

AUBURN/BOWMAN
COMMUNITY PLAN
Background Report

June 1994

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I. INTRODUCTION

A. PURPOSE OF THE BACKGROUND REPORT

This Background Report contains technical data, descriptive information, and design programs which were assembled in preparation of the Auburn/Bowman Community Plan (A/BCP). The contents of the Background Report form the basis and provide supporting documentation for the goals, policies, and implementation measures contained in the A/BCP text.

It is believed that by separating out technical data, descriptive information, and design programs from the actual Plan text, the Plan text will be much easier to use. It will result in a much more concise planning document consisting of a clear set of community goals, specific policy information, and implementation measures.

A number of reports were prepared during the writing of the A/BCP and are incorporated into the Background Report as appendices. These reports include: A/BCP Public Services/Public Facilities Study (QUAD Consultants, September 1991); A/BCP Hydrology Study (James M. Montgomery Consulting Engineers, Inc., July 1992); Economic and Fiscal Analysis of the A/BCP, (Recht Hausrath & Associates, revised January 1993); Environmental Noise Analysis, (Brown-Buntin Associates, Inc.); and Draft A/BCP Conservation and Open Space Component of the Environmental Resources Management Element (The Placer County Resource Conservation District, September 1991).

The A/BCP Environmental Impact Report (EIR) also provides extensive background information as well as an analysis of the anticipated environmental impacts associated with the adoption of the A/BCP and its implementing Zone District Map.

Some of the information contained in this Background Report was based on the earlier versions of assumptions and alternatives of the Land Use and Zone District Maps. As often occurs with general and community plans, during the course of preparation of the plan and during the public hearing process, a number of assumptions and land use designations and/or zone districts were modified. These modifications resulted in some changes to the Plan text; predominately in differences in the holding capacities, and differences in the distribution and intensity of land uses. While some of the information contained in the Background Report is relatively fixed and timeless, such as geology, other information is more connected to holding capacities and/or land uses and distribution of densities and intensities, such as public facility analysis. However, because of the mostly general nature of the background information, and the limited overall effect of the land use and zone district changes, it is believed that the information contained in this Background Report is still relevant. Readers are cautioned, however, to only rely on the A/BCP text for adopted goals, policies, and implementation measures.

B. PREVIOUS PLANNING EFFORTS

Planning efforts of one sort or another have periodically occurred both within the City of Auburn and in the unincorporated areas north and south of the City over the past thirty years. Zoning regulations were in place over much of the area in the 1960's. In 1964 the City of Auburn and Placer County undertook the first comprehensive and cooperative land use planning effort which resulted in Auburn's first "General Plan."

The 1964 Plan provided for a total population of approximately 150,000 people in an area only slightly larger than the current sphere of influence for the City of Auburn. Land zoned for commercial uses was

sufficient to serve a population of 173,000 people. At full development, the Plan predicted that 21,000 acres would be used for residential purposes -- in contrast to the 2,062 acres then in use.

Other provisions incorporated within the 1964 Plan called for an expansion of the 35 acre Auburn central business district to over 175 acres. Ten new neighborhood shopping centers, each about ten acres in size, were to have been provided within a one mile radius of the City. The Plan also stated that, "Zoning controls should be strengthened to prevent strip commercial development along major roads." Highway 49 was designated as a proposed freeway bypass route with "cloverleaf" interchanges at Fulweiler Avenue, Luther Road, Atwood Road and Dry Creek Road.

In 1976, the City of Auburn and Placer County undertook the second major comprehensive planning effort for the Auburn area. The Plan area boundaries at that time extended from the Placer County line at the Bear River, south to encompass the larger Auburn area to a point south of Auburn Folsom Road and Indian Hill Road. The Ophir area formed the western boundary of the Plan area with the American River Canyon forming the eastern boundary. During that Plan effort, the Bowman area was excluded as a separate geographical area.

The 1978-79 Plan program was again a joint effort by the city and the county. An Auburn General Plan Review Committee, appointed by the City Council and the County Board of Supervisors, extensively reviewed data and other research information developed by the city and county planning staffs. Their recommendation to the governing bodies was a Plan with a holding capacity of approximately 65,000 people, less than half that shown on the 1964 Plan. The final holding capacity of the 1978-79 Plan adopted by both governing bodies was 57,000 people and assumed an annual growth rate of 6%.

The commercial areas shown in the earlier 1964 Plan were expanded, deleted and/or relocated based upon development patterns prevalent through 1976. The trend of the strip commercial development which began in the early 1960's along the Plan's major roads (I-80 and Highway 49) was not discouraged by the 1978-79 Plan. Highway 49 was proposed to be rerouted to a limited access expressway "bypass" west of the Auburn urban area, while the existing Highway 49 was designated to be widened to six lanes from I-80 to Dry Creek Road, and four lanes from Dry Creek Road to the Nevada County line.

The 1978-79 Plan text itself also established policies to govern land use decisions affecting population and housing, delivery of public services, safety, noise, natural resources, open space, seismic safety, and cultural resources.

C. PLAN ASSUMPTIONS

Assumptions, along with goals and policies, provide the basic foundation for a plan. They give direction to the consideration of amendments and provide a basis for the preliminary planning studies and inventories. The assumptions contain statements of apparent facts, and observations of current trends in the Plan area. Following are several assumptions upon which the Auburn/Bowman Community Plan is based:

1. Residents of the Auburn area locate here primarily because of the small-town atmosphere, central location, and the rural environment of the surrounding area.
2. Population and employment in the Auburn area will continue to grow at a moderate rate (2.1% to 3% annual growth rate).

3. Higher densities will locate in areas where public services are available.
4. While the demand for single family homes will likely remain significant, either on large lots in the outlying areas or on smaller lots in urban areas, there will likely be a considerable increase in multiple-family units as well.
5. While the private auto will continue to be a significant means of transportation, strong efforts will be made during this period to encourage the use of public transportation and other non-auto forms of transportation.
6. An Auburn Dam project of some type may be constructed during the 20 year plan period.
7. The primary commercial centers will continue to be the Auburn central business district (including the historic Auburn commercial area), the existing commercial corridor along Highway 49, and the existing highway service districts along Interstate 80.
8. The Auburn Airport will remain in existence with limited expansion within the Plan period.
9. The Dewitt Center will continue to be a major county governmental complex.
10. Route 102 will not be constructed within the Auburn/Bowman Plan area within the 20 year period.
11. The issues related to State Route 102, the State Highway 49 Bypass North of Auburn, and State Highway 49 relocation in conjunction with the Auburn Dam are interrelated. The Community Plan -- together with other studies already in progress -- will contribute to providing direction to the resolution of these issues.
12. Highway 49 will be widened to six through lanes from Interstate 80 to Dry Creek Road within the Plan period. The widening of Highway 49 to four lanes from Dry Creek Road to the Nevada County line is currently (June, 1993) under construction.
13. The demand for parks, recreation facilities, and trails for use by hikers and bicyclists will continue to grow at a rate higher than the rate of population growth.
14. The need to protect and conserve natural resources and remaining open space will become more important with a growing population.
15. The demand for all public services will continue to grow, especially in more densely developed areas.
16. Natural constraints, such as steep slopes, riparian areas, watersheds, and dense woodland areas, will be an important factor in determining where more intense development (commercial, industrial, high-density residential) should be allocated within the Plan area.
17. The relationship between air quality, transportation, and land use will play an increasingly important role in development decisions in the future.

II.

**COMMUNITY
DEVELOPMENT
ELEMENT**

A. POPULATION AND HOUSING

1. Affordable Housing

a. Background

The Placer County General Plan Housing Element, adopted by the Board of Supervisors in June of 1984 and amended in 1991 and 1992, provides background information on a number of County-wide policies on housing related issues (see pages 5-21). The affordable housing goal of the housing element is as follows:

GOAL: TO PROVIDE A CONTINUING SUPPLY OF AFFORDABLE HOUSING TO MEET THE NEEDS OF EXISTING AND FUTURE PLACER COUNTY RESIDENTS IN ALL INCOME CATEGORIES.

One of the programs in the Housing element states that:

"As part of the General Plan update, and as part of each community plan update, the County will review land use patterns, existing densities, the location of job centers and the availability of services to identify additional areas that may be suitable for higher density residential development ."

Portions of the north Auburn and Bowman areas have the services available for providing low and moderate income housing as required by the Housing Element. The 1992 update of the Placer County General Plan Housing Element identifies additional measures to encourage additional affordable housing. These additional measures are needed to provide affordable housing and are addressed in this Plan. Several years ago, approval of a density bonus may have been sufficient for providing a developer with the financial incentive to provide affordable housing. Today, with the dramatic increase in land and building costs, a combination of programs and incentives are needed in order for an affordable housing program to become financially feasible.

The problem of providing affordable housing was recently noted by the Kean Commission, in a report to President Bush on removing barriers to affordable housing ("Not in My Back Yard" Washington 1991). This report cited government regulation as a major contributing factor in denying housing opportunities, raising costs, and restricting supply. Various measures noted by the Kean report to improve housing affordability include reforms to wetland regulations, the Endangered Species Act, building codes, state impact fees, building standards, etc. Some of these issues are addressed in the proposed affordable housing program.

As mandated by the State, the County is required to provide its fair share of affordable housing as determined by the appropriate regional housing need. This regional allocation has been determined by the Sierra Planning Organization, for the period between 1990 and 1997 and is shown in Table 1. The housing need identified here is for the Auburn/Bowman Community Plan area (not including the city of Auburn). Also shown on this table is the annual income for each category as well as affordable housing costs.

Table 1
Auburn/Bowman Regional Housing Allocation

Income Category	Annual Income *	Monthly Housing Costs	1990-1997** Additional Housing Units Needed for Plan Area
Very low	\$13,900 - 26,000	\$347 - 655	316
Low	\$22,250 - 41,900	\$556 - 1,047	235
Moderate	\$33,350 - 62,900	\$834 - 1,572	293

* Range reflects 1-8 persons per household. Information from the 1991 Addendum to the Placer County Housing Element.

** Information from Sierra Planning Organization 11-8-91. These figures represent the percentage of households in the County located within the Auburn/Bowman Plan area.

b. Programs

Placer County has developed the following programs to assist in providing adequate housing for all economic segments of the community.

- (1) Adopted an ordinance that allows for a "second residential unit" either attached or detached with separate living facilities for one or more persons to be constructed in residential zone districts providing a Conditional Use Permit is first obtained and certain standards are met.
- (2) Adopted a density bonus ordinance for rental units which provides for additional units over the general plan or zoning limitation on a parcel, assuming the developer requests to build a portion of his or her units for very low or lower income households. Units must be affordable based on HUD Section 8 income requirements.
- (3) The Community Services Department functions as the housing office for the County providing general housing information and administering HUD Section 8 rental housing certificates for the unincorporated area.
- (4) The County continues to participate in the Community Development Block Grant Program to provide infrastructure and housing rehabilitation grants and loans.
- (5) Private developers are encourage to participate in the Federal and State Housing programs designed to provide for low and moderate income housing.

The following are additional programs to be considered:

- (6) **REDEVELOPMENT** - A redevelopment district has been formed for the Auburn/Bowman area and a redevelopment plan is being developed. Several mandatory elements are required in the redevelopment plan for the purposes of improving or increasing the supply of housing for low and moderate income persons. These elements include:
- (a) Not less than 20 percent of the tax increment funds allocated to an agency from a redevelopment project must be used by the agency (with certain exceptions) either within the project area or elsewhere in the community for the purpose of increasing, improving, or preserving the community's supply of low and moderate income housing.
 - (b) At least 30 percent of all new or rehabilitated dwelling units developed by an agency and at least 15 percent of all new or rehabilitated dwelling units developed in the project area by public or private entities or persons other than the agency are to be available at affordable housing cost to persons and families of low and moderate incomes.
 - (c) Replacement housing is required to be constructed on a one-to-one basis where dwelling units housing persons and families of low or moderate income are destroyed or removed from the low or moderate income housing market as part of a redevelopment project. Such replacement housing must be provided within four years of such destruction or removal.

Redevelopment agencies have extremely broad powers in expending monies from the Housing Fund to assist low and moderate income housing. Agencies may spend Housing Fund monies to acquire land, improve the land with on-site or off-site improvements (but only if the improvements directly and specifically improve or increase the community's supply of low or moderate income housing), donate the land, acquire and rehabilitate buildings, and provide subsidies. A Redevelopment agency for the Auburn/Bowman area provides an effective mechanism for providing affordable housing and maintaining and improving the areas existing supply of affordable housing. Once a redevelopment plan is implemented, it takes approximately 5 to 10 years before a substantial number of affordable units are added to the housing supply.

- (7) **HOUSING TRUST FUND** - Monies deposited into a housing trust fund are used to increase and improve the supply of affordable housing. Housing trust funds are generally established through an ordinance which establishes a revenue source for the housing trust fund. An ordinance also establishes the Housing Trust Fund as a separate and distinct entity

which can receive and disburse funds apart from the County General Fund. Various funding sources for the housing trust fund could include, but not be limited to: the County General Fund, mitigation fees, and funds from the redevelopment agency. It is the recommendation of this Plan that an ordinance be adopted to establish a Housing Trust Fund.

- (8) **MODIFY THE SECOND UNIT ORDINANCE** - The second unit ordinance allows an addition of up to 15% to an existing house for an attached second unit. In order for a standard size home to have an adequate size second unit, the majority of the living area must come from the existing home. Increasing the potential additional area to 30%, as provided for in State law, could encourage homeowners to provide attached second units by increasing the options a homeowner has to remodel an existing home. Currently, the majority of second unit applications are for detached units. The 15% figure may be too restrictive.

The Second unit Ordinance also limits detached units to parcels with a lot size of 2.3 acres or larger. In order to create a greater opportunity for detached units to provide affordable housing, the minimum lot size for detached second units should be decreased to one acre.

Second Residential Units are a means of providing affordable rental housing in a non-intrusive manner. They also encourage a far wider range of ages, incomes and lifestyles than the typical income-segregated suburban neighborhoods. This Plan proposes to increase the number of second residential units constructed within the Plan area. It is the recommendation of this Plan to rewrite the Second Residential Unit Ordinance during the County-wide Ordinance update to increase the area that can be added to an existing house to 30% and decrease the minimum lot size requirement for detached units to one acre.

- (9) **SMALL HOMES ON SMALL LOTS** - The County can permit lots that are smaller than currently allowed in the Auburn/Bowman area. Smaller lots could range in density between 6 and 12 units/acre. Limiting the size of the lot and not the unit does not ensure the construction of affordable units; therefore these small lots should also be limited to relatively small dwelling units. Generally, small lots can substantially reduce total housing costs. A study by the American Planning Association discovered that most of the savings in development costs resulted from changes in development standards including: reduced frontages, reduced setbacks, and lower land and infrastructure improvement costs per unit.

A common perception is that small lot subdivisions will create a high density appearance and not blend in with the surrounding community. Special attention to subdivision and creative building design can enhance the appearance of small lot subdivisions. Older downtown areas, such

as in the City of Auburn, were developed with 5,000 square foot lots. Standard setbacks can also be modified to allow zero-lot line buildings. This creates an illusion that there is more open space and gives each owner enough room on the side of the house for a useable yard. An increase in the number of units provided on small lots will also help to meet the demand for single-family housing which is traditionally greater than the demand for multi-family units, especially in the foothill area.

Small homes on small lots is most notably addressed in the mixed-use areas. Specific design standards, such as zero lot line dwellings, will be addressed in the County-wide update of the Zoning Ordinance.

(10) **ACCESSORY APARTMENTS** - Accessory Apartments, within higher density projects (6 units/acre or greater), can also provide another source of affordable housing while avoiding the sometimes institutional character of apartment projects. Accessory apartments are typically detached units located over a garage. These units increase the density of an area without changing the pattern of single lot private ownership. This Plan proposes that accessory apartments be evaluated as a part of new project review based on discussions within the mixed-use area of the Community Plan. It is also recommended that development standards for these units (setbacks, maximum size, etc.) be addressed in the update of the Zoning Ordinance.

(11) **REVISE INFRA-STRUCTURE STANDARDS** - The review and modification of on-site and off-site development standards can reduce the costs of development while responding to basic environmental, health, safety, and welfare needs. The Bay Area Council has suggested revising some of the following standards: reducing street widths, reducing the turning radius on cul-de-sacs, reducing pavement thickness, requiring sidewalks on one side of the street, etc. Several of these items have already been incorporated into project designs as an attempt to reduce construction cost when it was deemed appropriate. Revising development standards was one of the recommendations of the Kean Commission report. In addition, the use of redevelopment funds to construct infrastructure to serve certain areas could reduce housing costs.

It is the recommendation of this Plan for the County to amend the zoning ordinance to allow the relaxation of certain development standards as incentives for affordable housing projects. The specific standards which will be evaluated include, but are not limited to, the following:

- Reduction in the area of paved surfaces through the use of angled parking and one-way circulation.
- Reduction in street widths.
- Reduction in turning radius on cul-de-sacs.

- Reduction in pavement thickness when it can be demonstrated that soils and geotechnical conditions can permit a lesser thickness.
- Limiting the requirement for sidewalks to one side of the street and reducing the width requirement.
- Reduction in plant container size and density of plantings within landscaped areas of high density residential projects.
- Reduction in the number of landscaped islands required in parking areas.
- Reduction in the open space/recreational area requirements of high density residential projects when the project is located adjacent to public open space areas that may include schools, parks, passive recreation areas, etc.
- Increased flexibility in evaluating a project's architectural conformity to the Placer County Design Guidelines Manual. The design review should encourage simple projects which are attractive and generally consistent with County policy, but are constructed at a lesser cost than market-rate projects.
- Reduction in setback requirements.
- Increase in the allowable height of buildings for affordable housing projects.
- Increase in the allowable lot coverage for affordable housing projects.

