx			3.3		xxxxx	xxxx	xxxxx		xxxxx		xxxx	xxxxx			2.2		xxxx	xxxxx				
Capacity Module:																								
Cnflict Vol:	649	xxxx			291		xxxx	xxxx	xxxxx		xxxx		xxxx	xxxxx			316		xxxx	xxxxx				
Potent Cap.:	438	xxxx			753		xxxx	xxxx	xxxxx		xxxx		xxxx	xxxxx			1256		xxxx	xxxxx				
Move Cap.:	426	xxxx			753		xxxx	xxxx	xxxxx		xxxx		xxxx	xxxxx			1256		xxxx	xxxxx				
Level Of Service Module:																								
Stopped Del:	xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx			7.9	xxxx		xxxxx		
LOS by Move:	*	*		*			*	*		*			*	*		*			A	*		*		
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx		518	xxxxx			xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx		
Shrd StpDel:	xxxxx		12.7	xxxxx			xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx			8.0	xxxx		xxxxx		
Shared LOS:	*		B	*			*	*		*			*	*		*			A	*		*		
ApproachDel:			12.7						xxxxxx						xxxxxx						xxxxxx			
ApproachLOS:			B						*						*						*			

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Clares St/46th St

Average Delay (sec/veh): 16.3 Worst Case Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1!	0 0	0	0	0	0 0	0	0	0	1 0	0	1	0	0 0
Volume Module:																
Base Vol:	47	0	9		0	0	0		0	302	46		28	386	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	47	0	9		0	0	0		0	302	46		28	386	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95	
PHF Volume:	49	0	9		0	0	0		0	318	48		29	406	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Final Vol.:	49	0	9		0	0	0		0	318	48		29	406	0	
Critical Gap Module:																
Critical Gp:	6.4	xxxx		6.2	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx	
FollowUpTim:	3.5	xxxx		3.3	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	807	xxxx		342	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		366	xxxx	xxxxx	
Potent Cap.:	353	xxxx		705	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		1203	xxxx	xxxxx	
Move Cap.:	347	xxxx		705	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		1203	xxxx	xxxxx	
Level Of Service Module:																
Stopped Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		8.0	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	*		*	*	*		A	*	*	
Movement:	LT	-	LTR	- RT	LT	-	LTR	- RT	LT	-	LTR	- RT	LT	-	LTR	- RT
Shared Cap.:	xxxx	378	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Shrd StpDel:	xxxxx	16.3	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		8.1	xxxx	xxxxx	
Shared LOS:	*	C	*		*	*	*		*	*	*		A	*	*	
ApproachDel:		16.3				xxxxxx				xxxxxx				xxxxxx		
ApproachLOS:		C				*				*				*		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Clares St/46th St

Average Delay (sec/veh): 13.5 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	0	0	0 0 0	1	0	0 1 0	0	0
Volume Module:												
Base Vol:	32	0	23	0	0	0	0	280	51	45	286	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	32	0	23	0	0	0	0	280	51	45	286	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	34	0	24	0	0	0	0	295	54	47	301	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	34	0	24	0	0	0	0	295	54	47	301	0
Critical Gap Module:												
Critical Gp:	6.4	xxxx	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	xxxx	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	717	xxxx	322	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	348	xxxx	xxxxx
Potent Cap.:	399	xxxx	724	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1222	xxxx	xxxxx
Move Cap.:	387	xxxx	724	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1222	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	480	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	13.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.1	xxxx	xxxxx
Shared LOS:	*	B	*	*	*	*	*	*	*	A	*	*
ApproachDel:		13.5			xxxxx			xxxxx			xxxxx	
ApproachLOS:		B			*			*			*	

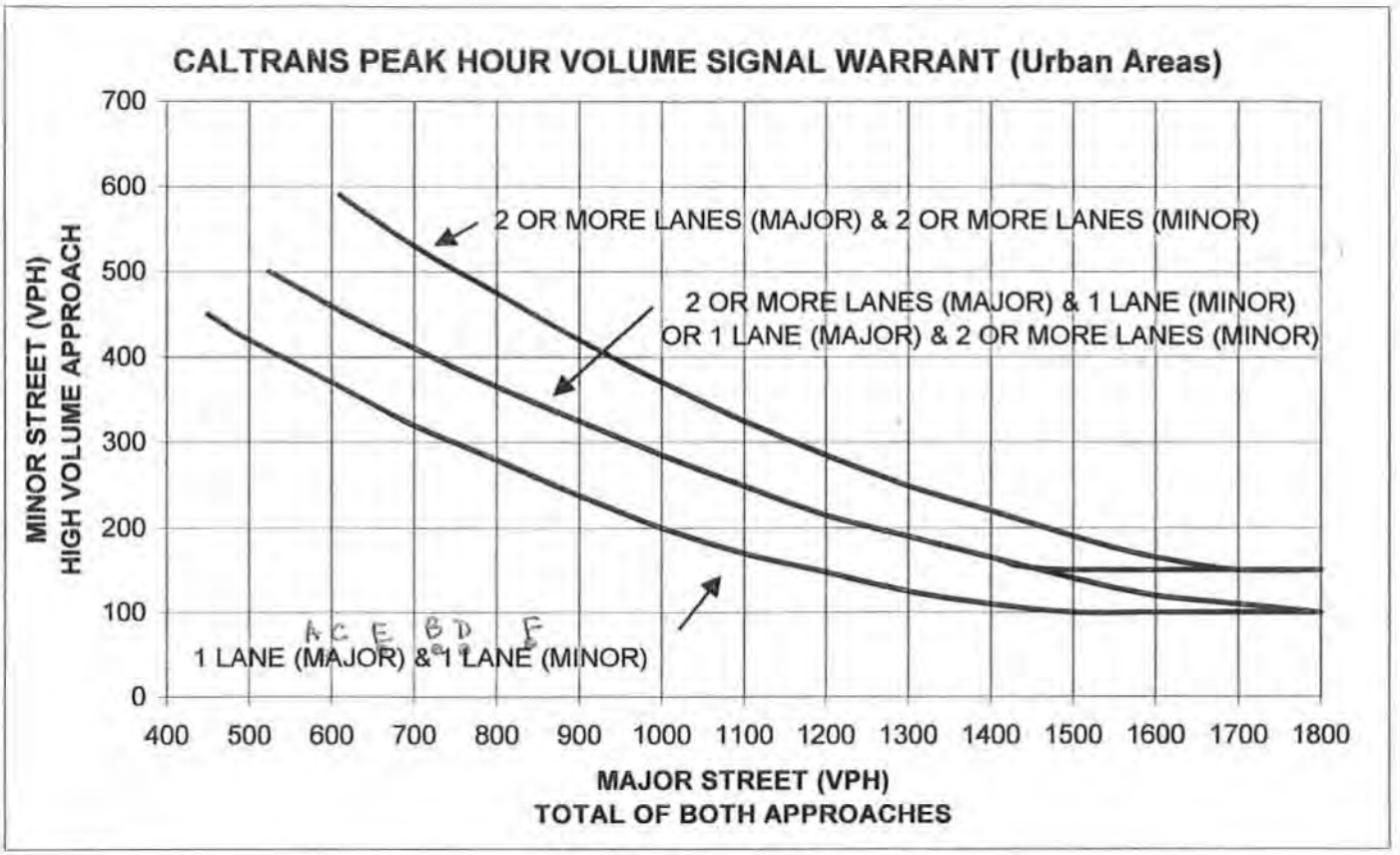
Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Clares St/46th St