(12) STREAMLINING PROCESSING TIME - Since administrative delays can add to development costs, affordable projects can be reviewed and checked in advance of other pending developments. It is the recommendation of this Plan to provide for priority processing. This Plan and the accompanying Environmental Impact Report (EIR) will contain sufficient detail so that the environmental impacts of future projects would have already been identified and evaluated in the EIR. If a project is found to be consistent with the Community Plan and has the potential to create significant impacts, an addendum to the Community Plan's EIR would be the appropriate environmental process instead of preparing a new EIR. Consequently, there is an opportunity to save a substantial amount of time in the environmental review process. Streamlining processing time was another recommendation of the Kean report.

(13) **INCLUSIONARY ZONING** - This implementation measure would require that a percentage of low income units be provided in all new development projects. Inclusionary programs can either be mandatory requirements or based on development incentives such as density bonuses. Inclusionary ordinances are widely regarded as within the locality's exercise of the police power. According to the Association of Bay Area Governments, the key to a successful inclusionary program includes:

- (a) Affordable housing requirements should be relatively modest (10 percent of the total number of units) if there are no development incentives to reduce the financial impact on the developer.
- (b) The ordinance should provide for alternatives (such as in-lieu fees, dedication of land, etc.) for development that cannot satisfy the inclusionary requirement due to an unusually high cost of construction for a particular site. But if in-lieu fees are too low, they may not generate enough monies to construct housing units.
- (c) Upzoning and other land use changes to increase residential densities should accompany inclusionary zoning. This will help offset the financial impact of inclusionary requirements and fees.
- (d) Inclusionary units should be integrated within the projects so as not to be distinguishable from the market rate units.
- (e) The County needs to set up resale controls for continuing the use of the units by eligible occupants on turnover. This requires ongoing management and administration.

It is the recommendation of this Plan to require all new housing projects of 100 or more units on land that has received an increase in allowable density through either a public or privately initiated general plan amendment, community plan amendment, rezoning or specific plan shall be required to provide at least 10 percent of the units to be affordable to low income households. The low income units shall be available concurrently with the market-rate units. All such units shall remain affordable for at least 20 years.

In cases where developers actually construct the low income units, the projects shall be eligible for a 10 percent density bonus. The Land Use Element and Zoning Ordinance will be amended to avoid potential conflicts with minimum lot size standards in cases where the density bonus option is exercised.

In cases where the County determines that it is impractical for the developer to actually construct the units on-site, the County may as an alternative allow the dedication of land within the Community Plan area

sufficient to accommodate at least 10 percent of the units for low-income households and/or the payment of an in-lieu fee. In cases where land dedication is deemed suitable, such land shall be offered in fee to the County or to another public or nonprofit agency approved by the County. The amount of the in-lieu fee shall be determined on a case-by-case basis. The County may require the developer to fund an analysis showing how contributions of in-lieu fees could be best utilized to create the desire number of low-cost units.

- (14) **DEVELOPMENT OF PUBLIC LAND/LAND BANKING** - Land banking involves the acquisition of land by public agencies for use in future development. Land banking can preserve sites for affordable housing until resources are available for construction and long-term financing. Through this technique, local governments can control the location, timing, cost, and nature of development. Land banking shields against inflation of urban land prices and provides a means for the community to provide affordable housing. The county will be considering land banking as a method to provide affordable housing in the County-wide Housing Element.

The county currently has 92 affordable rental units at DeWitt Center. Replacement housing should be provided if these units should be removed from the rental market by the County as a recommendation of this Plan. The County also owns a significant amount of land and a portion of this land will be targeted for affordable housing. As a part of this Plan, a policy will be adopted so that surplus county land will be evaluated to determine its suitability for affordable housing projects. If this land is deemed suitable for affordable housing projects, it will either be reserved for future housing projects or be made available to a public housing authority or developers (private or non-profit). The County shall assess surplus land as potential candidates for affordable housing prior to assessing and purchasing other land for such projects. Whether the County obtains land through a land banking program or uses available County land, the community can encourage and manage the development of affordable housing.

All new housing projects of less than 100 units on land that has received an increase in allowable density through a general plan amendment, community plan amendment, rezoning or specific plan shall be required to pay an in-lieu fee of one percent of the total estimated land and construction cost of the project, for use in producing affordable housing. Alternatively, the County may waive the fee in cases where lower income units are included in the project and the Board of Supervisors finds that the number of lower income units is commensurate with the numbers that could be built or leveraged through the fee.

- (15) **WAIVER/REDUCTION OF DEVELOPMENT FEES CHARGED BY THE COUNTY** - A common component for several affordable housing projects to be developed within the State is for the local jurisdiction to waive a certain percentage of the land development fees charged to

affordable housing projects. Placer County has elected to do this in at least two recent cases and will continue to do so on a case-by-case basis.

- (16) **MOBILE HOME PARK PRESERVATION** - The likelihood of mobile home parks being converted to another use could be reduced by rezoning existing mobile home parks on commercially zoned land to either high density residential or medium density residential district. If a mobile home park or any portion of a mobile home park is changed to another use, this Plan proposes to implement Section 65863.7, 65863.8 and 66427.4 of the California Government Code by requiring the applicant of a mobile home park conversion or closure to be responsible for the relocation of displaced residents. Provisions of these sections include, but are not limited to:

- (a) The applicant shall file a report on the impact of the conversion or closure upon the displaced residents of the mobile home park, and the report shall address the availability of adequate replacement housing in mobile home parks and relocation costs.
- (b) The applicant shall provide a copy of the report to a resident of each mobile home in the mobile home park at least 15 days prior to the hearing.
- (c) The applicant shall notify residents and mobile home owners of the mobile home park of the proposed change in use per Section 798.56 of the Civil Code and all applicable local requirements. (The County shall notify the applicant of these requirements 30 days prior to a hearing in writing.)

This Plan also recommends that the County assist in relocation costs when such resources are available.

- (17) **DENSITY BONUS FOR RENTAL HOUSING** - The County will adopt a new density bonus ordinance to encourage rental housing. Multi-family projects with more than four units and that provide at least 50 percent of the units are rentals affordable to moderate or lower income households may be eligible for a density bonus of 25 percent. As a condition of approval for the density bonus, the units must remain in the affordable price range for at least 20 years.

- (18) **COMMUNITY REINVESTMENT ACT** - Encourage private lending institutions to invest in new housing in the area through the Community Reinvestment Act. These lending institutions shall be encouraged to consider the following programs:

- Low interest fifteen year loans to assist borrowers participating in County sponsored housing rehabilitation programs.
- Below market loans to facilitate the development of new affordable housing both single and multi-family.

- Technical assistance for non-profit agencies and housing and community development organizations in structuring and obtaining financing.
- Counseling assistance to first time home-buyers.
- Funding to capitalize a Housing Trust Fund administered by Placer County to assist with the development of affordable housing.
- Low interest long term loans to meet the credit needs of Special Districts that provide infrastructure and facilities for recreation, water, fire protection, or other public services.
- Contributions to finance the preparation of applications for the Community Development Block Grant Program, including cash match requirements.
- Provide free services in support of Placer County's housing rehabilitation loans to include the following:
 - Credit Check
 - Verification of Employment
 - Verification of Mortgage Balance
 - Property Indebtedness/Equity Profile
 - Lot Book Report
 - Preparation of Loan Documents
 - Recording the Trust Deed
 - Loan Servicing

B. LAND USE ELEMENT

1. Commerical Ratio Discussion

The Urban Land Institute (ULI) recommends a demand ratio for neighborhood shopping facilities of 10,000 sq. ft. per 1,000 residents within a three to five mile radius. The same ratio is recommended for community retail space demand of an additional 10,000 sq. ft. per 1000 residents in a five to seven mile radius. The ULI cautions about using this ratio as a hard and fast rule in determining demand since the feasibility of a commercial project is also dependent upon location in relation to the market and the area's daytime population generated from employment centers." In the Auburn/Bowman area, the existence of Highway 49 and I-80 adds to the actual market area served. Keysor Marston Associates, Inc., market analyzers, estimates that the current Auburn market area contains approximately 43,000 people.

Based on the above ratios the Plan area conservatively provides approximately double the commercial space that would typically be supported. In the Land Use Plan, sufficient commercial land has been designated to maintain this same ratio of double the ULI recommended ratios. This may be considered an oversupply of commercial land when recent market studies show that the demand for convenience retail commercial space in the Auburn/Bowman area is very low due to an existing oversupply of such space. Furthermore, the economic and fiscal analysis prepared

for the Plan indicates that it would take approximately 72 years to absorb the retail commercial land designated by the Plan. (Further discussion is contained in the Economic and Fiscal Analysis of the Auburn/Bowman Community Plan contained in the Appendix A.)

C. COMMUNITY DESIGN ELEMENT

1. Introduction

The Community Design Element attempts to recognize those positive features which characterize the Plan area and to provide specific guidelines/policies for site development which will result in the overall enhancement of the community's appearance and function. Testimony at various public forums, hearings and workshops conducted during the Plan preparation process consistently revealed a strong desire by residents and property owners within the Plan boundary to preserve the essential small town atmosphere and rural setting which gives the greater Auburn/Bowman area its charm. Although population growth is anticipated within the Plan area, the nature of that growth will determine the character of the Auburn/Bowman community in the future. The careful preservation of the existing landforms, woodlands, streams and riparian areas, neighborhoods, and rural flavor of the area as new development is undertaken will result in a community which provides a high quality of life for its residents while also accommodating the wide variety of lifestyles and needs that are present.

The rural nature and small-town atmosphere of the Auburn/Bowman community define the primary reasons why people choose to live here. While some parts of the area are developed with very urban characteristics, it is the overall rural flavor of the community with which most residents and visitors identify. Perhaps the most important factors contributing to that general perception are the area's varied topography, scenic vistas, oak and pine woodlands, a few examples of relatively compact urbanized districts, and close proximity of existing agricultural operations to urban and suburban land uses.

The commercial districts along the Highway 49 corridor and in the Bowman area are a conglomeration of many different styles of architecture, signage, and other widely varied design features. A recent redevelopment feasibility assessment report prepared for the County describes the north Auburn area as being... "characterized by improper subdivision practices, a chaotic mixture of uses, inadequate public improvements, and an assortment of deteriorating structures." Another area of concern cited during the initial public workshops for this community plan update was to discourage any expansion of the strip commercial nature of the area, particularly along Highway 49. In order to reverse this trend of development, one of the goals of the Community Design Element is to establish a coherent design theme and to introduce elements into these areas so that new projects as well as redesigned older ones will complement each other.

The protection of scenic corridors, together with the implementation of the landscape programs, the design principles, and design guidelines discussed below, and the policies contained in the Plan itself in future project approvals will advance these objectives through the creation of a consistent high quality character of development. These programs, principles, guidelines, and policies include as major components: setback and buffer areas, orientation to and preservation of natural features, relationships of building forms and materials, and a unifying landscape concept along Highway 49 and Bell Road. Combined, these elements will complement existing and surrounding land uses.

2. Scenic Corridors

This section identifies scenic routes within the Plan area and the measures needed to preserve and enhance the scenic qualities along these corridors. The Placer County Scenic Highways element lists most of the following roadways as part of the Placer County Scenic Highways System. Mt. Vernon and Christian Valley Roads are not part of the Placer County Scenic Highways Element, but are listed as part of the scenic corridor sections in this Plan due to the significance of maintaining the viewsheds along these roadways as stated in the Land-Use Section. These routes are included in this Plan as further support for the protection of scenic resources which exist in the Auburn/Bowman Community Plan area.

a. Highway 49

This route includes all of Highway 49 located in Placer County. This route should be protected from continued inappropriate strip commercial or other development which could destroy the scenic qualities along this corridor. This route is an important link in the "Golden Chain" which winds through the historic Motherlode country. It is included in the California Scenic Highway Master Plan.

b. Interstate 80

Interstate Highway 80 is a major circulation route for the nation, the State and Placer County. Special consideration shall be given to development which could further degrade the scenic qualities along this route.

c. Bell Road

Bell Road, between I-80 and the Fiddler Green Canal, provides a very open and scenic drive for residents of the Auburn/Bowman Community Plan area and should be protected from strip commercial or other urban development which could destroy the scenic quality along this corridor.

d. Dry Creek Road

Dry Creek Road, between Interstate 80 and Blue Grass Drive, follows Dry Creek which contains significant riparian vegetation and dense tree coverage that enhances its scenic quality. These areas should be protected from destructive activities.

e. Auburn Ravine Road, Foresthill Road, Auburn-Folsom Road, and Indian Hill Road

Only a small portion of these roads are within the Auburn/Bowman Plan area. Given the importance of these roads to the community's identity any special corridor studies should be coordinated with the City of Auburn. For those portions that are in the County, special consideration of preserving their scenic qualities must be given.

f. Mt. Vernon Road

The Mt. Vernon Road corridor includes several pastoral scenes and a view of the surrounding ridge lines. Steep topography, riparian areas, and poor soils will severely limit the development potential of this corridor. A large minimum lot size designation should be sufficient to maintain the scenic value of this corridor.

g. Christian Valley Road

The scenic resources of this corridor include dense oak woodland bodies of water, as well as many other rural features. Views from this roadway are important to the character of Christian Valley. These routes provide a network of scenic roads within the Auburn/Bowman Plan for residents of the area as well as for those visiting or traveling through the community. The scenic resources along these routes are one of the real assets of this area and should be protected and enhanced through the many programs available to the County.

3. Landscape Plans

a. Highway 49

The purpose of the Highway 49 Landscape Plan is to provide a cohesive landscape strip along Highway 49 from the Auburn City limits to the vicinity of Joeger Road, a distance of approximately three miles. Currently, the Highway 49 Landscape Plan is being implemented as a condition of project approval for new and redeveloped projects. There have been several projects along Highway 49 which have installed their portion of the Landscape Plan and the majority of the landscaping along Highway 49 will be provided as a condition of project approval. However, there are five critical remaining sites or "missing links" which will remain within the corridor. These "missing links" coincide with some of the major intersections within the corridor as shown on Figure 1. It is very unlikely that these areas will be developed in the near future, yet they are all located in areas that are visually significant and have the potential to create a complete landscape plan when it is added to the landscaping installed as a condition of project approval.

The top priority for providing landscaping is Area A which includes the western side of the intersection of Bell Road and Highway 49 and functions as a focal point for the North Auburn area. Special funding could be used to landscape the northwest corner of the intersection. Area C is the next priority and is located at the intersection of Highway 49 and Nevada St./Marguerite Mine Road. This intersection serves as the entryway into the Highway 49 corridor and will also continue a landscape plan that has been established by a newer project. Area B is the next priority and includes the Southern Pacific Railroad (SPRR) underpass banks and the heavy commercial uses located north of the underpass. The remaining priority are areas D and E which will provide the last major "missing links" along the Highway 49 corridor.

Alternate methods that could be used to implement the Highway 49 Landscape Plan in areas where it is unlikely to be developed or redeveloped in the near future include: volunteer participation, funding from either County, State, and/or Federal agencies, or the creation of a County Service Area (CSA) in which all property owners would contribute to a fund. Redevelopment Agency funding is also possible and it is recommended that these projects be included in the pending redevelopment plan for the north Auburn area which is now being prepared by the County. A CSA could also be created to provide maintenance which would either be done by the County or by a private firm under contract with the County.

The planting list for the Highway 49 Landscape Program consists of a variety of trees, shrubs, and groundcover which are native and/or drought tolerant species (see Figure 3 for the Highway 49 Landscape Program). This plan incorporates the ultimate widening of Highway 49 into the landscape design. Unfortunately, there will be some areas along the highway that will not have sufficient room for landscaping as a result of the widening.