Average Delay (sec/veh): 17.2 Worst Case Level Of Service: C

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	0	0	0		0	0	0	1	0		0	1	0	0	0	
Volume Module:																								
Base Vol:	53	0	10				0	0	0				0	333	51				31	427	0			
Growth Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
Initial Bse:	53	0	10				0	0	0				0	333	51				31	427	0			
User Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
PHF Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
PHF Volume:	53	0	10				0	0	0				0	333	51				31	427	0			
Reduct Vol:	0	0	0				0	0	0				0	0	0				0	0	0			
Final Vol.:	53	0	10				0	0	0				0	333	51				31	427	0			
Critical Gap Module:																								
Critical Gp:	6.4	xxxx	6.2				xxxxx	xxxx	xxxxx				xxxxx	xxxx	xxxxx				4.1	xxxx	xxxxx			
FollowUpTim:	3.5	xxxx	3.3				xxxxx	xxxx	xxxxx				xxxxx	xxxx	xxxxx				2.2	xxxx	xxxxx			
Capacity Module:																								
Cnflict Vol:	848	xxxx	359				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				384	xxxx	xxxxx			
Potent Cap.:	335	xxxx	690				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				1186	xxxx	xxxxx			
Move Cap.:	328	xxxx	690				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				1186	xxxx	xxxxx			
Level Of Service Module:																								
Stopped Del:	xxxxx	xxxx	xxxxx				xxxxx	xxxx	xxxxx				xxxxx	xxxx	xxxxx				8.0	xxxx	xxxxx			
LOS by Move:	*	*	*				*	*	*				*	*	*				A	*	*			
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx		358	xxxxx			xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Shrd StpDel:	xxxxx		17.2	xxxxx			xxxxx	xxxx	xxxxx				xxxxx	xxxx	xxxxx				8.1	xxxx	xxxxx			
Shared LOS:	*		C	*			*	*	*				*	*	*				A	*	*			
ApproachDel:			17.2					xxxxxx						xxxxxx						xxxxxx				
ApproachLOS:			C					*						*						*				

Clares St/46th Ave



Scenario	Major Street East/West	Minor Street North/South	
A. Existing PM	589	49	No
B. Existing Sat MD	729	56	No
C. Exi + Project PM	599	49	No
D. Ex + Project Sat MD	762	56	No
E. Cumulative PM	662	55	No
F. Cumulative Sat MD	842	63	No

Notes:

1. 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

2. Bold line applies to intersection geometry.

APPENDIX L
LEVEL OF SERVICE CALCULATIONS

41ST AVENUE/CLARES STREET

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 41st Avenue/Clares St

Cycle (sec):	120	Critical Vol./Cap. (X):	0.779	
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	41.3	
Optimal Cycle:	76	Level Of Service:	D	

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 1	0	1 0	2 1	0	2 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	96	1039	62	224	1024	421	576	150	43	34	150	171
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	96	1039	62	224	1024	421	576	150	43	34	150	171
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	101	1094	65	236	1078	443	606	158	45	36	158	180
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	101	1094	65	236	1078	443	606	158	45	36	158	180
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	101	1094	65	236	1078	443	606	158	45	36	158	180
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.90	0.90	0.95	0.87	0.87	0.93	0.96	0.96	0.99	0.99	0.85
Lanes:	1.00	2.83	0.17	1.00	2.13	0.87	2.51	0.38	0.11	0.18	0.82	1.00
Final Sat.:	1805	4856	290	1805	3514	1445	4417	697	200	348	1535	1615
Capacity Analysis Module:												
Vol/Sat:	0.06	0.23	0.23	0.13	0.31	0.31	0.14	0.23	0.23	0.10	0.10	0.11
Crit Moves:	****				****			****				****
Green/Cycle:	0.07	0.29	0.29	0.17	0.39	0.39	0.29	0.29	0.29	0.14	0.14	0.14
Volume/Cap:	0.78	0.76	0.76	0.76	0.78	0.78	0.47	0.78	0.78	0.72	0.72	0.78
Uniform Del:	54.7	38.5	38.5	47.4	31.8	31.8	35.0	39.0	39.0	49.1	49.1	49.6
IncremntDel:	25.3	2.4	2.4	10.8	2.1	2.1	0.2	3.8	3.8	9.0	9.0	15.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	80.0	40.9	40.9	58.2	33.8	33.8	35.2	42.8	42.8	58.1	58.1	65.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	80.0	40.9	40.9	58.2	33.8	33.8	35.2	42.8	42.8	58.1	58.1	65.0
DesignQueue:	6	54	3	13	47	19	30	8	2	2	9	11

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 41st Avenue/Clares St

Cycle (sec):	120	Critical Vol./Cap. (X):	0.890	
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	44.5	
Optimal Cycle:	114	Level Of Service:	D	

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 1	0	1 0	2 1	0	2 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	135	1229	59	213	1338	529	738	107	90	69	198	202
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	135	1229	59	213	1338	529	738	107	90	69	198	202
User Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	128	1168	56	202	1271	503	701	102	86	66	188	192
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	128	1168	56	202	1271	503	701	102	86	66	188	192
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	128	1168	56	202	1271	503	701	102	86	66	188	192
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.90	0.90	0.95	0.87	0.87	0.92	0.95	0.95	0.99	0.99	0.85
Lanes:	1.00	2.86	0.14	1.00	2.15	0.85	2.56	0.24	0.20	0.26	0.74	1.00
Final Sat.:	1805	4915	236	1805	3561	1408	4480	428	360	485	1391	1615
Capacity Analysis Module:												
Vol/Sat:	0.07	0.24	0.24	0.11	0.36	0.36	0.16	0.24	0.24	0.14	0.14	0.12
Crit Moves:	****				****				****		****	
Green/Cycle:	0.08	0.33	0.33	0.15	0.40	0.40	0.27	0.27	0.27	0.15	0.15	0.15
Volume/Cap:	0.89	0.73	0.73	0.73	0.89	0.89	0.59	0.89	0.89	0.89	0.89	0.78
Uniform Del:	54.7	35.7	35.7	48.3	33.5	33.5	38.2	42.3	42.3	49.9	49.9	49.0
IncremntDel:	44.0	1.6	1.6	9.2	5.4	5.4	0.6	10.0	10.0	27.1	27.1	14.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	98.7	37.3	37.3	57.6	38.9	38.9	38.8	52.3	52.3	77.0	77.0	63.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	98.7	37.3	37.3	57.6	38.9	38.9	38.8	52.3	52.3	77.0	77.0	63.9
DesignQueue:	8	56	3	12	55	22	36	5	4	4	11	11

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 41st Avenue/Clares St

Cycle (sec):	120	Critical Vol./Cap. (X):	0.782
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	41.7
Optimal Cycle:	77	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 1	0	1 0	2 1	0	2 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	96	1039	62	229	1024	421	576	150	43	34	150	176
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	96	1039	62	229	1024	421	576	150	43	34	150	176
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	101	1094	65	241	1078	443	606	158	45	36	158	185
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	101	1094	65	241	1078	443	606	158	45	36	158	185
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	101	1094	65	241	1078	443	606	158	45	36	158	185
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.90	0.90	0.95	0.87	0.87	0.93	0.96	0.96	0.99	0.99	0.85
Lanes:	1.00	2.83	0.17	1.00	2.13	0.87	2.51	0.38	0.11	0.18	0.82	1.00
Final Sat.:	1805	4856	290	1805	3514	1445	4417	697	200	348	1535	1615
Capacity Analysis Module:												
Vol/Sat:	0.06	0.23	0.23	0.13	0.31	0.31	0.14	0.23	0.23	0.10	0.10	0.11
Crit Moves:	****				****			****				****
Green/Cycle:	0.07	0.29	0.29	0.17	0.39	0.39	0.29	0.29	0.29	0.15	0.15	0.15
Volume/Cap:	0.78	0.77	0.77	0.77	0.78	0.78	0.47	0.78	0.78	0.70	0.70	0.78
Uniform Del:	54.8	38.9	38.9	47.4	32.0	32.0	35.1	39.1	39.1	48.7	48.7	49.4
IncremntDel:	25.9	2.6	2.6	11.4	2.1	2.1	0.2	3.9	3.9	7.8	7.8	15.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	80.7	41.5	41.5	58.8	34.1	34.1	35.3	43.1	43.1	56.5	56.5	64.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	80.7	41.5	41.5	58.8	34.1	34.1	35.3	43.1	43.1	56.5	56.5	64.8
DesignQueue:	6	55	3	14	47	19	30	8	2	2	9	11

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 41st Avenue/Clares St

Cycle (sec):	120			Critical Vol./Cap. (X):			0.988					
Loss Time (sec):	12 (Y+R = 4 sec)			Average Delay (sec/veh):			55.3					
Optimal Cycle:	180			Level Of Service:			E					

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 1	0	1 0	2 1	0	2 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	135	1229	59	233	1338	529	738	109	90	69	199	212
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	135	1229	59	233	1338	529	738	109	90	69	199	212
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	142	1294	62	245	1408	557	777	115	95	73	209	223
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	142	1294	62	245	1408	557	777	115	95	73	209	223
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	142	1294	62	245	1408	557	777	115	95	73	209	223
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.90	0.90	0.95	0.87	0.87	0.92	0.95	0.95	0.99	0.99	0.85
Lanes:	1.00	2.86	0.14	1.00	2.15	0.85	2.56	0.24	0.20	0.26	0.74	1.00
Final Sat.:	1805	4915	236	1805	3561	1408	4476	434	358	483	1392	1615
Capacity Analysis Module:												
Vol/Sat:	0.08	0.26	0.26	0.14	0.40	0.40	0.17	0.26	0.26	0.15	0.15	0.14
Crit Moves:	****				****			****			****	
Green/Cycle:	0.08	0.32	0.32	0.16	0.40	0.40	0.27	0.27	0.27	0.15	0.15	0.15
Volume/Cap:	0.99	0.83	0.83	0.83	0.99	0.99	0.65	0.99	0.99	0.99	0.99	0.91
Uniform Del:	55.2	38.0	38.0	48.6	35.7	35.7	38.9	43.7	43.7	50.8	50.8	50.0
IncremntDel:	71.1	3.8	3.8	17.8	17.3	17.3	1.0	25.4	25.4	49.7	49.7	33.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	126.3	41.8	41.8	66.4	53.0	53.0	39.9	69.2	69.2	100.5	100	83.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	126.3	41.8	41.8	66.4	53.0	53.0	39.9	69.2	69.2	100.5	100	83.8
DesignQueue:	9	63	3	14	62	24	40	6	5	4	12	13

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 41st Avenue/Clares St

Cycle (sec):	120	Critical Vol./Cap. (X):	1.040
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	72.0
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 1	0	1 0	2 1	0	2 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	125	1394	81	303	1401	555	756	195	56	44	195	234
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	125	1394	81	303	1401	555	756	195	56	44	195	234
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	132	1467	85	319	1475	584	796	205	59	46	205	246
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	132	1467	85	319	1475	584	796	205	59	46	205	246
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	132	1467	85	319	1475	584	796	205	59	46	205	246
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.90	0.90	0.95	0.87	0.87	0.93	0.96	0.96	0.99	0.99	0.85
Lanes:	1.00	2.84	0.16	1.00	2.15	0.85	2.51	0.38	0.11	0.18	0.82	1.00
Final Sat.:	1805	4863	283	1805	3555	1408	4421	694	199	347	1536	1615
Capacity Analysis Module:												
Vol/Sat:	0.07	0.30	0.30	0.18	0.41	0.41	0.18	0.30	0.30	0.13	0.13	0.15
Crit Moves:	****				****				****			****
Green/Cycle:	0.07	0.30	0.30	0.17	0.40	0.40	0.28	0.28	0.28	0.15	0.15	0.15
Volume/Cap:	1.04	1.02	1.02	1.02	1.04	1.04	0.63	1.04	1.04	0.91	0.91	1.04
Uniform Del:	55.8	42.3	42.3	49.6	36.1	36.1	37.5	42.9	42.9	50.4	50.4	51.2
IncremntDel:	91.1	28.4	28.4	56.2	31.5	31.5	0.8	39.2	39.2	31.9	31.9	69.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	146.9	70.6	70.6	105.8	67.6	67.6	38.3	82.1	82.1	82.3	82.3	120.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	146.9	70.6	70.6	105.8	67.6	67.6	38.3	82.1	82.1	82.3	82.3	120.6
DesignQueue:	8	74	4	18	65	26	40	11	3	3	12	15

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 41st Avenue/Clares St

Cycle (sec):	120	Critical Vol./Cap. (X):	1.307
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	139.1
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 1	0	1 0	2 1	0	2 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	176	1680	77	304	1805	708	975	141	117	90	258	281
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	176	1680	77	304	1805	708	975	141	117	90	258	281
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	185	1768	81	320	1900	745	1026	148	123	95	272	296
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	185	1768	81	320	1900	745	1026	148	123	95	272	296
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	185	1768	81	320	1900	745	1026	148	123	95	272	296
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.90	0.90	0.95	0.87	0.87	0.92	0.95	0.95	0.99	0.99	0.85
Lanes:	1.00	2.87	0.13	1.00	2.15	0.85	2.56	0.24	0.20	0.26	0.74	1.00
Final Sat.:	1805	4925	226	1805	3569	1400	4484	428	356	485	1390	1615
Capacity Analysis Module:												
Vol/Sat:	0.10	0.36	0.36	0.18	0.53	0.53	0.23	0.35	0.35	0.20	0.20	0.18
Crit Moves:	****				****				****		****	
Green/Cycle:	0.08	0.33	0.33	0.16	0.41	0.41	0.26	0.26	0.26	0.15	0.15	0.15
Volume/Cap:	1.31	1.10	1.10	1.10	1.31	1.31	0.86	1.31	1.31	1.31	1.31	1.23
Uniform Del:	55.3	40.5	40.5	50.4	35.6	35.6	42.0	44.1	44.1	51.0	51.0	51.0
IncremntDel:	179.9	56.4	56.4	83.8	142	142.0	5.5	146	145.7	161.7	162	132.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	235.2	96.9	96.9	134.2	178	177.6	47.5	190	189.8	212.8	213	183.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	235.2	96.9	96.9	134.2	178	177.6	47.5	190	189.8	212.8	213	183.7
DesignQueue:	12	87	4	19	86	34	53	8	7	6	16	17

w/mitigation - LOS B/C

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 41st Avenue/Clares St

Cycle (sec): 120 Critical Vol./Cap. (X): 0.771
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 40.1
Optimal Cycle: 74 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 1	0	1 0	3 0	1	2 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	96	1039	62	224	1024	421	576	150	43	34	150	171
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	96	1039	62	224	1024	421	576	150	43	34	150	171
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	101	1094	65	236	1078	443	606	158	45	36	158	180
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	101	1094	65	236	1078	443	606	158	45	36	158	180
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	101	1094	65	236	1078	443	606	158	45	36	158	180
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.90	0.90	0.95	0.91	0.85	0.93	0.96	0.96	0.99	0.99	0.85
Lanes:	1.00	2.83	0.17	1.00	3.00	1.00	2.51	0.38	0.11	0.18	0.82	1.00
Final Sat.:	1805	4856	290	1805	5187	1615	4417	697	200	348	1535	1615
Capacity Analysis Module:												
Vol/Sat:	0.06	0.23	0.23	0.13	0.21	0.27	0.14	0.23	0.23	0.10	0.10	0.11
Crit Moves:		****		****				****				****
Green/Cycle:	0.08	0.29	0.29	0.17	0.38	0.38	0.29	0.29	0.29	0.14	0.14	0.14
Volume/Cap:	0.72	0.77	0.77	0.77	0.54	0.72	0.47	0.77	0.77	0.71	0.71	0.77
Uniform Del:	54.0	38.8	38.8	47.6	28.8	31.4	34.7	38.7	38.7	48.9	48.9	49.4
IncremntDel:	16.0	2.5	2.5	11.4	0.3	4.0	0.2	3.6	3.6	8.5	8.5	14.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	70.0	41.3	41.3	59.0	29.1	35.4	34.9	42.2	42.2	57.4	57.4	63.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	70.0	41.3	41.3	59.0	29.1	35.4	34.9	42.2	42.2	57.4	57.4	63.9
DesignQueue:	6	55	3	13	47	19	30	8	2	2	9	11

w/ exclusive add SB RT

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

****

Intersection #3 41st Avenue/Clares St

****

Cycle (sec): 120 Critical Vol./Cap. (X): 0.839
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 42.6
Optimal Cycle: 93 Level Of Service: D