Figure 1
Highway 49 Landscape Plan - Missing Links

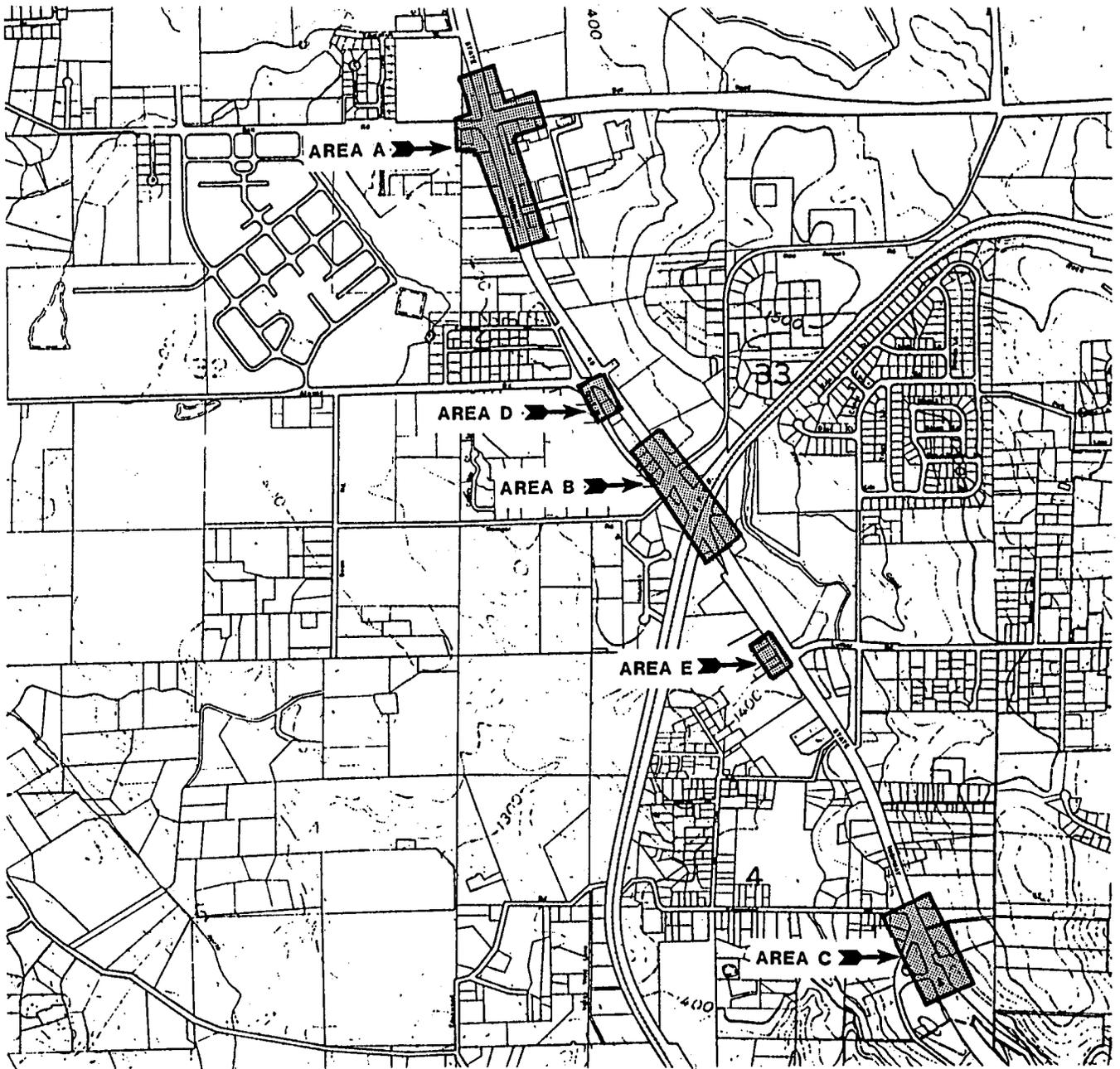


Figure 2
Typical Cross Section of the Highway 49 Landscape Plan

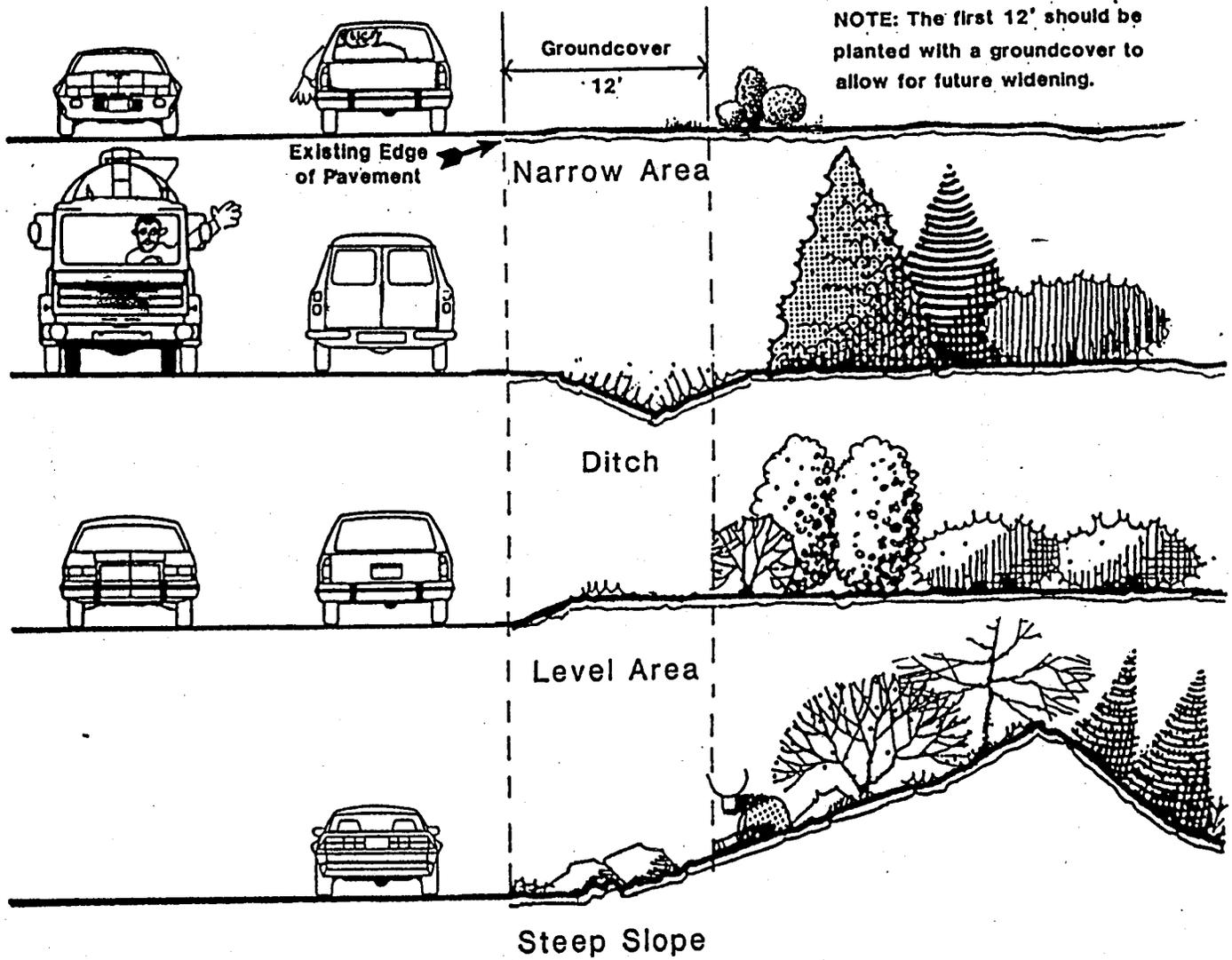


Figure 3
Highway 49 Landscape Plan Requirements

The following is a checklist of initial requirements for installing landscaping within the Highway 49 right-of-way. Please contact the Planning Department for further direction.

1. Contact the Planning Department to set up a meeting regarding specific requirements and for discussion of initial proposal.
2. Applicant must apply for Design Review prior to County approval for any proposed landscaping. No application fee required if only landscaping is being proposed.
3. Applicants must apply for an Encroachment Permit through the Placer County Planning Department (no fee required). Note: Applicants will not have to make any applications or pay any fees to the State Highway Department (Cal-Trans).
4. Proposals should address the following requirements:
 - A. Planting plan must conform to the proposed "Master Landscape Plan" that is on file in the Planning Department (see attached plant list). Substitute plans may be allowed if first approved by the Planning Department.
 - B. Trees, shrubs, and ground cover must be planted at a minimum of 20' from the edge of the outside traffic land (12' from edge of shoulder).
 - C. Areas between the existing highway and the proposed planting area (approximately the first 12 feet beyond the existing pavement or 20' from the edge of the outside traffic lane) are to be planted with Hypericum ground cover.
 - D. Large clusters of Daffodil bulbs are to be planted just behind the 12' mark, unless bulbs have been previously planted.
 - E. All planting plans must address the existing Daffodil bulb locations. These bulbs are not to be disturbed. All planting is to be done behind bulb areas (except for ground cover).
 - F. Irrigation must be provided to all planting areas and an Irrigation Plan is to be submitted with the Planting Plan.
 - G. All planting areas must be properly prepared and soils are to be amended when necessary. Trenches and ditch areas are to be filled (if required by the Design Review Committee) and any drainage or culverts are to be installed if necessary.
5. Once installed, all planting areas must be properly maintained according to County standards. Applicant will be required to enter into a maintenance agreement with the County.

The following plant list is the "Master Landscape Plan" for Highway 49. At a minimum, 75% of the proposed landscape plan must contain plants from the following list. The applicant may also incorporate alternate ornamental plants into the remaining 25% of the total plant list. Note: The landscaping within the right-of-way should integrate and be compatible with the landscaping behind the right-of-way within the proposed project boundaries (if applicable).

TREES:

*Cedrus Deodara (Deodar Cedar)

COMMENTS:

Dominant accent tree for the corridor. If possible, plant just outside right-of-way or near right-of-way.

*Cercis Occidentalis (Western redbud)

Deciduous; accent; spring bloom

*Pistachio Chinensis (Chinese Pistache)

Deciduous; accent; fall color

SHRUBS:

*Ceanothus 'Julia Phelps'. (wild lilac)

Blue springs bloom; Plant in clumps of 3, 5, or 7

Heteromeles Arbutifolia (Toyon)

Winter red berries; white spring bloom

*Acacia decora (Graceful wattle)

Yellow bloom, winter

*Fremontodendron, California (California Flannel bush)

Yellow bloom, spring

Dodonaea viscosa 'Purpurea' (purple hop bush)

Evergreen; purple foliage

Cistus hybridus (Rock rose)

White/purple flowers, spring

Forsythia intermedia 'Spectabilis' (Forsythia)

Yellow flowers, spring

*Rosa Rugosa 'Hansa' (Ramanas rose)

Deep red flowers, summer

*Rosa Foestida 'persiana' (Austrain briar)

Yellow flowers, summer

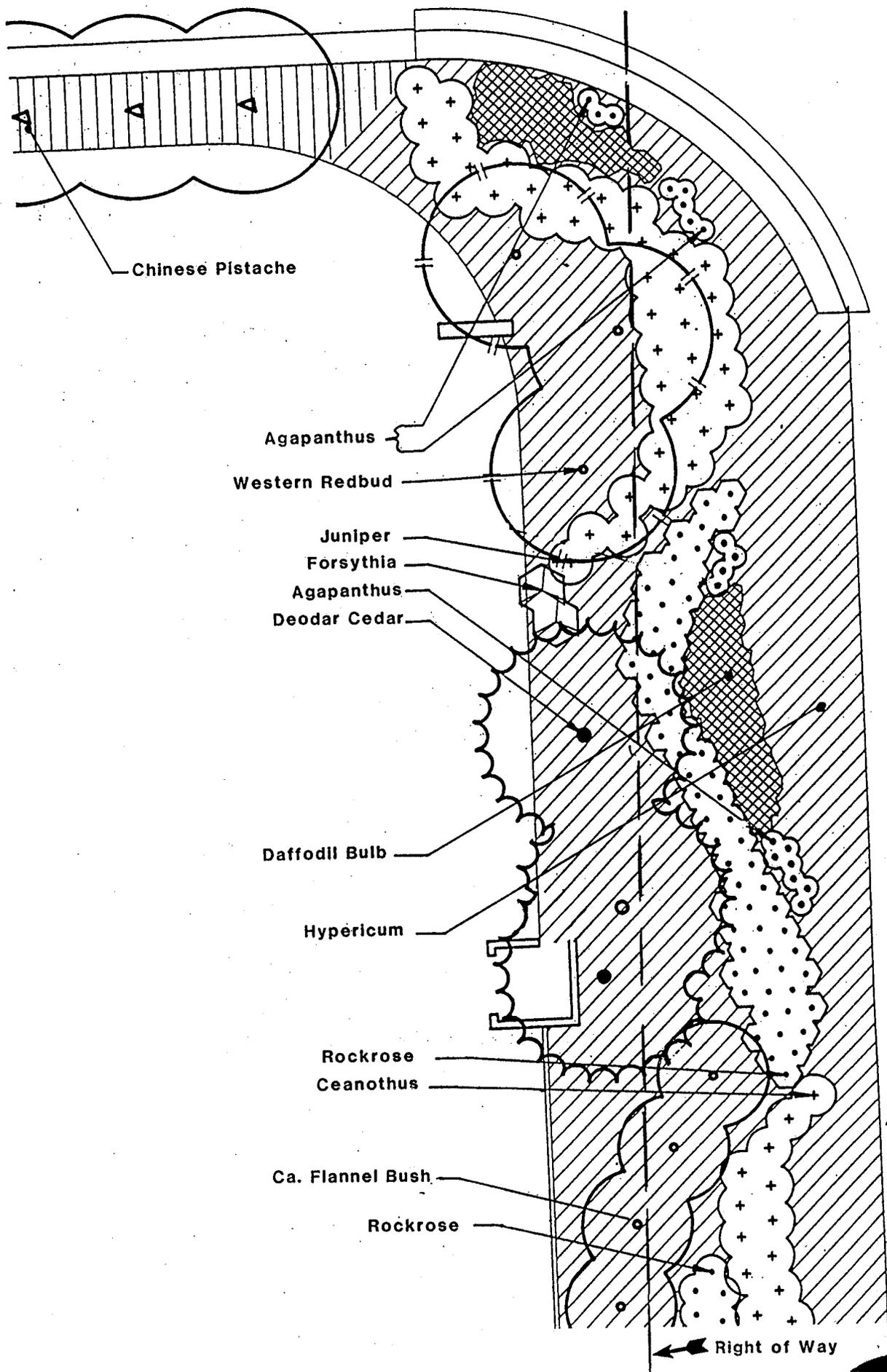
GROUND COVER:

*Hypericum calycinum

Yellow flowers, summer

*Required plantings

Typical Highway 49 Planting Plan



HWY 49

Right of Way

b. Bell Road

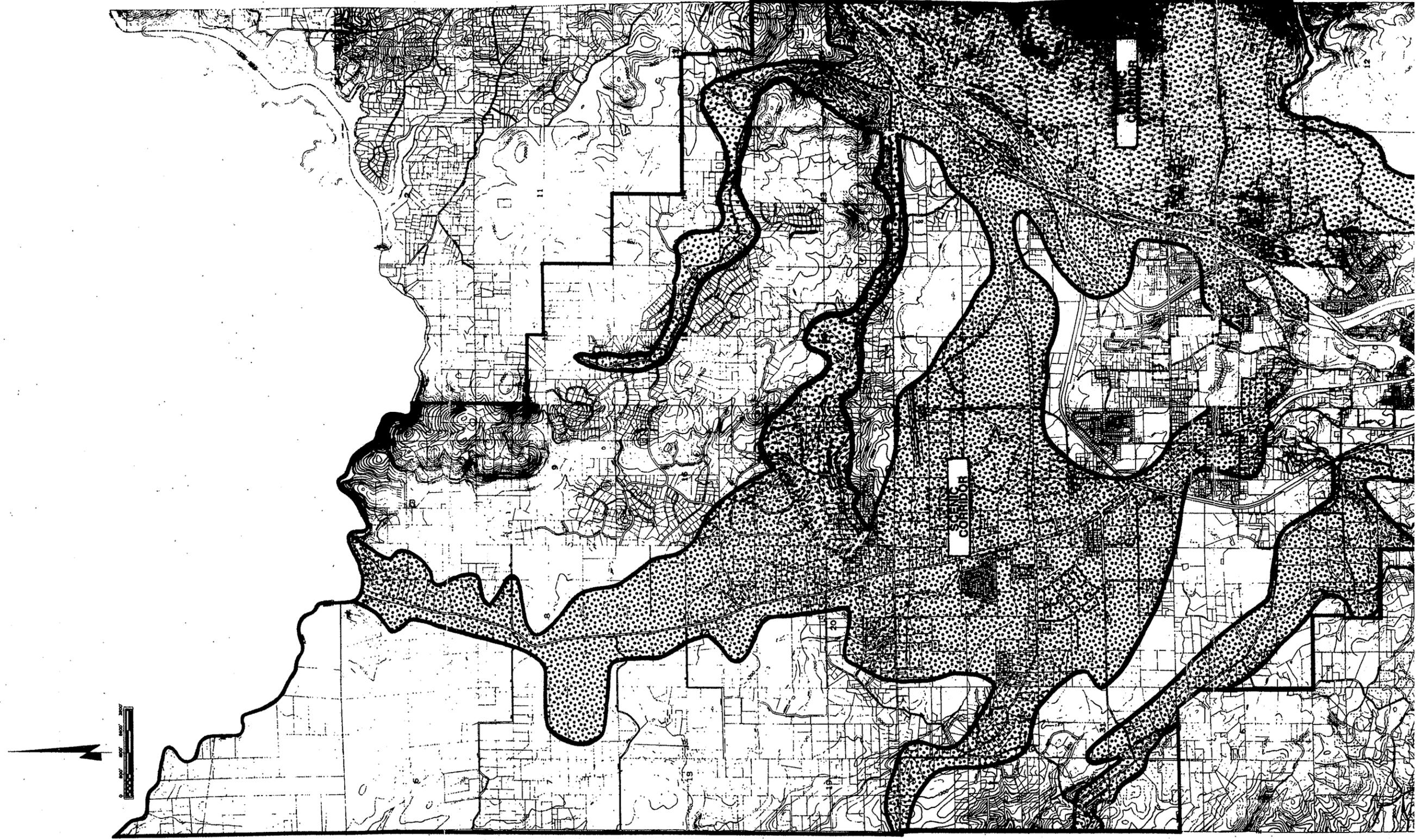
Bell Road is designated as a scenic corridor in the Auburn/Bowman Community Plan. The landscape theme for areas immediately fronting on Bell Road, east of the commercial area, is for native, drought resistant plantings in a natural setting. The Bell Road Landscape Plan is intended to enhance the existing vegetation along Bell Road. Since this area is primarily undeveloped and the existing development has already incorporated similar landscape plans, the Bell Road Landscape Plan will be implemented as a condition of project approval. Listed in Table 2 are plant materials recommended to maintain a cohesive landscape plan for the scenic corridor.