****

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Protected						Protected						Split Phase						Split Phase					
Rights:	Include						Include						Include						Include					
Min. Green:	0	0	0				0	0	0				0	0	0				0	0	0			
Lanes:	1	0	2	1	0		1	0	3	0	1		2	0	1!	0	0		0	1	0	0	1	
Volume Module:																								
Base Vol:	135	1229		59			213	1338		529			738	107		90			69	198		202		
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Initial Bse:	135	1229		59			213	1338		529			738	107		90			69	198		202		
User Adj:	0.95	0.95		0.95			0.95	0.95		0.95			0.95	0.95		0.95			0.95	0.95		0.95		
PHF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Volume:	128	1168		56			202	1271		503			701	102		86			66	188		192		
Reduct Vol:	0	0		0			0	0		0			0	0		0			0	0		0		
Reduced Vol:	128	1168		56			202	1271		503			701	102		86			66	188		192		
PCE Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
MLF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Final Vol.:	128	1168		56			202	1271		503			701	102		86			66	188		192		
Saturation Flow Module:																								
Sat/Lane:	1900	1900		1900			1900	1900		1900			1900	1900		1900			1900	1900		1900		
Adjustment:	0.95	0.90		0.90			0.95	0.91		0.85			0.92	0.95		0.95			0.99	0.99		0.85		
Lanes:	1.00	2.86		0.14			1.00	3.00		1.00			2.56	0.24		0.20			0.26	0.74		1.00		
Final Sat.:	1805	4915		236			1805	5187		1615			4480	428		360			485	1391		1615		
Capacity Analysis Module:																								
Vol/Sat:	0.07	0.24		0.24			0.11	0.25		0.31			0.16	0.24		0.24			0.14	0.14		0.12		
Crit Moves:	****									****						****				****				
Green/Cycle:	0.08	0.31		0.31			0.15	0.37		0.37			0.28	0.28		0.28			0.16	0.16		0.16		
Volume/Cap:	0.84	0.77		0.77			0.77	0.66		0.84			0.55	0.84		0.84			0.84	0.84		0.74		
Uniform Del:	54.1	37.5		37.5			49.3	31.5		34.5			36.6	40.4		40.4			48.8	48.8		47.9		
IncremntDel:	31.7	2.3		2.3			12.7	0.9		10.2			0.4	6.1		6.1			18.4	18.4		10.5		
Delay Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Delay/Veh:	85.8	39.8		39.8			62.0	32.3		44.7			37.0	46.5		46.5			67.2	67.2		58.4		
User DelAdj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
AdjDel/Veh:	85.8	39.8		39.8			62.0	32.3		44.7			37.0	46.5		46.5			67.2	67.2		58.4		
DesignQueue:	8	57		3			12	57		23			35	5		4			4	11		11		

****

w/mitigation add SB RT

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 41st Avenue/Clares St

Cycle (sec):	120			Critical Vol./Cap. (X):			0.778					
Loss Time (sec):	12 (Y+R = 4 sec)			Average Delay (sec/veh):			40.3					
Optimal Cycle:	76			Level Of Service:			D					

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 1	0	1 0	3 0	1	2 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	96	1039	62	229	1024	421	576	150	43	34	150	176
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	96	1039	62	229	1024	421	576	150	43	34	150	176
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	101	1094	65	241	1078	443	606	158	45	36	158	185
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	101	1094	65	241	1078	443	606	158	45	36	158	185
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	101	1094	65	241	1078	443	606	158	45	36	158	185
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.90	0.90	0.95	0.91	0.85	0.93	0.96	0.96	0.99	0.99	0.85
Lanes:	1.00	2.83	0.17	1.00	3.00	1.00	2.51	0.38	0.11	0.18	0.82	1.00
Final Sat.:	1805	4856	290	1805	5187	1615	4417	697	200	348	1535	1615
Capacity Analysis Module:												
Vol/Sat:	0.06	0.23	0.23	0.13	0.21	0.27	0.14	0.23	0.23	0.10	0.10	0.11
Crit Moves:		****		****				****				****
Green/Cycle:	0.08	0.29	0.29	0.17	0.38	0.38	0.29	0.29	0.29	0.15	0.15	0.15
Volume/Cap:	0.72	0.78	0.78	0.78	0.54	0.72	0.47	0.78	0.78	0.70	0.70	0.78
Uniform Del:	54.0	39.1	39.1	47.5	28.8	31.5	34.9	39.0	39.0	48.6	48.6	49.3
IncremntDel:	16.1	2.7	2.7	11.8	0.3	4.0	0.2	3.8	3.8	7.6	7.6	14.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	70.1	41.8	41.8	59.3	29.1	35.5	35.1	42.8	42.8	56.2	56.2	64.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	70.1	41.8	41.8	59.3	29.1	35.5	35.1	42.8	42.8	56.2	56.2	64.2
DesignQueue:	6	55	3	14	47	19	30	8	2	2	9	11

intersection - add SB LT

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 41st Avenue/Clares St

Cycle (sec):	120	Critical Vol./Cap. (X):	0.931
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	49.5
Optimal Cycle:	141	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 1	0	1 0	3 0	1	2 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	135	1229	59	233	1338	529	738	109	90	69	199	212
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	135	1229	59	233	1338	529	738	109	90	69	199	212
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	142	1294	62	245	1408	557	777	115	95	73	209	223
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	142	1294	62	245	1408	557	777	115	95	73	209	223
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	142	1294	62	245	1408	557	777	115	95	73	209	223
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.90	0.90	0.95	0.91	0.85	0.92	0.95	0.95	0.99	0.99	0.85
Lanes:	1.00	2.86	0.14	1.00	3.00	1.00	2.56	0.24	0.20	0.26	0.74	1.00
Final Sat.:	1805	4915	236	1805	5187	1615	4476	434	358	483	1392	1615
Capacity Analysis Module:												
Vol/Sat:	0.08	0.26	0.26	0.14	0.27	0.34	0.17	0.26	0.26	0.15	0.15	0.14
Crit Moves:	****					****		****			****	
Green/Cycle:	0.08	0.30	0.30	0.15	0.37	0.37	0.28	0.28	0.28	0.16	0.16	0.16
Volume/Cap:	0.93	0.88	0.88	0.88	0.73	0.93	0.61	0.93	0.93	0.93	0.93	0.86
Uniform Del:	54.6	39.9	39.9	49.6	32.7	36.3	37.2	41.8	41.8	49.7	49.7	48.9
IncremntDel:	52.7	6.1	6.1	25.4	1.5	21.5	0.7	14.1	14.1	34.1	34.1	23.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	107.3	46.0	46.0	75.0	34.2	57.8	37.9	55.9	55.9	83.8	83.8	72.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	107.3	46.0	46.0	75.0	34.2	57.8	37.9	55.9	55.9	83.8	83.8	72.1
DesignQueue:	9	64	3	14	63	25	39	6	5	4	12	13