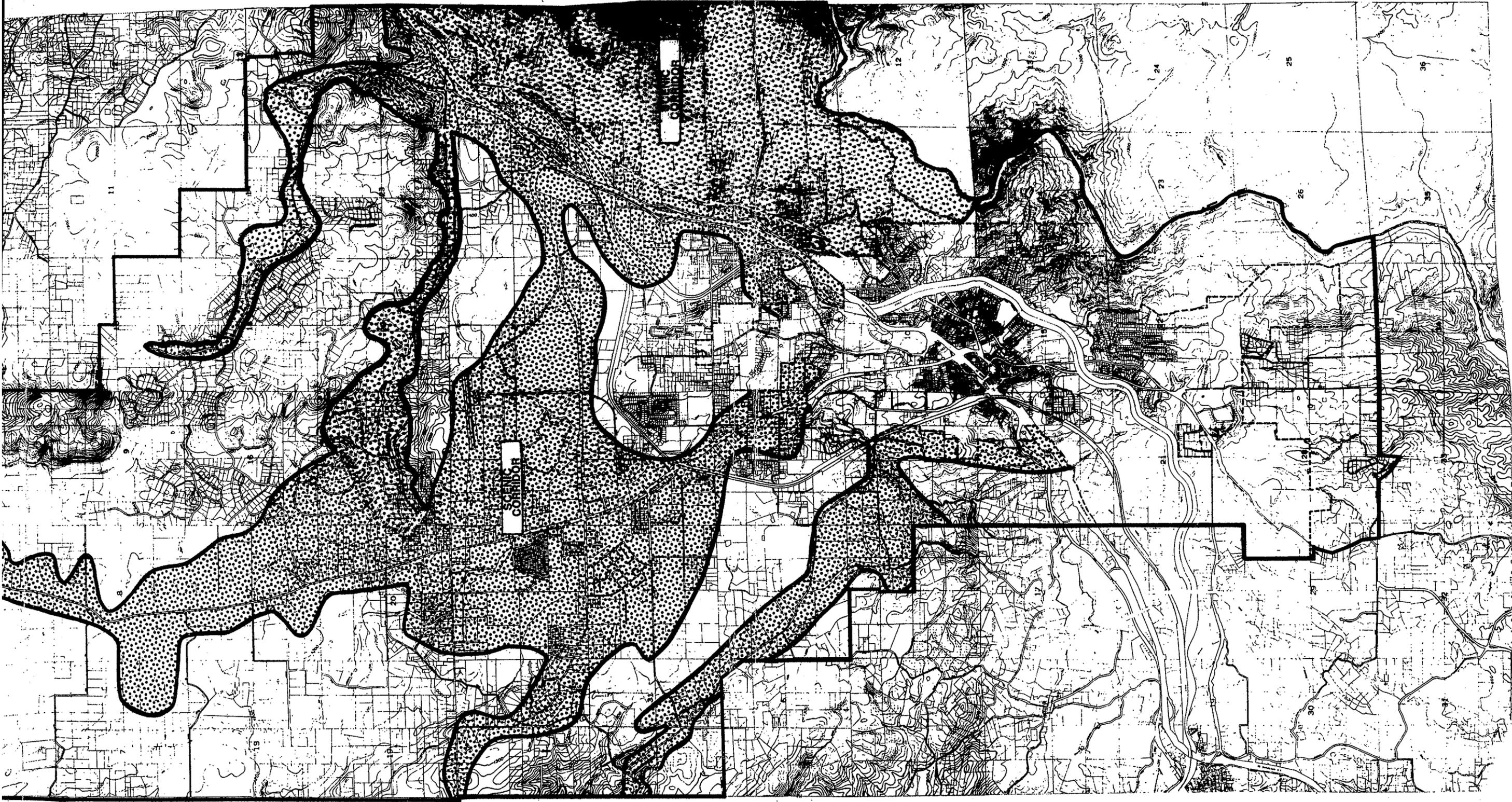
Table 2

Bell Road Plant List

TREES	COMMENT
Native Oaks (Blue, Live Oaks), Red, and Holly Oaks	Plant 10' - 15' apart in clumps for a natural setting
Cedrus Deodora (Deodar Cedar), Ponderosa Pine, Incense Cedar	If possible, plant just outside right-of-way or near right-of-way
Cercis Occidentalis	Deciduous; accent, spring bloom
SHRUBS	COMMENT
Ceanothus' Julis Phelps' Wild Lilac	Blue spring bloom. Plant in clumps of 3, 5, or 7
Hetermoles Arbutifolia	Winter red berries; white spring bloom
Fremontodendron, CA. (CA. flannel bush)	Yellow bloom, spring
Cistus Hybridus (Rock Rose)	White/purple flowers, spring
Scotch Broom Coffee Berry Rosa Rugosa Hansa' (Ramanas Rose) Rosa Foetida Persiana' (Austrian Brier)	Golden yellow flowers, spring Large berries Deep red, summer flowers Yellow flowers, summer
GROUND COVER	COMMENT
Baccharis	Low, green
Hydroseed Mix 50% poppies, lupine 50% red clover	Use in right-of-way and on cutbanks

Figure 4
AUBURN/BOWMAN COMMUNITY PLAN
1993
SCENIC CORRIDORS





4. Design Principles

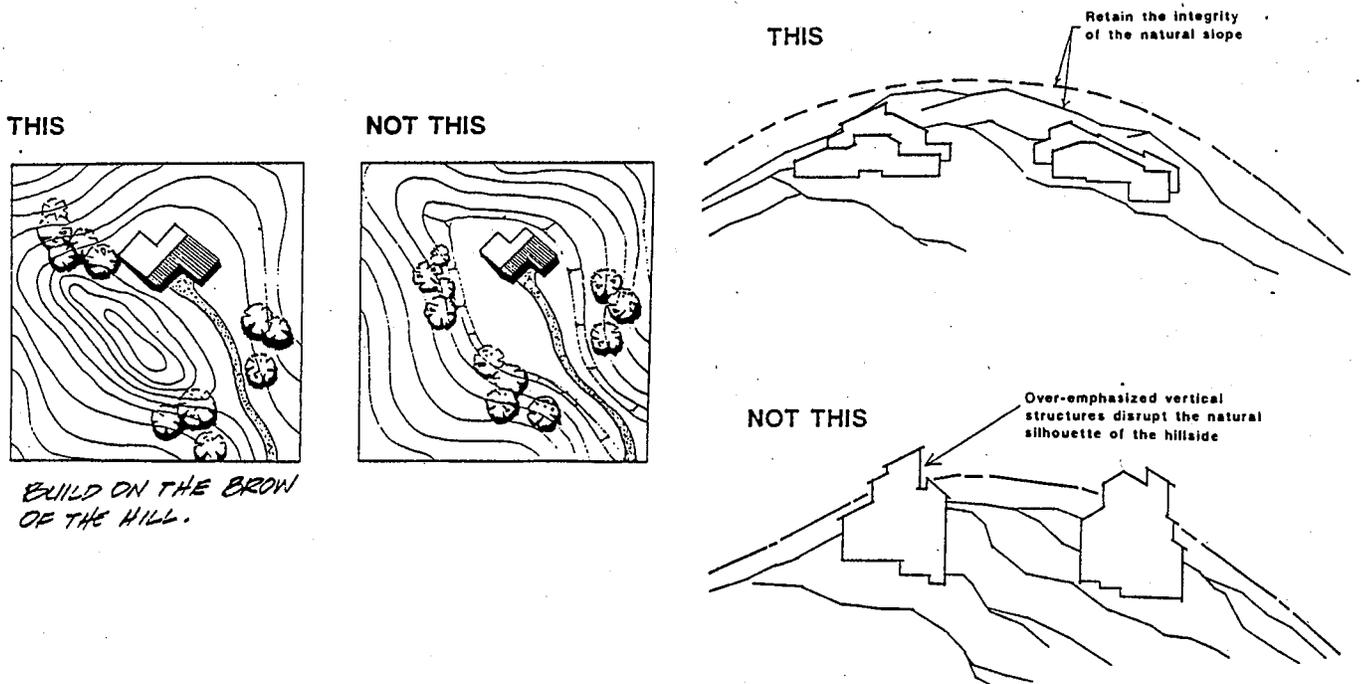
a. General

(1) Scenic Corridors

The corridors identified in Figure 4 are special areas of concern for protecting hillside and ridgelines (see A/BCP, Community Design Element, Policy 10). Although it is acknowledged that commercial, industrial, and multi-family projects may have intensive development impacts, the areas identified in Figure 4 should be designed to minimize disturbance to significant hillside and ridgeline areas. Each site will be reviewed on a case-by-case basis during the development review process to determine if special design elements need to be incorporated into the project. The following are basic design principles which minimize disturbances to prominent hillsides and ridgelines within the Plan area. These design principles apply to all types of development projects.

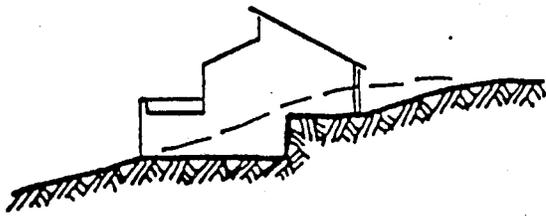
Project design should be sensitive to the natural terrain. Structures should be located in such a way as to minimize grading and to preserve natural features such as prominent knolls or ridgelines. Trees located on top of a ridgeline should be retained to reduce the visual impact of development.

Figure 5
Building on Slopes

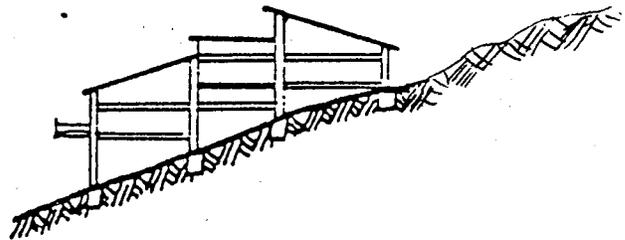


Structures and architectural features should be designed to blend with the natural terrain and preserve the character and profile of the natural slope. Techniques which help achieve this goal include stepped slab and pole foundations as shown in Figure 6.

Figure 6



Stepped slab foundation



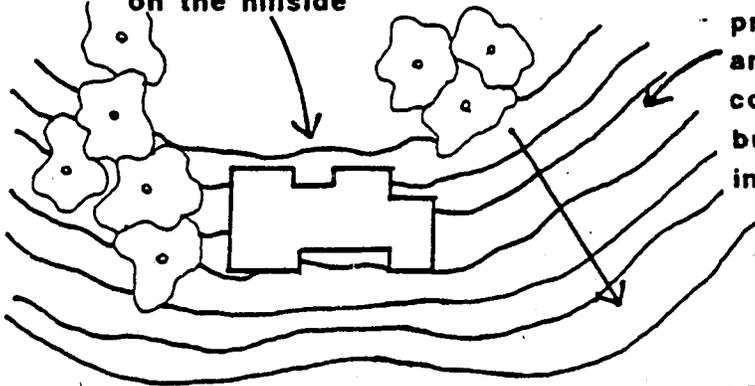
Pole foundation

Ideally, the width of a building, measured in the direction of the slope, shall be minimized in order to limit the amount of cut and fill and to better "fit" the structure to the natural terrain.

Figure 7
Building Placement on Steep Slopes

THIS

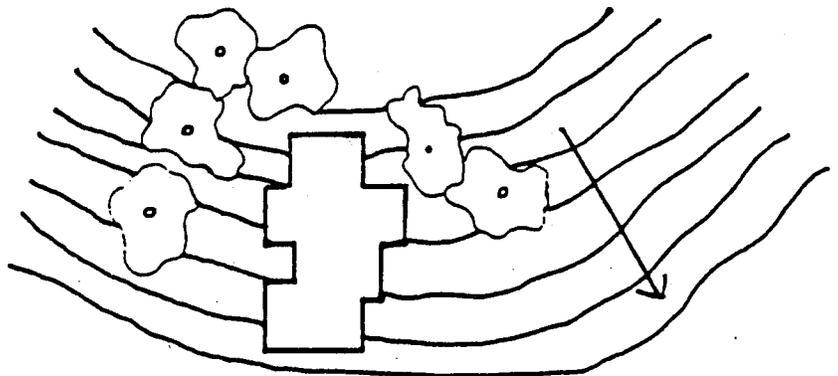
Building pulls back from
steeper slopes and ravines
on the hillside



Minor building
protrusions which
are perpendicular to the
contours are acceptable
but should be stepped or
inset in the hillside

Building is parallel with
the contours

NOT THIS



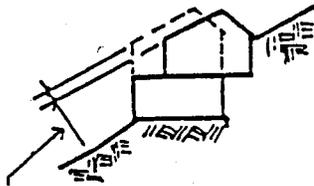
Building is perpendicular to the contours

Large roof overhangs and cantilevers should be avoided on downhill elevations to reduce the appearance of a large building mass.

Figure 8
Building Designs on Steep Slopes

THIS

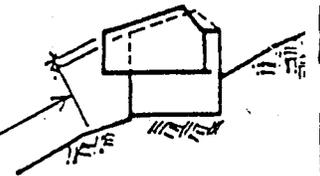
Terracing reduces bulk



Effective bulk

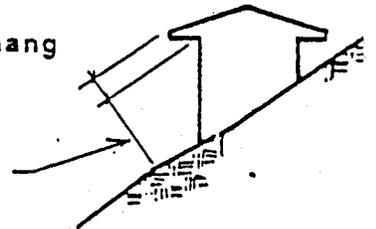
NOT THIS

Cantilever makes building appear taller, more monumental



Effective bulk

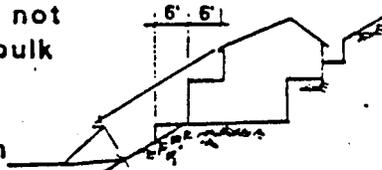
Excessive roof overhang results in additional visual bulk



Effective bulk

THIS

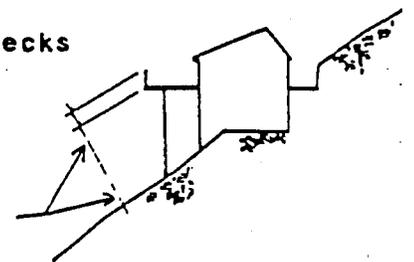
Terraced decks do not increase building bulk



Effective bulk with or without decks

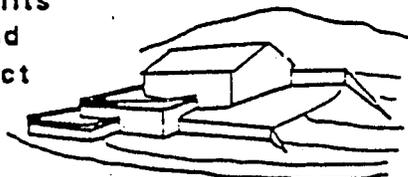
NOT THIS

Overhanging decks make building seem more massive

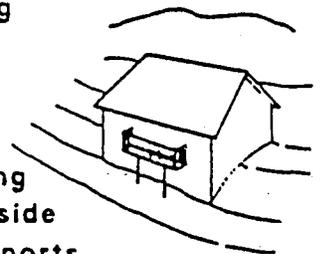


Effective bulk

Building correctly fits into the ground and minimizes the effect on the hillside



High profile building stands out on the hillside



Use of roof decks, low level decks, and side of building decks

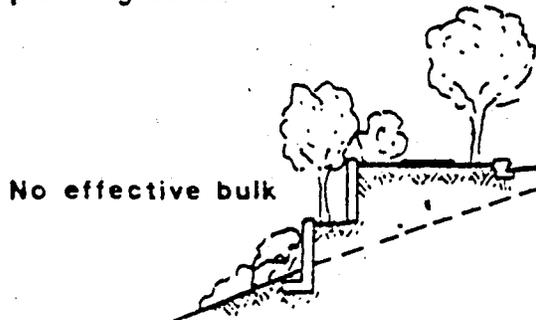
Avoid decks hanging from the downhill side with long pole supports

In situations when retaining walls must be used, the wall should be terraced with the use of landscaping to break up the wall. In highly visible areas, large retaining walls can be seen for miles and take years to conceal with plantings.

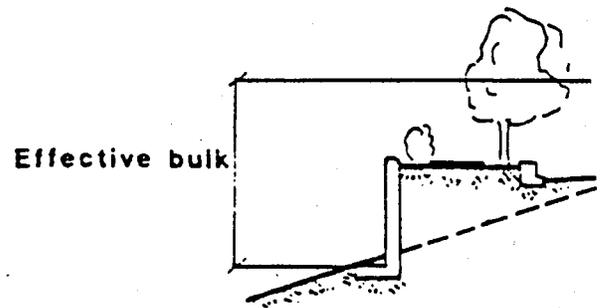
Figure 9
Retaining Walls

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Planting pockets on stepped retaining wall allow screen planting at several levels



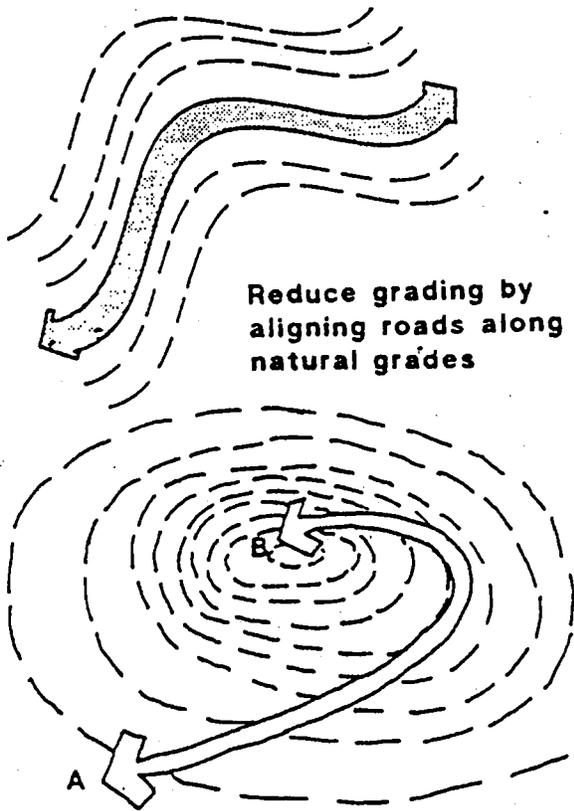
NOT THIS



Roadways should conform to the natural terrain and should not significantly alter the physical and visual character of a hillside by creating large notches in ridgelines or by defining wide straight alignments. Reduced road sections, split sections, and parking bays should be considered in the lay-out of hillside streets to reduce grading, as long as they are functionally equivalent and meet all applicable safety standards.