w/mitigations - add SB RT

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 41st Avenue/Clares St

Cycle (sec):	120	Critical Vol./Cap. (X):	1.030
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	61.5
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 1	0	1 0	3 0	1	2 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	125	1394	81	303	1401	555	756	195	56	44	195	234
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	125	1394	81	303	1401	555	756	195	56	44	195	234
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	132	1467	85	319	1475	584	796	205	59	46	205	246
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	132	1467	85	319	1475	584	796	205	59	46	205	246
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	132	1467	85	319	1475	584	796	205	59	46	205	246
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.90	0.90	0.95	0.91	0.85	0.93	0.96	0.96	0.99	0.99	0.85
Lanes:	1.00	2.84	0.16	1.00	3.00	1.00	2.51	0.38	0.11	0.18	0.82	1.00
Final Sat.:	1805	4863	283	1805	5187	1615	4421	694	199	347	1536	1615
Capacity Analysis Module:												
Vol/Sat:	0.07	0.30	0.30	0.18	0.28	0.36	0.18	0.30	0.30	0.13	0.13	0.15
Crit Moves:		****		****					****			****
Green/Cycle:	0.08	0.29	0.29	0.17	0.39	0.39	0.29	0.29	0.29	0.15	0.15	0.15
Volume/Cap:	0.94	1.03	1.03	1.03	0.74	0.94	0.63	1.03	1.03	0.90	0.90	1.03
Uniform Del:	55.0	42.4	42.4	49.7	31.5	35.4	37.2	42.8	42.8	50.3	50.3	51.1
IncremntDel:	56.5	31.2	31.2	59.1	1.5	21.5	0.7	36.0	36.0	29.9	29.9	66.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	111.5	73.6	73.6	108.8	33.0	56.9	37.9	78.7	78.7	80.2	80.2	117.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	111.5	73.6	73.6	108.8	33.0	56.9	37.9	78.7	78.7	80.2	80.2	117.3
DesignQueue:	8	75	4	18	65	26	40	11	3	3	12	14

w/ mitigation add SB R-T

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 41st Avenue/Clares St

Cycle (sec):	120	Critical Vol./Cap. (X):	1.229
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	104.9
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 1	0	1 0	3 0	1	2 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	176	1680	77	304	1805	708	975	141	117	90	258	281
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	176	1680	77	304	1805	708	975	141	117	90	258	281
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	185	1768	81	320	1900	745	1026	148	123	95	272	296
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	185	1768	81	320	1900	745	1026	148	123	95	272	296
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	185	1768	81	320	1900	745	1026	148	123	95	272	296
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.90	0.90	0.95	0.91	0.85	0.92	0.95	0.95	0.99	0.99	0.85
Lanes:	1.00	2.87	0.13	1.00	3.00	1.00	2.56	0.24	0.20	0.26	0.74	1.00
Final Sat.:	1805	4925	226	1805	5187	1615	4484	428	356	485	1390	1615
Capacity Analysis Module:												
Vol/Sat:	0.10	0.36	0.36	0.18	0.37	0.46	0.23	0.35	0.35	0.20	0.20	0.18
Crit Moves:	****					****			****		****	
Green/Cycle:	0.08	0.31	0.31	0.15	0.38	0.38	0.28	0.28	0.28	0.16	0.16	0.16
Volume/Cap:	1.23	1.17	1.17	1.17	0.98	1.23	0.81	1.23	1.23	1.23	1.23	1.15
Uniform Del:	55.0	41.6	41.6	50.9	36.9	37.5	40.1	43.1	43.1	50.5	50.5	50.5
IncremntDel:	147.6	82.9	82.9	107.8	14.9	116.9	3.3	111	111.4	128.8	129	103.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	202.6	124	124.5	158.7	51.9	154.4	43.4	154	154.5	179.3	179	154.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	202.6	124	124.5	158.7	51.9	154.4	43.4	154	154.5	179.3	179	154.0
DesignQueue:	12	89	4	19	87	35	52	8	6	6	16	17

APPENDIX M
LEVEL OF SERVICE CALCULATIONS

ROBERTSON STREET/SOQUEL WHARF ROAD

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Robertson/Soquel Wharf

Average Delay (sec/veh): 8.7 Worst Case Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	0	222	261	91	561	0	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	222	261	91	561	0	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	234	275	96	591	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	234	275	96	591	0	0	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	508	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	1067	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	1067	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	8.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	0	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	8.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	*			*			*			*		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Robertson/Soquel Wharf

Average Delay (sec/veh): 8.9 Worst Case Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	0	265	267	85	804	0	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	265	267	85	804	0	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	279	281	89	846	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	279	281	89	846	0	0	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	560	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	1021	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	1021	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	0	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	8.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	*			*			*			*		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Robertson/Soquel Wharf

Average Delay (sec/veh): 8.7 Worst Case Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	0	223	262	91	563	0	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	223	262	91	563	0	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	235	276	96	593	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	235	276	96	593	0	0	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	511	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	1065	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	1065	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	8.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	0	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	8.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	*			*			*			*		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Robertson/Soquel Wharf

Average Delay (sec/veh): 8.9 Worst Case Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	0	265	270	85	811	0	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	265	270	85	811	0	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	279	284	89	854	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	279	284	89	854	0	0	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	563	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	1018	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	1018	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	0	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	8.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	*			*			*			*		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Robertson/Soquel Wharf

Average Delay (sec/veh): 8.9 Worst Case Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	0	246	289	101	623	0	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	246	289	101	623	0	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	259	304	106	656	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	259	304	106	656	0	0	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	563	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	1018	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	1018	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	0	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	8.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	*			*			*			*		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Robertson/Soquel Wharf

Average Delay (sec/veh): 9.1 Worst Case Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	0	294	296	94	893	0	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	294	296	94	893	0	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	309	312	99	940	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	309	312	99	940	0	0	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	621	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	969	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	969	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	8.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	0	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	9.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	*			*			*			*		

APPENDIX F

Air Quality Materials

This page intentionally left blank.

AMBAG

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

(408) 883-3750 *FAX (408) 883-3755*

Office Location: 445 Reservation Road, Suite G, Marina
P.O. Box 809, Marina, CA 93933-0809

April 8, 1998

Ms. Alison Imamura
Denise Duffy & Associates
546-A Hartnell Street
Monterey, CA 93940

Dear Ms. Imamura:

This letter is in response to your March 24, 1998 request for a determination of consistency of the Inn at Rispin Mansion and Public Library project with the *1997 Air Quality Management Plan for the Monterey Bay Region* (AQMP). The proposed project consists of two parts: conversion of the Rispin Mansion into a visitor-serving hotel; and constructing a public library on a portion of the property.

Consistency of institutional projects to the AQMP is determined by comparing the current population of the jurisdiction containing the proposed project to the jurisdiction's growth forecasted in the *AMBAG 1997 Regional Population and Employment Forecast.* If the jurisdiction's current population is less than the population forecasted, the project is determined to be consistent. Consistency of non-population related activities (e.g., hotels) is evaluated on a case-by-case basis by Monterey Bay Unified Air Pollution Control District (MBUAPCD).

The current population of Capitola is 10,839 (1/1/97 Department of Finance estimate). The forecasted population of Capitola in the year 2000, the next forecasted year, is 11,172. As the current population of Capitola is less than the forecasted population, the Public Library portion of the project is **consistent** with the AQMP. AMBAG staff consulted with MBUAPCD staff regarding consistence of the hotel portion of the project. MBUAPCD staff determined the hotel portion of the project is also **consistent** with the AQMP.

Please feel free to contact Todd Muck of our staff with any questions about this determination.

Sincerely,

Nicolas Papadakis
Executive Director

cc: Janet Brennan, MBUAPCD

c:\consisty\Rispin.ltr

PROJECT NAME: Rispin Public Library Project Date: 05-11-1998

Project Area: North Central Coast (Monterey Bay)

Analysis Year: 2000 Temperature (F): 75 Season: Summer

EMFAC Version: Emfac7f1.1(12/93)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Tot Trips
Public Library	378.0/1000 Sqft	1	378

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	60.4	3.0	96.4	0.6
Light Duty Trucks	28.3	0.6	98.7	0.7
Medium Duty Trucks	4.5	0.6	99.4	0.0
Heavy Duty Trucks	1.6	25.5	74.5	N/A
Heavy Duty Trucks	2.5	N/A	N/A	100.0
Motorcycles	2.7	100.0	N/A	N/A

Travel Conditions:

	Residential		Commercial		
	Home-Work	Home-Shop	Home-Other	Work	Non-Work
Trip Length	6.6	6.6	6.6	6.6	6.6
% Started Cold	88.7	40.5	59.0	78.0	27.8
Trip Speed	25	25	25	25	25
Percent Trip	27.3	21.2	51.5		

Project Emissions Report in Lb/Day:

Unit Type	TOG	CO	NOx
Public Library	5.24	35.37	5.49
TOTALS	5.24	35.37	5.49

Unit Type	FUEL (Gal.)	PM10	SOx
Public Library	121.0	0.73	0.43
TOTALS	121.0	0.73	0.43

PROJECT NAME: The Inn at Rispin Mansion Date: 05-11-1998

Project Area: North Central Coast (Monterey Bay)

Analysis Year: 2000 Temperature (F): 75 Season: Summer

EMFAC Version: Emfac7f1.1(12/93)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Tot Trips
Inn and Meeting/Wedding Facility	451.0/Unit	1	451

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	60.4	3.0	96.4	0.6
Light Duty Trucks	28.3	0.6	98.7	0.7
Medium Duty Trucks	4.5	0.6	99.4	0.0
Heavy Duty Trucks	1.6	25.5	74.5	N/A
Heavy Duty Trucks	2.5	N/A	N/A	100.0
Motorcycles	2.7	100.0	N/A	N/A

Travel Conditions:

	Residential		Commercial		
	Home-Work	Home-Shop	Home-Other	Work	Non-Work
Trip Length	6.6	6.6	6.6	6.6	6.6
% Started Cold	88.7	40.5	59.0	78.0	27.8
Trip Speed	25	25	25	25	25
Percent Trip	27.3	21.2	51.5		

Project Emissions Report in Lb/Day:

Unit Type	TOG	CO	NOx
Inn and Meeting/Wedding Facility	6.25	42.20	6.55
TOTALS	6.25	42.20	6.55

Unit Type	FUEL (Gal.)	PM10	SOx
Inn and Meeting/Wedding Faci	144.4	0.87	0.51
TOTALS	144.4	0.87	0.51

PROJECT NAME: Inn at Rispin Mansion (Winter) Date: 05-11-1998

Project Area: North Central Coast (Monterey Bay)

Analysis Year: 2000 Temperature (F): 60 Season: Winter

EMFAC Version: Emfac7f1.1(12/93)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Tot Trips
Inn and Meeting/Wedding Facility	451.0/Unit	1	451

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	60.4	3.0	96.4	0.6
Light Duty Trucks	28.3	0.6	98.7	0.7
Medium Duty Trucks	4.5	0.6	99.4	0.0
Heavy Duty Trucks	1.6	25.5	74.5	N/A
Heavy Duty Trucks	2.5	N/A	N/A	100.0
Motorcycles	2.7	100.0	N/A	N/A

Travel Conditions:

	Residential		Commercial		
	Home-Work	Home-Shop	Home-Other	Work	Non-Work
Trip Length	6.6	6.6	6.6	6.6	6.6
% Started Cold	88.7	40.5	59.0	78.0	27.8
Trip Speed	25	25	25	25	25
Percent Trip	27.3	21.2	51.5		

Project Emissions Report in Lb/Day:

Unit Type	TOG	CO	NOx
Inn and Meeting/Wedding Facility	7.91	53.10	7.17
TOTALS	7.91	53.10	7.17

Unit Type	FUEL (Gal.)	PM10	SOx
Inn and Meeting/Wedding Faci	144.4	0.87	0.51
TOTALS	144.4	0.87	0.51

PROJECT NAME: Rispin Public Library Project Date: 05-11-1998

Project Area: North Central Coast (Monterey Bay)

Analysis Year: 2000 Temperature (F): 60 Season: Winter

EMFAC Version: Emfac7f1.1(12/93)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Tot Trips
Public Library	378.0/1000 Sqft	1	378

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	60.4	3.0	96.4	0.6
Light Duty Trucks	28.3	0.6	98.7	0.7
Medium Duty Trucks	4.5	0.6	99.4	0.0
Heavy Duty Trucks	1.6	25.5	74.5	N/A
Heavy Duty Trucks	2.5	N/A	N/A	100.0
Motorcycles	2.7	100.0	N/A	N/A

Travel Conditions:

	Residential		Commercial		
	Home-Work	Home-Shop	Home-Other	Work	Non-Work
Trip Length	6.6	6.6	6.6	6.6	6.6
% Started Cold	88.7	40.5	59.0	78.0	27.8
Trip Speed	25	25	25	25	25
Percent Trip	27.3	21.2	51.5		

Project Emissions Report in Lb/Day:

Unit Type	TOG	CO	NOx
Public Library	6.63	44.50	6.01
TOTALS	6.63	44.50	6.01

Unit Type	FUEL (Gal.)	PM10	SOx
Public Library	121.0	0.73	0.43
TOTALS	121.0	0.73	0.43

Intersection Emission Factor Calculations - Rispin Mansion and Capitola Library (under General Plan and Project Buildout)

Assumptions for worst-case analysis:

A. The average cruise speed is 25 mph and the % red-time is 50% for all links.

B. Year 1998 emission factors are used as worst-case.

C. For 41st Avenue and SB off-ramp from Highway 1, the Weekday PM Peak hour is the period with the highest traffic volumes overall (therefore the highest CO concentrations).

D. For Wharf Road and Clares Street, the Saturday midday Peak hour is the period with the highest traffic volumes overall (therefore the highest CO concentrations).

Table 1 - Existing Conditions (AM Peak Hour) - Scotts Valley High School Revised EIR CO Emission Factors								
			Traffic Volumes (vphpl)		Aver. Speed (mph) (1)		Emission Factor (g/mi) (2)	
		through lanes	Approach	Depart	Approach	Depart	Approach	Depart
Intersection 1	41st Avenue	2						
	Northbound		833	938	3.5	9	50	24
	Southbound		1220	823	1.5	13.5	50	16
	SB Off-ramp of Hi 1	1						
	Eastbound		535	676	8.5	18.5	26	12
Intersection 2	Wharf Road	1						
	Northbound		332	502	9.7	20	23	11
	Southbound		713	442	5.8	20.2	36	11
	Clares Street	1						
	Westbound			404		20.4		10
	Eastbound		442		9		24	

(1) Average Speeds are obtained from Tables 7-12 and 7-13 in MBUAPCD CEQA Air Quality Guidelines, October 1995.

(2) Emission Factors are obtained from Table 7-14 in MBUAPCD CEQA Air Quality Guidelines, October 1995.

APPENDIX G

Miscellaneous Letters

This page intentionally left blank.

CENTRAL
FIRE PROTECTION DISTRICT
of Santa Cruz County

930 17th Avenue, Santa Cruz, CA 95062-4125
phone (831) 479-6842 fax (831) 479-6848

April 29, 2003

RISPIN PARTNERS, L.L.C.
ATTN: Ron Beardslee
110 Grand Avenue
Capitola, CA 95010

Dear Mr. Beardslee:

The Central Fire Protection District is formally responding to the on-site review and past communications regarding the Rispin Mansion environmental concerns and mitigation measures affecting the Central Fire Protection District.