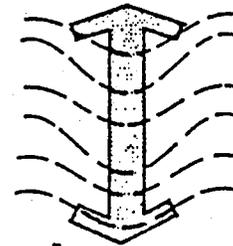
Figure 10
Roadway Design to Preserve Natural Terrain

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NOT THIS

Roads and hillside grading

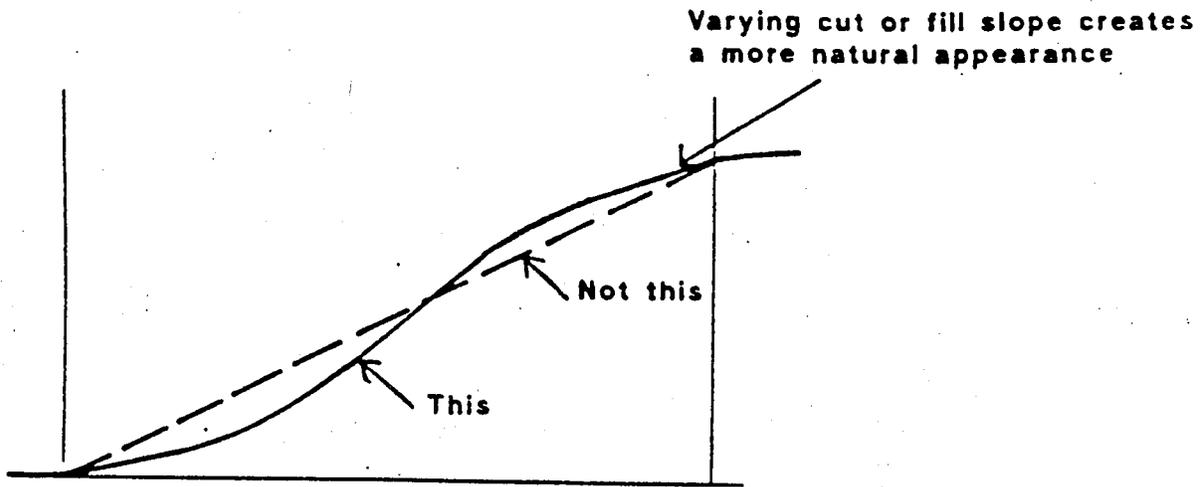


Avoid running counter to steep grades

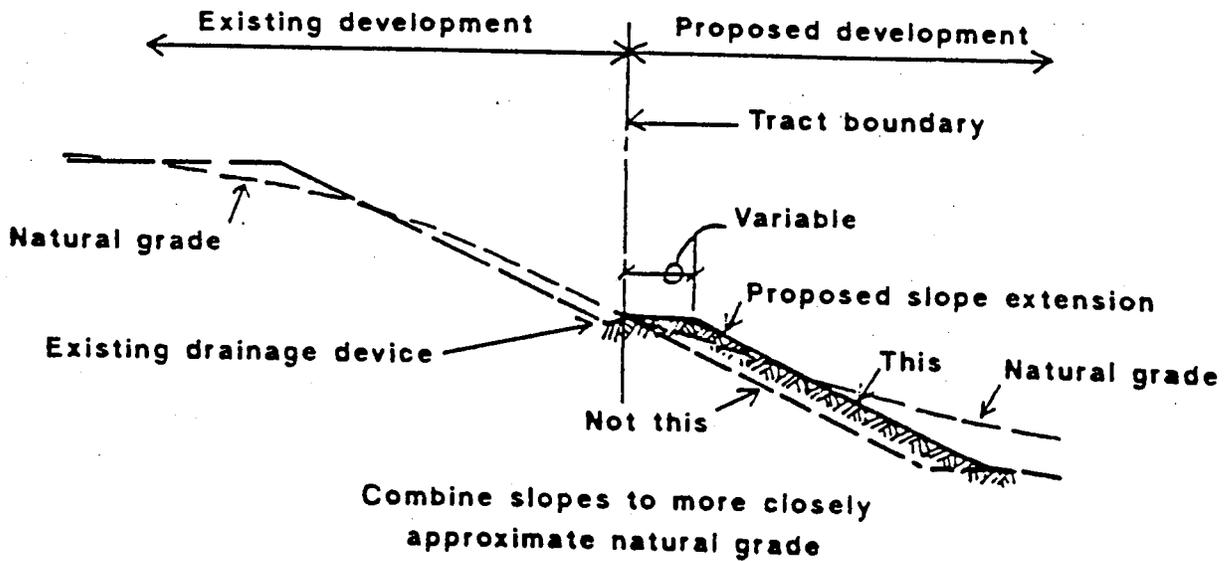
To get from A to B, route selection would be somewhere between perpendicular and parallel to the contours

Where cut or fill conditions are created, slopes should be varied rather than left at a constant angle which may be unstable or create an unnatural, rigid, "engineered" appearance.

Figure 11
Preferred Grading Practices



The angle of any graded slope should be gradually adjusted to the angle of the natural terrain.



(2) Noise Attenuation

Four alternatives exist for reducing noise impacts from roadways to adjacent residential projects (see Figure 12). These alternatives vary according to how much land is available for proper noise attenuation. In order of preference, these alternatives include:

- **Setbacks** - Establish a noise setback so that the distance of structures and yard areas from the roadway is sufficient to reduce the noise impacts to an acceptable level.
- **Berms** - A berm should be constructed at a height sufficient to adequately reduce noise impacts. Whenever possible, berms should be designed to create a natural appearance (See Figure 13).
- **Fence/Berm combination** - If there is not enough land available to build a berm of sufficient height, a fence(sound wall) should be constructed on top of the berm at a height sufficient for proper sound attenuation.
- **Sound Walls** - Construction of a sound wall should be considered as the last feasible alternative for mitigating noise impacts. Sound walls should be constructed of a textured masonry material, such as split-faced block (precision block or smooth concrete are not acceptable building materials) and sound walls within close proximity to one another should be of a compatible material and color scheme. A 10' minimum, on-site landscape strip is required on the street side of all sound walls.

Landscaping should be required along all soundwalls. The landscaping should consist of a mix of fast growing, drought tolerant, native appearing, evergreen trees, shrubs and groundcover. Use of water intensive lawns shall be discouraged.

Figure 12
Noise Attenuation Measures

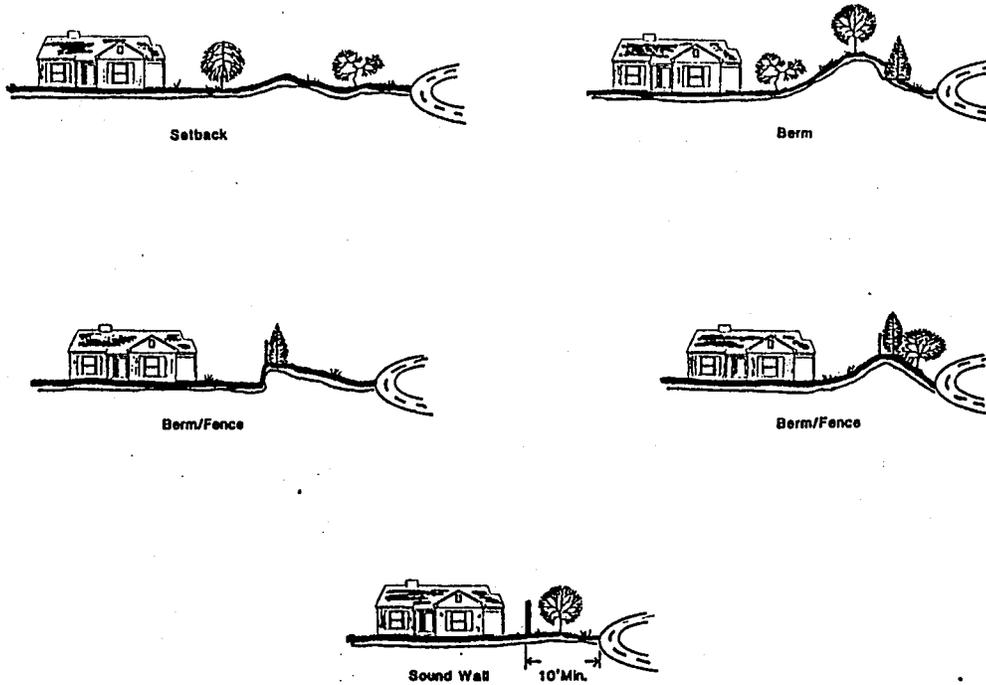
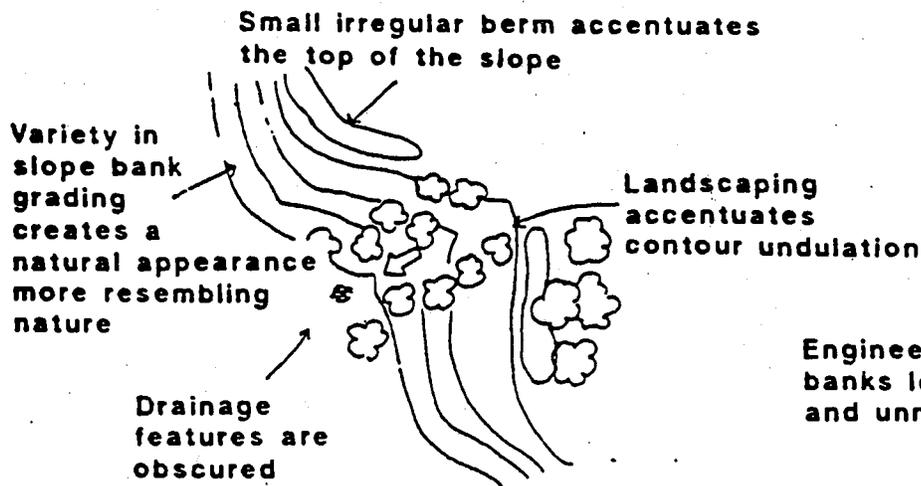


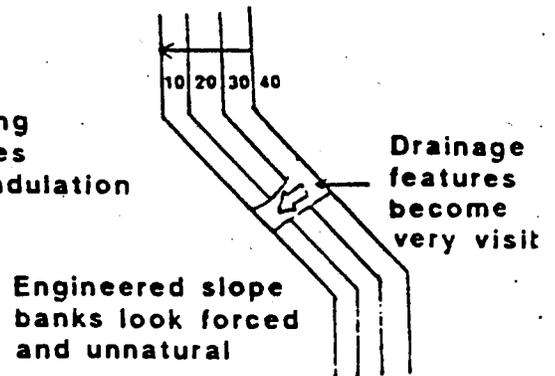
Figure 13
Berm Design With a Natural Appearance

THIS



Use of radii and uneven slopes

NOT THIS



Use of angles and uniform slopes

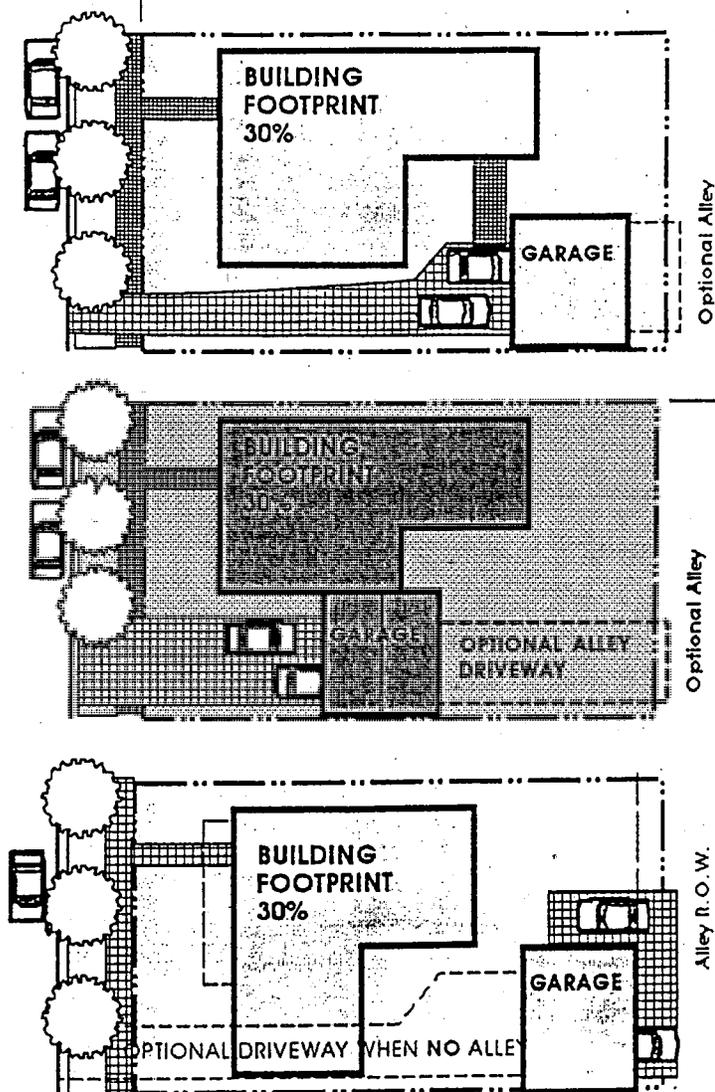
b. Residential Projects

(1) Urban Subdivisions/Projects (5 units or more per acre)

Urban subdivisions, if designed correctly, can avoid creating a high density appearance. Several elements can be incorporated into the subdivision and building design to minimize the appearance of high density and create a readily, functional community. Design principles discussed in this section also apply to the mixed-use areas. These elements include:

- (a) As lots become more narrow to accommodate increased densities, the garage can become the main visual feature of the home. In areas where walking is to be encouraged, streets lined with garages are undesirable. Alternative designs to reduce the predominance of the garage include providing alleys and garages to the rear of the lot or when an alley is not available, locating the garage in the rear yard area with a longer driveway. By reducing the prominence of the garage, the more social aspects of the home are allowed to remain in front.

Figure 14
Urban Subdivision - Site Plans



- (b) Single family homes on small lots can be setback 5' to 15' from a sidewalk and still retain a sense of privacy through the use of retaining walls, porches, wrought iron fences, low hedges and shrubs. By providing a reduced front setback, a greater portion of the lot can be used for private back yards.

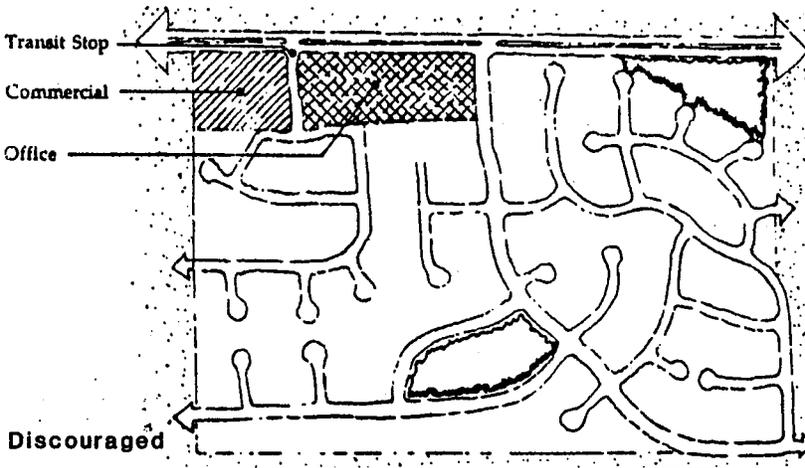
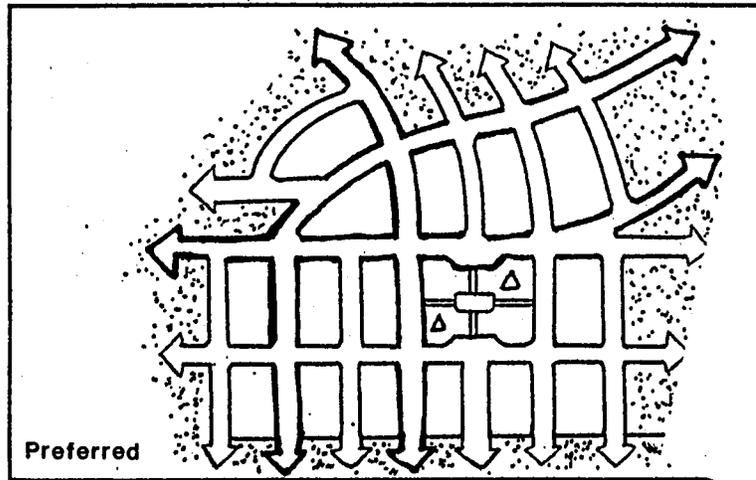
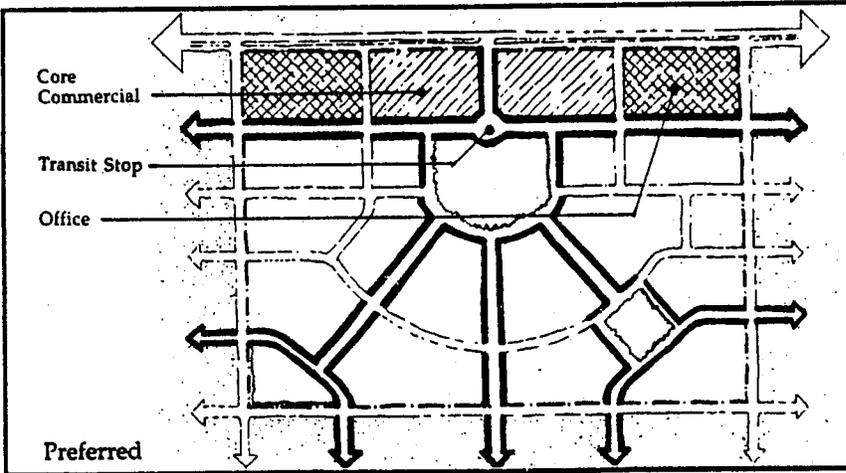
Figure 15
Reduced Front Setbacks



- (c) Street trees can be used to create a less urban atmosphere and help "tie-in" adjoining neighborhoods. Street trees should not have an invasive root system, which may cause cracks in concrete sidewalks; street trees should also not be a fruit tree or other blossoming tree which may be messy, attract bees or other bugs. Street trees should have a canopy shape. Street trees should be required on a per lot basis, but the number of required trees will depend on the size of the tree canopy at maturity.
- (d) If alley ways can be incorporated into a subdivision, street widths can be reduced. Since much traffic is diverted from the residential street to the alley, in many cases the residential street width can be reduced without compromising safety or the need to accommodate higher traffic volumes. Alleys serving residential areas should be a minimum of 18' wide with a 4' setback to each garage and parking area.
- A subdivision incorporating alleys and narrower streets does not require more paving area than a typical subdivision, if the paving area required for driveway aprons is included.
- (e) Halfplexes and duplexes should be encouraged on corner lots of single family urban subdivisions as a means of increasing the area's density.
- (f) Proposed roads should make connections to main roadways in the surrounding area. Whenever possible, roadway systems should be interconnected. Clear, formalized, and interconnected street systems provide the shortest and most direct path to destinations. With an interconnected street system, any single street will not be overburdened by excessive traffic. Use of cul-de-sacs, winding roads, and dead-end

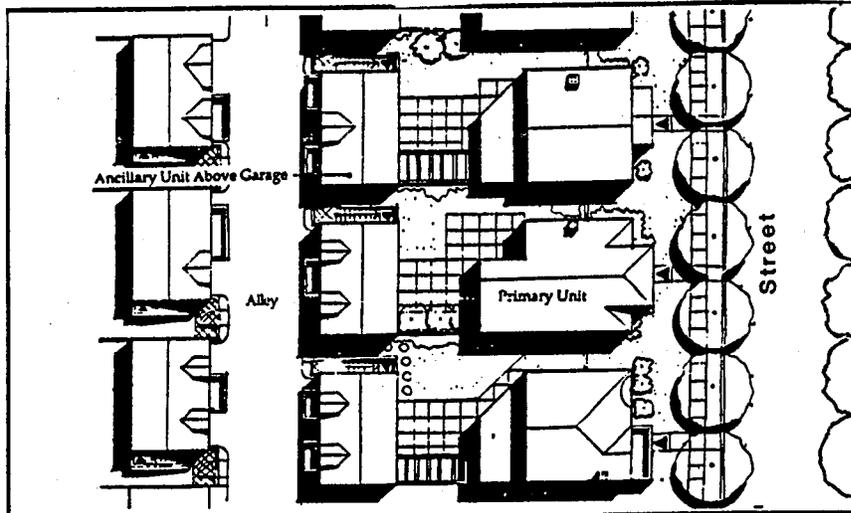
streets should be discouraged. A street system which is circuitous and complex will discourage pedestrians.