Several issues were addressed in response to our site visit of the proposed Rispin Mansion renovation. Currently, the mansion poses a significant threat to public safety and to Central firefighters who would be summoned to fight a fire in the existing mansion, and/or the wooded grounds surrounding the structure.

The threat and risk of fire to the citizens and neighboring homes and the community is very real. The concern for public safety and potential exposure to safety personnel is significant. This presents the additional potential exposure to increased liability and worker's compensation claims.

As we had previously discussed during the site review, the Central Fire Protection District is very interested in the renovation of the mansion to reduce the risk, current dangers, and liabilities. Protecting and rescuing intruders that force entry into the mansion on a frequent basis is a critical issue. If an intruder is trapped in a fire, this situation endangers firefighters entering the hazardous structure and concomitantly affects the rescue.

Because of criminal trespassing events (over 144 calls and five arson incidents over a period of two years) the potential risk is substantial. Even with the current imposed security measures and repeated boarding up of the structure, the threat has not, and apparently will not, subside.

We feel that the best solution for the public as well as the District is the renovation of the Rispin Mansion, which will create a structure and surrounding area that is both a benefit to the public and a safe environment for the community as well as safety personnel.

Environmental Concerns

As previously discussed, the fire district is not only interested in protecting the structure and the neighboring community, but the surrounding "Biotic Resource" as well.

The impact of a fire spreading throughout the existing oak, eucalyptus, and acacia trees would not only destroy the native habitat including the Monarch Butterfly protected area, but would endanger homes and the community at large. If a wildland fire spreads throughout the Rispin Mansion grounds during a high-risk fire season or at any time, the City of Capitola could be subject to a major, devastating fire.

Mitigation Proposal

The mitigation measures previously addressed including built-in fire protection, Fire Code requirements for new construction, and minimum clearances will significantly reduce the current risks; however, the following protection equipment/apparatus mitigation is also required:

To enable the Central Fire Protection District to respond to fires, medical emergencies, and protect the community and habitat areas, a smaller and more maneuverable fire apparatus will be required. Currently, our fire apparatus will not negotiate the existing road widths and emergency access/egress roads of the Rispin Mansion.

The solution is a smaller, lighter, and more maneuverable fire engine. This engine would be designed to operate on the existing pathways with the given access and egress limitations of the mansion. In conjunction with the built-in fire protection systems, a smaller fire engine would mitigate the fire roadway requirements and also maintain the existing pathways and historic aspects of the Rispin Mansion.

The wildland areas, the habitat, and surrounding areas would be better served by a fire engine specifically designed to protect this area.

The Central Fire Protection District is requesting a quick-attack (Type 4) fire engine as previously discussed. The fire district will complete specifications and design factors, and operate the smaller and more efficient apparatus to protect and serve the historic and sensitive habitat areas at the mansion and the surrounding community.

Thank you for you attention and efforts to make the Rispin Mansion, the community, and the native habitat areas a safer place for all.

If you have any questions and or concerns, please feel free to contact me at your convenience at (831) 479-6842.

Respectfully,

Bruce Clark
Fire Chief

CAPITOLA POLICE DEPARTMENT
CITY OF CAPITOLA
FOUNDED 1874
INCORPORATED 1949

RICHARD EHLE
CHIEF OF POLICE

422 CAPITOLA AVENUE
CAPITOLA, CALIFORNIA 95010
TELEPHONE (831) 475-4242
FAX (831) 479-8881

May 7, 2003

Rispin Partners L.L.C.
110 Grand Avenue
Capitola, California 95050

Dear Mr. Beardslee;

In the matter regarding development of the Rispin property to commercial use, I have reviewed Fire Chief Bruce Clarks letter to Mr. Richard Hill, City Manager of Capitola, dated February 6, 2003. I concur with the concerns Chief Clark has documented in his letter, relative to the fire hazards and liabilities the property currently poses to the City of Capitola, nearby residents and responding public safety personnel. As a veteran of the Oakland Hill Fire in 1991, and the incident commander for several phases of the disaster, I am painfully aware of the problems associated with trying to control a wild lands fire, where large numbers of Eucalyptus, French broom and decades old undergrowth exists. Officer John Grubensky, who perished in the fire, had worked for me the year prior to his death on Oakland's Charing Cross Road.

The conditions along Soquel Creek are eerily similar to the conditions, which existed in the Oakland Hills prior to the 1991 Hill Fire disaster. I discussed my concerns about the potential hazards posed by these conditions during my hiring interview with city staff in July 2001. Chief Clark and I have discussed our concerns about the property on numerous occasions since. Although, there are wider streets and better access to the property than exist in the neighborhood on the Riverview side of the creek, the Rispin property appears to one of the worse areas of concern along Soquel Creek, due to the following conditions: large stands of poorly cared for trees, to include highly flammable Eucalyptus; dense underbrush and debris ("duff") littering the forest floor; abandoned wooden structures, many of which are used by transients for shelter; the attractive nuisance created by the Rispin Mansion itself; recent vandalism to the structure, to include a serious structural fire last August; drug and alcohol use associated with the property, to include discarded syringes and hypodermic needles; hundreds of documented break-ins over the years and the list goes on and on.

In my opinion, the liability posed to the city by the dangerous conditions, which exist on this property is extreme. For example, access to the structure by trespassers is sometimes achieved by walking a plank from a second story balcony to windows, which are boarded up and over twenty to twenty-five feet above the ground. The likelihood of someone attempting entry and falling from the building is extremely high and I am amazed that no one has fallen, been seriously injured, or sued the city so far. Chief Clark has included a long list of fire hazards and needed improvements to the property, which I will not discuss here (Refer to Clark letter, 02-06-03). However, many of the problems regarding fire response to the property pose the same risks to police personnel. Last year, the Police Department responded to over one hundred and fifty calls or self initiated contacts at the property. Many of the police responses required a Public Works response to fix the alarm, repair damage to the property, paint over graffiti, and to re-secure the building or fence. The Police Department, Public Works and other city staff are spending thousands of dollars a year in time and effort in attempting to keep the property secure and to limit the city's liability.

I have heard the property referred to by some as a "venerated ruin", in my opinion the property in its current state is a tremendous hazard and liability for the citizens of Capitola. The Mansion is featured in the news every year during the Halloween season and hundreds of people flock to Capitola to visit the mansion. Vandalism occurs and entry to the building is usually achieved during this time of year. Given this history and past practice, how could the city legitimately claim they have not allowed a dangerous and very "attractive nuisance" to exist for many years?

Pursuant to a request from Mr. Jim Burns, Special Consultant to the City's Redevelopment Agency (RDA), the Police Department researched the number of calls to the Rispin property over a several year period. I have reviewed the statistics relative to police response to the Rispin Mansion and 2002 in particular. I have several major concerns with the figures we previously provided to Mr. Burns. Due to security problems associated with the property, and the extreme liability the property poses to the city, I have visited the site on no less than a dozen occasions during the last year. Because these were self initiated visits and not recorded through Police Dispatch there is not a record of most of my visits. Likewise, I'm sure officers have patrolled the property literally hundreds of times without contacting a suspect or notifying dispatch. Therefore, the documented numbers of police visits to the property are conspicuously low and under estimate the actual costs of police service associated with the facility.

As stated, I responded to about a dozen calls at the Rispin Mansion last year to include: a dead body, structural fire, suspects running from officers, a report of a possible sexual assault, suspects in-custody, vandalized alarm and others. It's important to note, that the Chief of Police continues to closely monitor activities at this one location due to the serious concerns I have about the property and the dangers posed to the community. I concur with Chief Clark and feel that the

interests of Capitola would be greatly served by development of the property or removal of the structures and clearing of the fire hazards and under brush which currently exist. I have reviewed the plans you provided to me for the renovation of the mansion, development of the gardens, paths and security features. It is my opinion that the improvements included in this plan would either eliminate or certainly mitigate most of the public safety concerns I have for the property. If my staff or I can be of future assistance please contact my office at 475-4242, extension 213.

Sincerely,

Richard J. Ehle, Jr.
Chief of Police

CC: Jim Burns, Special Consultant to RDA
Bud Carney, Consultant to the Rispin Project

420 CAPITOLA AVENUE
CAPITOLA, CALIFORNIA 95010
TELEPHONE (831) 475-7300
FAX (831) 479-8879

May 8, 2003

Subject: Rispin Mansion Restoration Project

Dear Mr. Beardslee:

I have reviewed the preliminary plans provided for the Rispin Mansion Restoration Project. These plans show the preliminary site plan for the project including proposed pathways and drainage improvements.

In review I can offer the following:

- The plan shows a realignment of the pedestrian and bike pathway that leads from Wharf Road to the Peery Park Bridge over Soquel Creek. As long as ADA compliant access along the entire pathway is maintained as part of the realignment this proposal would fall within City requirements. As an addition, it may be desirable, as part of your project to rehabilitate the pathway from Wharf Road to your proposed realignment as the surfacing along this area is in degraded condition. Also, providing ADA accessibility directly from your project to this trail would be very beneficial.
- The drainage improvements indicate that on-site treatment of surface water discharges will be included as part of the project. It is imperative that all storm water being discharged through the outfall be treated, including any water from surrounding streets and properties. Heavy vehicle access must be provided to all storm water treatment devices for maintenance purposes.
- The storm water detention system proposed includes detention of flows for a watershed that includes the Rispin site, the Rispin parking lot, and City library. This system should meet the desired results of limiting the discharge through the outfall to pre-project levels for small and medium sized storms.

This review was limited to looking at the proposed pedestrian pathway changes and the drainage improvements. Should you require any further input concerning the above items, please let know.

Yours truly,

Steven E. Jesberg
Public Works Director

HARO, KASUNICH AND ASSOCIATES, INC.
CONSULTING GEOTECHNICAL & COASTAL ENGINEERS

Project No. SC8237
2 May 2003

RON BEARDSLEE AND DAN FLOYD
Beach Resorts LLC and Beardslee Development Associates
110 Grand Avenue
Capitola, CA 95010

Reference: Rispin Mansion Site Evaluation

Dear Mr. Beardslee and Mr. Floyd:

At your request, we have performed the following tasks:

1. Reviewed the plans for the Rispin Mansion Restoration Project dated 2/97 prepared by Joe Akers, Civil Engineer,

2. Read the Geotechnical Report, including the boring logs, dated January 25, 1991 by J. V. Lowney & Associates,

3. Performed a site visit to observe the geomorphic, geologic, and hydrologic conditions,

4. Discussed the riparian conditions with Bill Davilla of Ecosystems West, and,

5. Obtained and examined stereoscopic historical aerial photography of the site.

The purpose of our work is to assess whether mass grading has been historically done at the site so that the riparian zone boundaries were altered. Our conclusion is that no such grading has taken place. A discussion follows.

The 3 sets of stereoscopic historical aerial photographs we reviewed were from 1928, June 1956 and May 1990. The mansion was constructed in 1921. Foundation construction involved building retaining walls on the slope and backfilling them to create a level building site. Our geomorphic observations during our site visit and stereoscopic observation of the 1928 aerial photographs indicate very little grading was done at the site during development in 1921. If mass grading had been done between Soquel Creek and the buildings in 1921, the trees in that location would have been removed by grading. The slopes

below the mansion are well vegetated with trees in the 1928 aerial photograph. Substantial orchards exist to the north of the site (off site) on fluvial terraces elevated above Soquel Creek and below Wharf Road. Fluvial terraces do not exist below the mansion and Soquel Creek. There is no evidence of more recent mass grading on the 1956 or 1990 aerial photographs, nor did we see any during our site visit.

The mansion is located 30 to 40 feet in elevation higher than the Soquel Creek flood plain. The FEMA 100 year base flood elevation is more than 20 feet in elevation below the existing buildings on the site. Sandstone bedrock is exposed along the banks of Soquel Creek below the mansion.

The boring logs in the Geotechnical Report show terrace deposits in the upper 13 feet with sandstone below that. The site is located at the edge of a broad coastal terrace. The coastal terrace formed about 100,000 years ago when this area was at sea level. Subsequent uplift from tectonic forces elevated the terrace surface far above the modern position of Soquel Creek. The elevated fluvial terraces north of the site were at Creek level prior to tens of thousands of years of natural uplift. Now they are stranded high and dry and do not reflect current hydrologic conditions. The bedrock found in the borings and exposed along the edge of Soquel Creek is Purisima Formation sandstone. Topsoil, colluvium, and thin sliver fills are present on the slopes between the mansion and Soquel Creek. These thin fills are associated with trails and footpaths that were constructed long ago. Short dry stacked rock walls built by craftsmen in the 19th century are present along the edge of some of the footpaths and areas used for gardens by Henry Rispin.

Hopefully this information will clarify the geomorphic, geologic, and hydrologic conditions below the mansion. Please let us know if you have any questions.

Sincerely yours,

HARO, KASUNICH AND ASSOCIATES, INC.

John E. Kasunich
G.E. 455

JEK/dk
Copies: 2 to Ron Beardslee
1 to Bill Davilla
1 to Joe Akers

LAND
TRUST
OF
SANTA CRUZ
COUNTY

Office
617 Water Street
Santa Cruz, CA 95060
(831) 429-6116
Fax (831) 429-1166
landtrust@ltscc.org
www.ltscc.org

Correspondence
Post Office Box 1287
Santa Cruz, CA 95061

WE DO NOT
INHERIT THE
LAND FROM
OUR ANCESTORS,
WE BORROW IT
FROM OUR
CHILDREN.

May 5, 2003

Rispin Partners LLC
Ron Beardslee, Managing Partner
110 Grand Avenue
Capitola, CA 95010

Dear Mr. Beardslee:

As a result of a number of conversations you and I have had, I am writing to confirm the Land Trust of Santa Cruz County's interest in working with Rispin Partners and the City of Capitola to assure permanent protection for the historical and biological resources of the Rispin Property. That protection can be achieved through a combination of an historic preservation easement over the buildings and grounds of the old Rispin Mansion and a habitat conservation easement over the Monarch butterfly habitat and riparian areas, both of which would be irrevocable restrictions running with the land in perpetuity.

The Land Trust is a local nonprofit corporation celebrating its 25th year of protecting and managing lands of significant natural resource, agricultural, cultural and open space value throughout Santa Cruz County. Working in cooperation with public and private interests, this organization has afforded permanent protection to over 1,250 acres through its independent efforts, and has partnered with other agencies and organizations to preserve the 7,000-acre Coast Dairies property and the 250-acre Moore Creek Preserve in the City of Santa Cruz. We also manage additional resource lands under contract with both public agencies and private parties. Our current responsibilities include 12 access and/or conservation easements (we are preparing to accept three more habitat conservation easements from the Coastal Commission); in addition, we own and manage six properties that include forestland, a riparian corridor and freshwater pond, and a neighborhood park.

The Land Trust has the expertise to assist in developing easement documents that meet the goals of all parties involved, and, as the holder of those easements, would have responsibility for monitoring and enforcing their terms. We look forward to helping realize the dream of a restored and vital Rispin Mansion, and encourage you and the City to contact us with any questions or to schedule a meeting to further this process.

Sincerely,

Laura Perry

Laura Perry
Executive Director