Figure 16
Street Patterns



- (g) In residential subdivisions where a percentage of the lots are required to provide an accessory apartment, the accessory apartment should be encouraged to locate above a detached garage.

Figure 17
Use of Alleyways



- (h) Whenever feasible, residential units should be oriented toward adjacent roadways to tie the development in with the surrounding neighborhoods and prevent the creation of a walled-in community.

(2) Suburban Subdivisions (Fewer than 5 units per acre, but more than 1 unit per acre)

Areas of the Community Plan designated for residential uses at densities less than five dwelling units per acre but more than one dwelling unit per acre are classified as "suburban". Subdivisions developed within this density range have many characteristics of both urban and rural subdivisions. It is the intent of this Plan that such suburban projects have predominantly urban services and amenities, but with the realization that larger residential lots are not as conducive to pedestrian village design criteria. As lots are created by subdivision which are larger than 1/2 acre, more of the rural design standards discussed below would apply. The applicability of appropriate urban or rural development standards will be determined by the Development Review Committee and the Planning Commission on a case-by-case basis depending upon the proposed project's surroundings, topography, tree cover, location, etc. Planned Unit Developments (PUD's) with densities in this range will be evaluated by the same standards used for urban PUD's except that the rural character of the area within which the project is located must be maintained. As with all PUDs, the proposal will be evaluated based upon the individual circumstances surrounding the project.

(3) Rural Subdivisions (Fewer than one unit per acre)

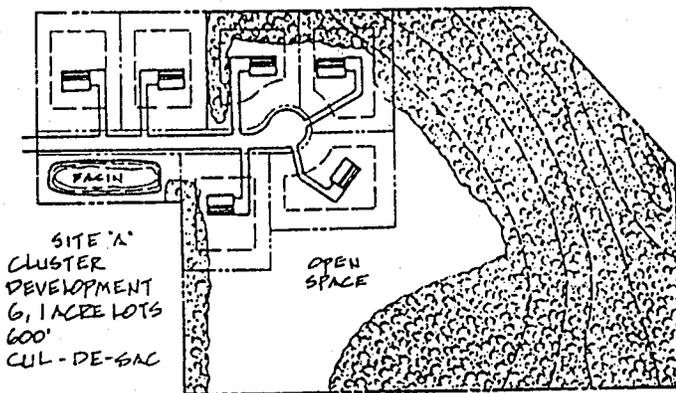
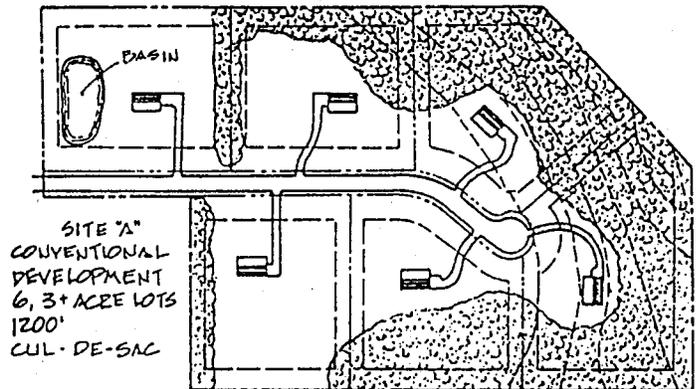
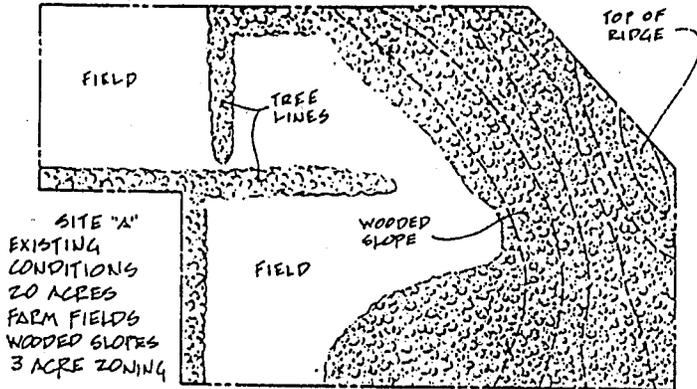
Although the term "rural" is difficult to define where residential subdivisions are concerned, any project zoned for or designed to yield fewer than one dwelling unit per acre shall be considered a rural subdivision for purposes of this Community Plan. "Rural" is defined by Webster's dictionary as "...relating to or characteristic of the country." Other terms such as rustic, pastoral, bucolic, agrarian and natural also help define the rural character of the Auburn/Bowman area. The standards, guidelines and criteria for rural subdivisions shown below serve as implementing strategies to accomplish the goals and policies listed above.

In addition to the General Design Guidelines for all forms of development within the Auburn/Bowman Community Plan and the general criteria for Urban and Suburban Subdivisions listed above, the following elements shall be incorporated into rural subdivision design to the greatest degree possible:

- (a) Lots should be designed to take advantage of existing terrain features such as swales, ridgelines, rock outcrops, and steep slopes. Building sites should be located such that these features are least affected.
- (b) Existing trees, riparian vegetation, and other significant on-site vegetative features should be preserved in developing new lots as well as roads, leach fields, wells, etc. needed to support these new building sites.

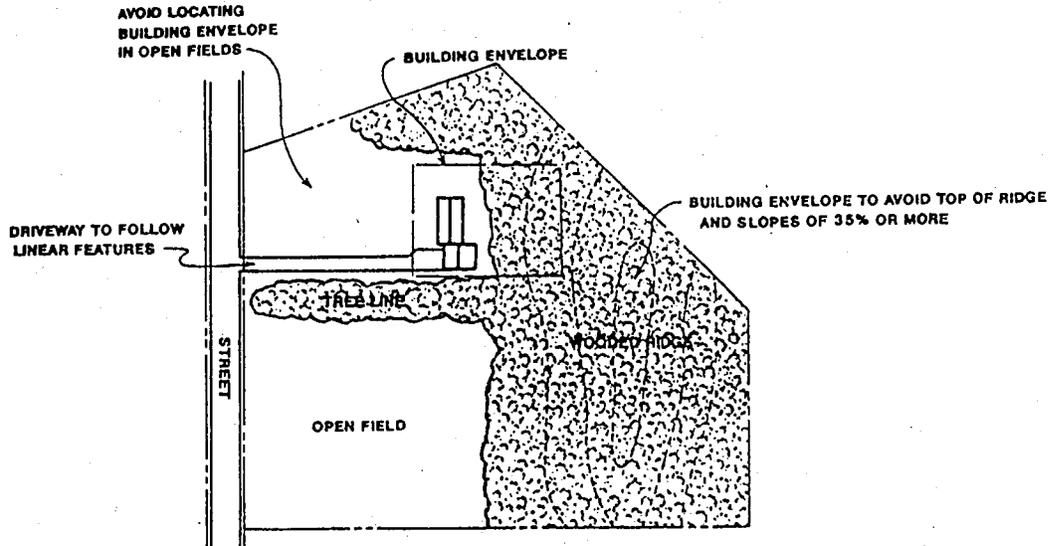
- (c) Where rural Planned Unit Developments are proposed, house sites may not be clustered in such a way that the rural character of the area is compromised. Smaller lots, surrounded by a topographic or vegetative buffer from other existing rural land uses may be permitted if the essential rural character of the area is maintained.

Figure 18
Conventional, Cluster, And Creative Development Scenarios

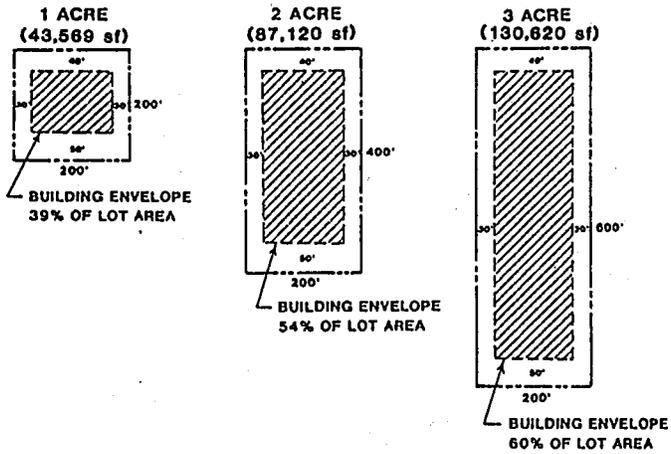


- (d) Building envelopes should be identified during the subdivision review process to identify potential environmental impacts and site disruption.

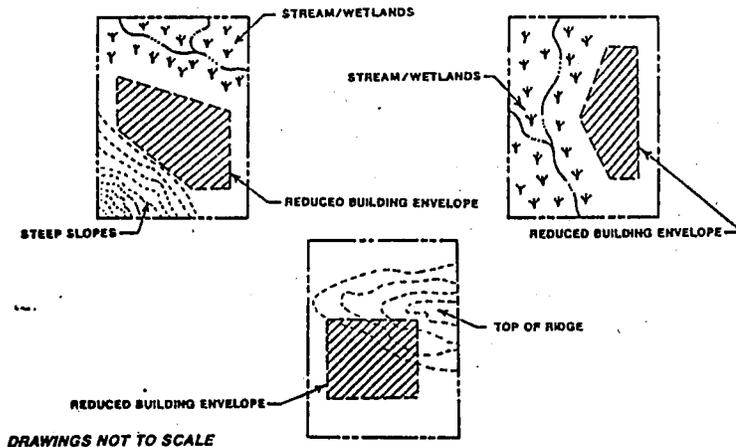
Figure 19
Building Envelopes



BUILDING ENVELOPES IN CONVENTIONAL LARGE - LOT ZONING



REDUCED BUILDING ENVELOPES TO MINIMIZE SITE DISRUPTION



- (e) Environmentally sensitive areas such as wetlands, riparian areas, stream corridors, unique tree groves, rock outcrops, etc. should be protected as a part of the design of the rural subdivision. These areas may be held in common by a homeowner's association, dedicated to an appropriate public agency to be kept in a natural state in perpetuity, deeded to a non-profit conservation organization (such as The Nature Conservancy, the Trust for Public Lands, etc.), or included within individual lots but protected from any development or modification by conservation easements and/or deed restrictions.

Figure 20
Common Open Space (Lower Left)
Open Space In Individual Lots With Conservation Easements (Lower Right)

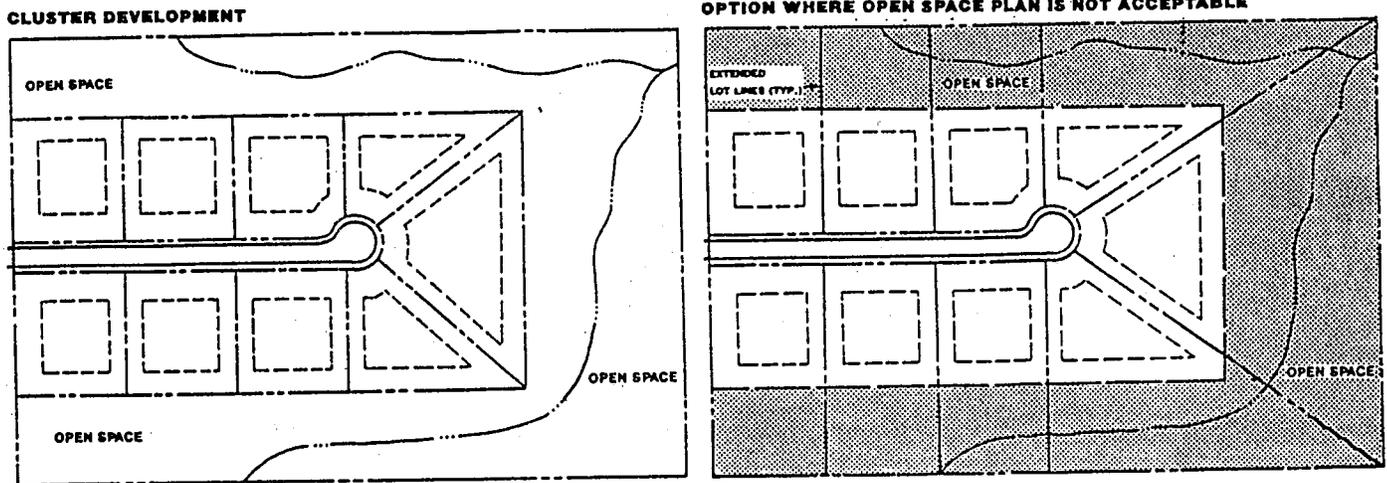
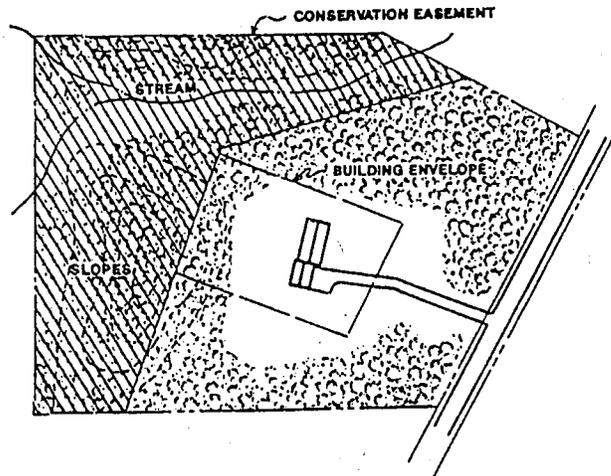
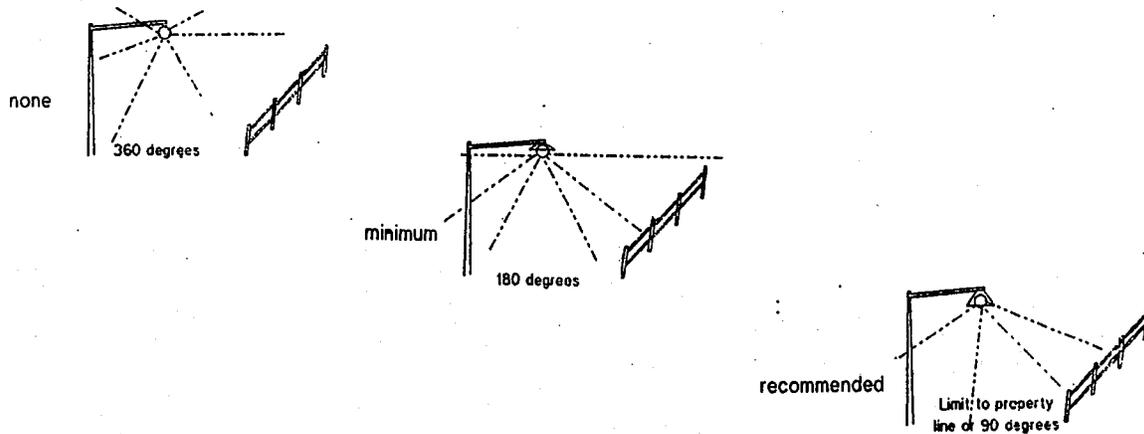


Figure 21
Conservation Easements



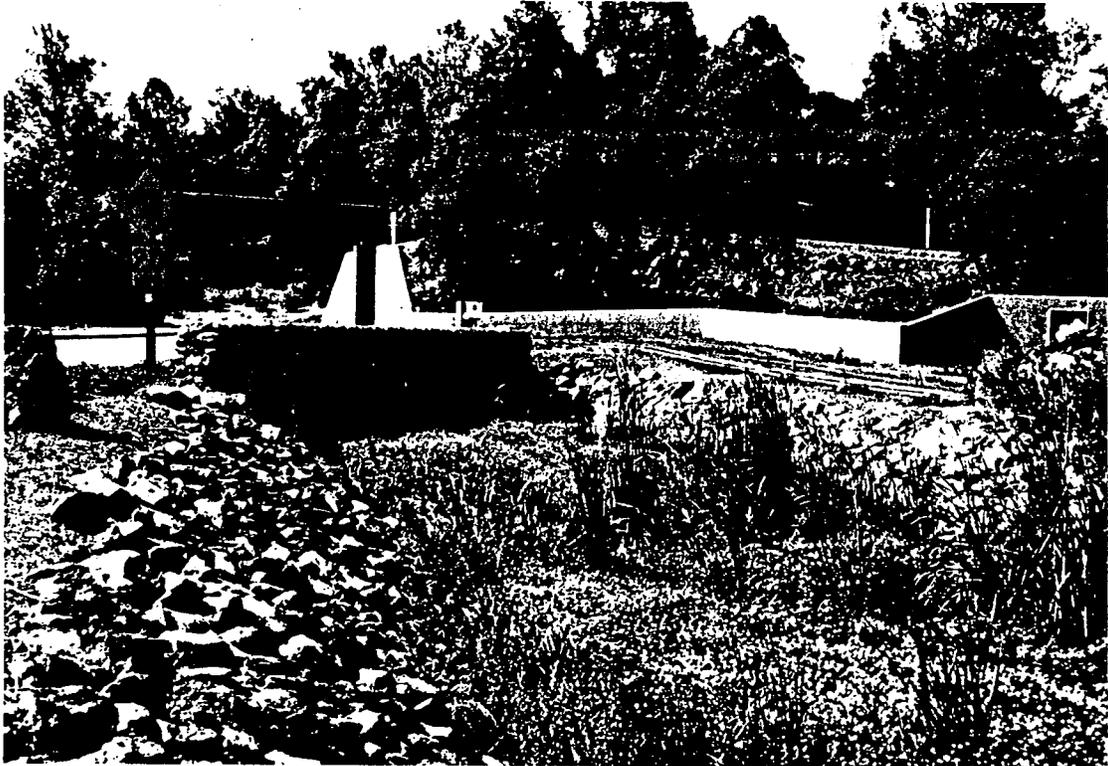
- (f) Projects which involve 100 acres or more should provide a wildlife management plan during the environmental review phase of the proposal. The plan should address measures taken to preserve and improve on-site wildlife habitat and should demonstrate that the subdivision was designed with minimal wildlife disturbance in mind. Rare and endangered species habitat protection should be a very high priority in any project's design, where applicable.
- (g) Fences should be compatible with the existing rural atmosphere and should generally be visually permeable. Walls and solid wood fences should be discouraged except in close proximity to the house and when limited private living areas are to be enclosed/screened. The use of vegetation is encouraged to satisfy the privacy needs of rural residents.
- (h) Outdoor lighting in rural subdivisions should be limited to that needed to provide safe movement of vehicles and pedestrians or to provide security of the residential premises. Outdoor lighting should be installed in such a way that the illumination does not cross property lines or shine up into the night sky. Fixtures should be of a low-pressure sodium or incandescent variety only (i.e. no mercury vapor, metal halide, fluorescent or halogen type fixtures), and should be properly shielded.

Figure 22
Types of Light Fixture Shields



- (i) Entrance monuments for rural subdivisions should be constructed of natural or indigenous materials such as granite, field stone, wood, etc. and shall be limited in height to 6' and in overall size to 50 sq. ft. of aggregate sign area. Lighting should be subdued and shall not shine past the neighborhood identification sign attached to the entrance monument into the night sky nor onto adjacent streets or properties.
- (j) Rural subdivisions should have house addresses prominently displayed at the intersection of each individual driveway and the street serving the house. The size, location, color, and type of address sign should be subject to the review and approval of the serving fire protection entity.
- (k) The use of natural or indigenous materials for engineered structures (bridges, retaining walls, etc.) is encouraged.
- (l) Where safety improvements are required in conjunction with the development of rural subdivisions, they should be as natural-appearing as possible without sacrificing effectiveness (eg. where guardrails are necessary, "Corten" or wood should be used instead of bright metal -- or the metal should be painted to harmonize with the rural character of the area where it is being installed).
- (m) Trails and pedestrian paths should be included in the design of all rural subdivisions to provide for internal circulation other than by automobile. These circulation routes may provide recreation opportunities, and they should connect to regional trail systems whenever possible to provide for alternative methods of circulation in the area.

Figure 23
Use of Natural Materials for Engineered Structures



5. Design Guidelines

a. Purpose

These guidelines are recommended for incorporation into the Placer County Design Guidelines. The following provides additional design elements to help distinguish the Auburn/Bowman area from other areas in the County.

b. Commercial and Professional Office

- (1) Buildings should be designed with a rural or country flavor. Contemporary architecture using natural materials may be acceptable. Natural materials and rural elements include:

- Natural wood
- Rock
- Stone
- Split face block
- Brick
- Shingled roofs
- Manufactured products which closely resemble natural materials

Undesirable elements include:

- Contemporary architecture that is strictly urban in nature
 - Metal buildings
 - Long expanses of contemporary metal roofing
 - Enameled panels
 - Aluminum
 - "False" looking rock veneer or brick veneer
 - Standard block on walls which are visible to the public
 - Use of stucco as a primary building material
- (2) The use of natural materials (i.e.) wood siding, brick, split-faced block, and/or field stone is required for exterior building elevations. Primary exterior colors which blend with the surrounding natural finishes and the natural background are encouraged. The following materials are not acceptable as primary exterior finishes without the incorporation of natural materials; stucco, smooth finish concrete or plaster, and grooved or precision concrete block.
- (3) Earth tones are strongly recommended as the dominant color scheme for new structures. Refer to the color section of the Placer County Design Guidelines for examples.
- (4) Freestanding signs in the North Auburn Area should be a low, profile monument style, not to exceed 8' in height, except where the grade level at the base of the sign is lower than the adjacent roadway; in such cases, the height of the sign may be increased to an equivalent of 8' above the

grade of the road. All signs should either be externally illuminated or only the individual letters shall be internally illuminated. Natural materials shall be used for the monument base, painted metal is not an acceptable base material.

- (5) Commercial buildings next to residential areas and/or large buildings should incorporate the following architectural features: pitched roofs, roof overhangs, articulated roof structures, stepping down of building elevations.
- (6) Building heights of commercial, industrial, and multifamily projects along Lincoln Way and Bowman Rd which may inhibit the existing scenic vistas of the American River Canyon and the Sierra Nevada Mountain Range shall be restricted to preserve these vistas.

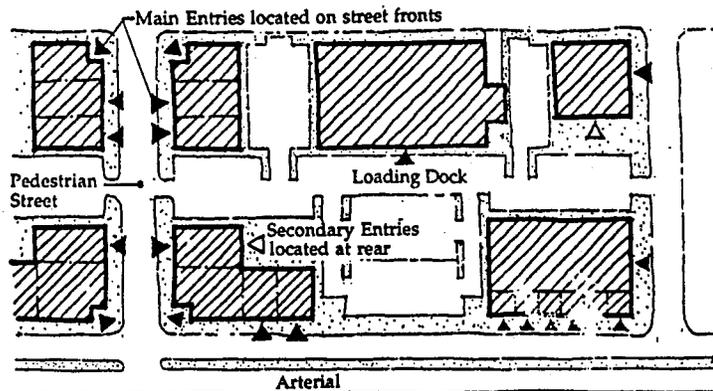
c. Mixed-Use

Mixed-use areas generate a great deal more discussion than the general commercial areas since the mixed-use areas are specially designed to encourage greater pedestrian traffic, require a more intimate scale, and provide for a variety of uses. The Auburn/Bowman Community Plan has three mixed-use areas (mixed-use areas are described in detail in the Plan's Land Use Element). The opportunity to incorporate various mixed-use design elements vary among these mixed-use areas. The following are basic design elements and each mixed-use area should attempt to incorporate these elements whenever possible. Design elements for the residential portion of a mixed-use area are discussed in the urban subdivision section.

- (1) Building setbacks for commercial and professional office uses should be minimized, in some cases, with zero-lot lines. However, when zero-lot lines are used, there should be periodic breaks between buildings to allow convenient pedestrian access between the street and areas to the rear. Industrial uses should maintain a minimum front setback of 20 feet.
- (2) Building heights should reflect the desired character of the area and should gradually transition from the height of buildings in adjacent areas to the maximum heights in the core area. The maximum building height in the core area shall not exceed three stories in order to maintain the pedestrian scale.
- (3) The pedestrian accessibility of a building depends on its orientation to the main pedestrian route. Failure to properly orient and/or design a building to encourage and accommodate the pedestrian traffic discourages activity from occurring along the main pedestrian route.

Primary ground floor commercial building entrances must orient to plazas, parks, or pedestrian-oriented streets, not to interior blocks or parking lots. Anchor retail buildings may have their entries from off-street parking lots; however, on-street entries are strongly encouraged.

Figure 24
Pedestrian Accessibility - Site Design



Street level windows and numerous building entries are required in the core commercial area. Arcades, porches, bays and balconies are encouraged.

If a wall of a primary commercial establishment does not have an entry along the pedestrian route, the building elevation must include windows, display area, and/or be lined with retail shops to provide visual interest to pedestrians.

Entries into small shops and offices should orient directly onto a pedestrian-oriented street. Buildings with multiple retail tenants should have numerous entries onto the street; small single entry malls will be discouraged. Off-street parking should also be located at the rear of buildings with walkways leading to the street and entry.

Varied and interesting building facades are key to making a place pedestrian oriented. Building designs should provide as much variety as possible without creating a chaotic image. Facades should vary from one building to the next, rather than create an overly unified frontage.

Covered walkways should be provided whenever possible.

(4) In order to encourage pedestrian traffic, The following is required of the commercial core area to separate the pedestrian from automobile traffic:

The roadway system within a mixed-use area should provide multiple direct linkages to the core commercial area and adjoining areas without requiring the use of an adjacent arterial.

Parallel parking helps separate the street from pedestrians by creating a buffer between moving cars and the sidewalk. Additional parking provided by the use of on-street parking helps

to replace areas devoted to large off-street parking lots and places parking near the street side building entries. On-site parking areas should be located to the rear or side of the building.

Parallel parking is encouraged on all streets except arterials; On-street parking tends to slow the flow of through traffic.

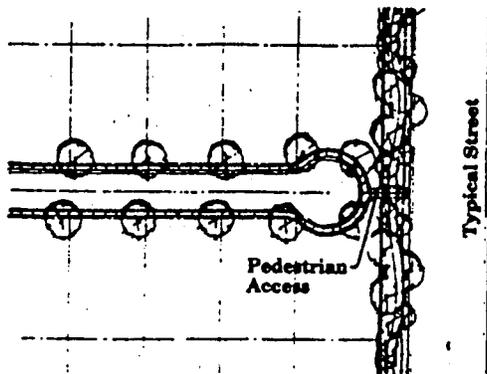
Street trees and landscaping also provide a sense of separation from traffic lanes for pedestrians on the sidewalk. Street trees provide shade to sidewalks and creates a cooler micro climate. Landscaped areas should be located between the street and the sidewalk. Also, both sides of a street should be tied together through the use of a prominent street landscaping program.

Alleys in commercial areas place service vehicle access and parking away from the street and sidewalks. This also allows an opportunity for creating more interesting and comfortable streetscape.

Sidewalks should be of a sufficient size to comfortably accommodate pedestrian traffic (approximately 10' wide).

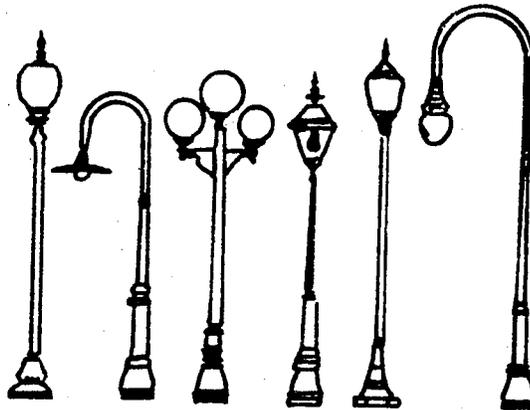
- (5) Encourage pedestrian and bicycle transit by removing potential barriers. Soundwalls; landscaping, fencing, and road patterns can become barriers to pedestrian and bicycle traffic if more direct routes are not provided. Breaks should be required in sound walls, fencing, landscaping and other barriers and these breaks should be coordinated with street patterns for access and security.

Figure 25
Subdivision Design - Pedestrian Access



- (6) Street crossings for pedestrians and bicycles should be adequately marked at frequent locations and the use of pavers or similar materials to mark pedestrian and bicycle crossings should be utilized whenever feasible.
- (7) Pedestrian and bicycle pathways should provide alternative routes to Highway 49. These pathways should be in clear view of activity areas and be well lighted.
- (8) In order to encourage pedestrian activity, Additional design features should also be provided:
 - Community focal points should be incorporated into mixed-use areas. Focal points serve as gathering and/or destination points and examples include: civic centers, parks, fountains, statues, and street vistas. On-site natural features, including wetlands and canals, can also function as a focal point.
 - Activity pockets should be provided along sidewalks to provide amenities for pedestrians. Possible elements include benches, street furniture, sitting ledges, etc.
 - Signage should be pedestrian oriented.
 - Sheltered public transit stops, with turnouts, should be provided where it is appropriate.
 - Lighting should be at a pedestrian scale, (14 feet or less in height), should be of a decorative type, and should be located along roadways and pathways.

Figure 26
Free Standing Light Designs



- (9) Housing should have a variety of type, cost, and ownership opportunities. Examples consist of small lot single-family units, duplexes, townhomes, and apartment complexes.
- (10) If residential units are built on the second or third floor, the primary ground floor residential entrance should orient towards the street, not to interior blocks or parking lots.

C. PUBLIC FACILITIES

1. Introduction

Background information relative to wastewater, water supply, fire protection and public protection is discussed in the Auburn/Bowman Community Plan Public Service/Public Facilities Study. The Study in its entirety is included in this Background Report as Appendix B. The subsection discussing public education was prepared separately by the Placer County Office of Education.

Additional information on each of the subsections can be found in the Plan text, as well as the Environmental Impact Report, which also evaluates the impacts that can be expected to public facility providers with implementation of the Plan.

2. Public Education

a. Service Information

Table 3 shows the total number of facilities in the district and the number of facilities in the Plan Area.

Table 3

School Facilities

District	Total School Facilities	# Of School Facilities In Plan Area
Ackerman (K-8) Elementary School Dist.	1	1
Auburn (K-8) Union School Dist.	4	4
Placer Hills (K-8) Union School Dist.	2	0
Placer (9-12) Union High School Dist.	4	2
Sierra Community College Dist.	3	0

b. School District Summary

The following is a summary of each school district which serves the Auburn/Bowman area:

(1) Auburn Union School District

The existing four schools serve the Auburn/Bowman Community Plan Area. Three of these schools are located within the city limits. They are Alta Vista (K-5), Skyridge (K-5) and E.V. Cain (6-8). Over half of the district students are generated from housing in the city limits of Auburn.

(a) Existing School Facility Analysis

In the last seven years, enrollment in the Auburn Union School District has grown from 2,079 in 1985/86 to 2,918 in 1991/92. This increase reflects a 29% increase.

Table 4

Auburn Union School District Capacity

School	State Capacity	District Capacity	1991 Enrollment	% State Capacity	% District Capacity
Alta Vista (K-5)	394	394	507	128	128
Skyridge (K-5)	220	195	618	280	317
Rock Creek (K-6)	789	690	864	110	125
E.V. Cain (6-8)	604	562	929	154	165
TOTAL	2,007	1,842	2,918	145%	158%

Note: Does not include non-state approved trailers

Table 5

Auburn Union School District Classrooms

School	Permanent* Classrooms	Relocatable Capacity	Trailer Classrooms	State Emergency Portables	TOTAL
Alta Vista (K-5)	10	2	2	4	18
Skyridge (K-5)	0	6	15	0	21
Rock Creek (K-6)	23	0	2	11	36
E.V. Cain (6-8)	17	3	1	10	31
TOTAL	50	11	20	25	106

* 46% Permanent Classrooms

(b) Projected Enrollment

K-8 enrollment is expected to grow from 2,918 students to 4,871 students within 10 years. This will result in approximately 1,500 new K-5 students and 525 6-8 grade students.

Three new elementary schools and one new middle (6-8) school are needed in order to meet the projected new students for a total facility cost of \$27,565,158.

(c) Facility Funding Plan

In June of 1991, the Auburn Union School District formed Mello-Roos Community Facilities District #1991-1. The Community Facilities District "CFD" was formed to address development impacts and the need for future school facilities. The adoption of a community facilities district has been endorsed by both the City of Auburn and the County of Placer and all future projects will be required to join the School District's CFD prior to project approval (recording of final map).

The 1992-1993 Mello-Roos fee structure has three options to choose from. They are as follows:

1) Tax Program A: One-Time Tax and an Annual Special Tax

Single Family Unit \$2,334.00/one-time tax
plus \$279.00/annual tax

Multi-Family Unit \$ 902.00/one-time tax
plus \$ 94.00/annual tax

Taxes are also an appropriate means of funding. It has been suggested that the district can set up its own tax, that taxes do not have a charge (a fronting cost) as do Mello-Roos and bonds. This is seen as an advantage. Of course, transferring the taxes into money for a school could negate that advantage.

(b) Problems

Both of the district's sites, the current school site on Bowman Road and the potential new site off of Old Airport Road, are within two miles of the airport. There is a controversy over the use of the new site because of this. However, the State Department of Education and the Department of Aeronautics, after review, has given approval to use this site. The district has very few options for another site if this ruling is reversed.

Ackerman School District is a small district which contains most of the potential problems which effect site selection; railroad, gas and high power lines, and proximity to I-80.

The current site was analyzed as being over populated at 283 students. This was on the basis of the leach field/sewer system currently in use on the campus. The present enrollment is 348. The district is investigating hook-up to the effluent only system which is installed in Bowman Road and is asking for a deferred maintenance emergency fund to pay the \$80,000 needed for the hook-up.

(3) Placer Hills Union School District

The Placer Hills Union School District occupies a portion of the Auburn/Bowman Community Plan in the Christian Valley area. However, the entire district serves the communities of Applegate, Eden Valley, Heather Glen, Meadow Vista and Weimar.

There are two schools serving the K-8 needs of the district; they are Placer Hills School located on Placer Hills Road (K-4) and Weimar Hills School, located on Weimar Crossroads (5-8).

(a) Existing Enrollment and School Facilities

Over the past 5 years, enrollment in the district has increased from 1,257 in 1986/87 to 1,585 in 1991/92. This represents an increase of 328 students or 21% over the 5 year period.

- 328 Student Increase
- 21% Increase Over 5 Years
- 6% Increase Per Year

Table 6

Placer Hills Union School District Capacity and Facilities

School	1987/88	1988/89	1989/90	1990/91	1991/92
Placer Hills (K-5)	743	779	811	831	882
Weimar Hills (5-8)	490	534	584	684	703
Special Ed	24	24	24	0	0
TOTAL	1,257	1,337	1,419	1,515	1,585

School	Capacity	Enrollment	% of Capacity
Placer Hills (K-5)	612	882	144%
Weimar Hills (5-8)	561	703	125%
DISTRICT	1,173	1,585	135%

School	Permanent* Classrooms	Relocatable Classrooms	Trailer Classrooms	State Emergency Portables	TOTAL
Placer Hills (K-5)	19	12	0	7	38
Weimar Hills (5-8)	19	7	0	0	26
TOTAL	38	19	0	7	64

Note: All relocatable and trailer classrooms are leased and not owned by the district.

* 59% Permanent Classrooms

b) Projected Enrollment

	K-4	5-8	TOTAL
1992/93	875	806	1681
1993/94	914	849	1763
1994/95	975	875	1850
1995/96	1051	909	1960
1996/97	1137	945	2082
1997/98	1228	980	2208
1998/99	1301	1060	2361

c) Facility Financing

The district currently collects State developer fees at \$1.65/sq. ft. for new residential construction and \$.16/sq. ft. for commercial construction.

The district is also considering an alternative financing program which will be required on all future projects. The costs to provide student facilities per single family home built in the district, including land, buildings, and buses equals \$6,553.

d) Problems

- Current district schools are severely overcrowded. The schools are operating at 135% of capacity under state standards and 143% of capacity under district loading standards.
- The district has designated a new K-2 school in Meadow Vista adjacent to the community park. State application for the new school has been submitted, however, funding has not been received.
- Placer Hills School's septic system needs to be improved. This could be accomplished in conjunction with the new Placer Hills K-2 school. There has been state approval for this project, but other alternatives are being pursued.
- The septic system at Weimar Hills has had problems and is currently planned for improvement.
- The district needs to locate a new school site in the Christian Valley area to serve both Christian Valley and the proposed Winchester project.
- The district needs to develop a facility financing program.

(4) Placer Union High School District

The district serves a number of communities from Loomis to Colfax. In the Auburn area, Placer High School provides for 9-12 grade students. In addition, Chana Continuation High School is located in the Auburn area.

(a) Facility Analysis

Table 7

Placer Union High School District
Capacity and Facilities

School	1991/92 Enrollment	State Capacity	% State Capacity
Placer High School	1,428	1,390	103
Del Oro High School	1,308	1,084	121
Colfax High School	769	626	123
Chana High School	302	105	288
TOTAL	3,807	3,205	119%

*Minus Portables

The district's capacity is currently about 3,650 which means the district is currently operating at 119% capacity.

(b) Projected Enrollment

It is projected that the district will grow at about 3% per year. This would result in an enrollment of:

4,561 5 years
5,559 10 years*
7,375 15 years*

*3% per year for residential growth plus additional growth to accommodate existing students already in lower grades.

Based upon this projection, the district needs to construct two full comprehensive high schools and one continuation high school.

(c) Facility Financing

In March of 1992, the Placer Union High School District implemented the district-wide use of a "Mutual Benefit School Impact Fee Agreement" to address development impacts and the need for future school facilities. This agreement, between the developer and school district, will need to be signed and recorded prior to project approval (recordation of final map).

The 1992-1993 Mutual Benefit Agreement fee schedule is as follows:

Single Family Unit	\$3,592.00/per SF unit
Duplex Unit	\$2,671.00/per unit
Multi-Family Unit	\$ 677.00/per unit

These fees are subject to an annual inflation increase effective July 1st of each year and are based on the Consumer Price Index, three month average for March, April and May of each year.

The Placer Union High School District has adopted a developer fee program calling for an increased flat-rate fee on all future residential units. This 70% financing program replaces the previous fee of \$.95 per square foot. All residential developments will be required to sign a "Mutual Benefit School Impact Fee Agreement" wherein the developer agrees to pay the flat-rate fee of \$1.65 per square foot (\$1.00 for the elementary schools and \$.65 for the high schools) rather than the lesser (\$.95) per square footage fee."

(d) Problems

- 1) Placer High School is at capacity and there is no room for expansion. The site is 19.3 acres in size. The State currently requires approximately 40 acres for similar size schools.
- 2) The Chana High School site (which is over 40 acres in size) was intended to be the next comprehensive high school site, but due to the two-mile airport setback it will have to be abandoned.
- 3) Designation of one comprehensive high school site and one continuation high school site in the Auburn area is needed.

(5) Sierra Community College District

Sierra College moved from Auburn to Rocklin in 1961. At that time there were 1,293 students, 260 of them attended in the evening. Located in one of the fastest growing areas of the state, the college's mission has changed significantly from its former rural image and setting.

Rapid population growth and business-industrial expansion have had their impact on the college's enrollment, mission and programs. The college has grown from the 1,300 students at the Rocklin campus in 1961 to 13,800 students in 1990, of which 5,400 were taking evening courses. On a statewide average 55 adults out

of every 1,000 population attend community college. In the Auburn area there are currently 2,100 students registered, representing about 13% of the total enrollment.

The major focus of the mission is to strive for excellence in providing educational and avocational opportunities to a rapidly expanding and diverse population with even more varied interests, abilities and needs. The perception of the college community goes beyond the campus to the homes, cities, businesses, governments and industry in its realm of influence.

The college provides a wide array of programs including general education, 61 degree and 56 certificate programs, a transfer curriculum, vocational education, basic skills courses, community education and economic development courses designed to meet the needs of local businesses. An extensive program of services to assist students includes counseling, financial aid, re-entry support and other support activities.

Consistent with the above, the college has remained in the forefront by providing the most avant garde programs to meet the rapidly changing educational demands brought about by new technology in an information-based society. Examples of such programs are the computer-aided design and manufacturing courses introduced into drafting technology and course modifications to integrate the latest computer enhancements.

The most recent and comprehensive program to provide direct training and service to the community is the Sierra College Center for Applied Competitive Technologies (CACT). One of eight such centers in the California Community College System, it will incorporate computers into a process from design to manufacturing.

Sierra College has been designated a training site for the California Supplier Improvement Program (CALSIP). CALSIP is a joint effort between the California Community College System, California Department of Commerce and Employment Training Panel and the aerospace industry to provide specialized quality management training to suppliers.

The third major program provides direct training to local businesses and is sponsored by IBM. The Computer Integrated Manufacturing (CIM) program provides local manufacturers and students the opportunity to use the most advanced computerized manufacturing technology.

Contract education provided to local business and companies encompasses very specific training to meet company needs, management techniques and personal development courses such as mathematics and english. Some of the local companies using these services are Hewlett Packard, Coherent, AT&T, NEC, Placer County Convergent, Unisys and Tri-Continental Scientific. The college anticipates working with other companies already in the Roseville areas as well as those who will locate here in the future.

The Sierra College District plans to offer more and more of its courses, programs and services to the homes, businesses and community at large through telecommunications and in designated "community learning centers". Educational delivery systems such as these must be enhanced to make the college's services more convenient and accessible in order to meet present and future needs.

The district envisions "community learning centers" as joint-use facilities to be used by the college, businesses, city and community at large for a variety of purposes. They would be more cost effective because of multiple use while meeting our constituents' needs closer to their homes and work. Cable television courses and other means of instruction could be provided in these community extension centers by Sierra College, CSU Sacramento, UC Davis and other educational providers. Conceivably students could earn a variety of degrees without having to leave their community.

D. PARKS AND RECREATION

1. Park Standards

Placer County Park Standards require five acres of park land for every 1,000 people in an area. In 1988, the Auburn Recreation District provided park facilities to meet a ratio of 3.2 acres of park land per 1,000 people. The population has increased since 1988, and made the shortage of parks even more pronounced. It should also be noted that some school sites presently have turf areas which are being used for recreation. Some of these grass areas are being covered with school buildings resulting in even fewer turf play areas being available.

Since a majority of the land in the Auburn/Bowman Community Plan boundaries has a slope greater than 5%, these steeper sites could be acquired for more passive types of uses (hiking, picnicking, nature study, preservation, etc.). The lands with less than a 5% slope must be sought for active recreation facilities and should be given a higher priority due to their scarcity. Properties with a steeper slope cannot be developed into active recreational facilities. The present standard of five acres of park land for every 1,000 people is intended to serve the need for active recreation areas. An additional 5 acres per 1,000 people should be considered for passive recreation.

The "Quimby Act" ("Subdivision Map Act") allows the County to require the dedication of five acres of park land per 1,000 people as a condition of subdivision projects. The current County Park fee is sufficient to cover less than 50% of the cost of providing active park facilities for which new development generates a demand. Any additional acreage to be acquired would have to be obtained through negotiations with developers for zoning and other development considerations or through long-term low cost leases with entities such as the Pacific Gas and Electric Company or private landowners. Historically, active recreational needs have taken a priority over the more passive recreational needs. Planning efforts must be undertaken to ensure that a balanced park system, which will address both types of recreation, will be implemented and financed. Passive needs should be included in all inventories of recreational facilities and in needs analysis studies so that they can be prioritized, and funding for these uses secured in a well planned manner.

The City of Roseville presently has a standard of nine acres per 1,000 people. In an issue paper released in June 1991, the City of Roseville described the implementation of their dedication standard in order to obtain sufficient lands to meet both active and passive recreation needs. The dedication of lands for traditional parks and recreation facilities ("active" parks) has been given full credit. However, other lands were given "partial credit." "Partial credit" means the developer was allowed to substitute other lands (other than lands for traditional parks) at a reduced rate to fulfill the nine acres/1,000 people standard. The rationale behind the "partial credit" approach is that a large acreage of oak woodland or vernal pool preserve is needed to achieve the same recreational value as traditional park land. An example is given where, for every ten acres of lower watershed which was dedicated, the developer received one acre of credit towards the nine acres/1,000 standard. In another example cited, a park preserve was credited at the rate of five acres of park preserve receiving one acre of park credit. The rationale given for the difference was the park preserve had the potential to provide more traditional recreational value than the watershed.

The Roseville examples point out the complexity of partial credits. This can lead to negotiations determining dedicated acreage. For this reason, a set standard of ten acres per 1,000 people is recommended, with the developers receiving full credit on an acre per acre basis. It would still be left to the decision-makers and the Parks Division to ensure that at least five acres/1,000 people is dedicated for active recreation.

2. Park Locations and Their Priorities

Potential park sites were identified based upon areas being the most suitable for development into active parks or for setting aside "open space" and "greenbelt" areas where passive recreation would occur. The sites were selected after review by County Parks staff, County Planning Department staff, the Citizens' Committee, and by ARD.

The standards of five acres per 1,000 people for active parks and another five acres per 1,000 for passive parks can easily be calculated. This Plan indicates the holding capacity calculated at 2.69 residents per dwelling unit. Thus, the Plan results in a need for approximately 400 acres of park land in the Plan area.

The park locations shown on Figure 39 could make available approximately 600 acres. It is recognized that not all sites shown will be pursued beyond initial review as there must be a thorough feasibility study undertaken for whichever site is being considered. In addition, other sites should be considered as they become available later, so long as they meet the criteria identified for park development.

High priority areas are those which can be purchased relatively inexpensively, or are located adjacent to school sites. Long term leases are possible for large tracts of land owned by the Pacific Gas & Electric Company. Also, the County owns some property at the Dewitt Center which could be converted to recreational uses at a relatively low cost when compared to most other sites.

It is desired that those sites which are relatively level, 5% slope or less, be given a higher priority. This will provide for a greater number of options when designing the actual recreational facilities that will be constructed on the sites. The higher prioritization of lands with a slope of

5% or less for park adaptability is also in keeping with the standard found in the County's subdivision ordinance section 19.107. Another major rating criteria would be the location of the property.

Land which is in close proximity to the more densely populated areas should also receive a high priority since these sites will be heavily used and travel time to them will be less than if they were located far from the population centers.

Some of the sites which are shown are areas which are suitable for passive recreation. These areas may be utilized by the public for "Open Space" types of amenities. They include lands which are heavily treed with large oaks or contain wetlands and riparian areas. One such site is the 180± acre "Meadow Wood/Pyramid" properties (APN 075-140-32 and -33, 076-231-19 and -20, 076-240-08, and -15, and 077-021-79 and -80) which could serve as an important passive park for the community and region. The site includes wetlands, woodlands, and other wildlife habitat. Because of the site's important environmental amenities and potential for a passive park, high priority should be given to the acquisition of the site.

One type of recreation amenity which is often overlooked (and therefore not provided for) is cultural resource sites and features. Many cultural resources in the Plan area have been identified (see the Plan's Cultural Resources Element and EIR for more information), however, other than identifying the sites and features with signs or monuments, very little has been done to include cultural amenities as a recreation amenity in the Plan area. Although it would not be appropriate in many instances to provide public access to cultural resources due to increases in vandalism, etc., cultural resources should be developed as recreation amenities when appropriate.

The land areas which appear best for acquisition, either in fee title or through long term lease, for active recreation, are the County sites at DeWitt Center; areas adjacent to schools; and areas adjacent to future County golf courses. These areas could be developed for active recreation and benefit from joint maintenance areas. The passive sites which should be acquired on a higher priority are those lands owned by Pacific Gas & Electric. They presently have some land for sale and other land which may be obtained through a low-cost lease. Some areas are already developed for low intensity recreation consisting of short trails and fishing areas. The Pacific Gas and Electric Company has stated a willingness to consider leases of additional land which is not shown on this plan but which should be considered after further review.

3. Cost of Active Recreation Facilities

Presently, the standard used for land costs in the County is \$30,000 per acre. When purchasing land there are additional costs which are incurred for items such as appraisal, negotiations, surveying, etc. These additional costs average approximately \$5,000.

Cost comparables have been reviewed in the Plan area and show a tremendous difference in the cost of land by geographic area. Costs of existing parcels of from eight to twenty-five acres ranged from a low of \$5,000 per acre to a high of \$40,000 per acre. The costs were largely dependent on the land being splittable and whether there were sewer, electric, gas, water and phone services to the area.

The following are costs to construct specified active recreational facilities in 1991 dollars. The costs include actual construction only. Lump sum costs for grading, roads, water, electrical, design, administration and contingencies are shown below for a typical park, however the costs vary depending on specifics of a particular site.

Table 8

Average Park Construction Costs

FACILITY	UNIT	CONSTRUCTION COSTS
GRASS AREAS Soccer or Free Play	Square Foot	\$1.35
TENNIS COURT	1 Court 2 Courts	\$50,000 \$100,000
SOFTBALL/LITTLE LEAGUE - 300 ft. fence	Square foot	\$1.50 \$60,225 Total
BLEACHERS	Each	\$5,000
BASKETBALL Asphalt 8,500 S.F.	Full Court With Colored Surface	\$17,000 \$22,000
*TRAILS	Decomposed Granite S.F. Asphalt S.F. Natural Soil S.F. Concrete S.F.	\$1.60 \$2.00 \$.50 \$2.60
PLAYGROUNDS Base Surface	Square Foot Sq. ft. (New Law)	\$9.00 \$8.00
GROUP PICNIC SHELTER	Square Foot	\$25.00
GRADING	Cubic Yard	\$2.75
ROADWAY - ASPHALT	Square Foot	\$2.90
PARKING AREAS	Square Foot	\$2.15
STRIPPING PARKING	Spaces	\$8.50
WATER METER TO SITE	Each (Varies Greatly)	\$60,000
ELECTRICAL TO SITE	Each (Varies Greatly)	\$10,000
FENCING - CHAIN LINK	Linear Foot	\$15.00
ADMINISTRATION	Project	10% of Cost
CONTINGENCY	Project	10% of Cost
DESIGN & CONSTRUCTION ENGINEER	Project	20% of Cost
OVERALL DEVELOPED SITE	Acre	\$100,000

* Cost for asphalt roadway, parking areas and trails are based on ideal conditions not requiring the use of imported soil. Costs vary considerably depending on subgrade work, storm drains (if needed) and soil stabilization.

4. Trail Segment Inventory

An inventory by category of proposed trails has been prepared and is shown on Table 9. Primary trails are arranged in order of recommended priority; secondary trails, although enumerated, are not listed in order of priority. Priorities may be changed depending on funding opportunities and specific development proposals. Trail alignments may also change slightly from those shown due to development proposals, road construction projects, or required easement dedication.

Table 9

Trail Segments by Category

INDEPENDENT PRIMARY	SEGMENT	DIST/MI	TYPE ¹
Combie-Ophir Canal	Bear River to Redrock Ct.	4.5 mi.	E
Orr Creek	Highway 49 to Christian Valley Road east of Stevens Drive	2.9 mi.	E
Rock Creek	Dry Creek Road to Rock Creek Lake South of Bell to Keena Drive	2.9 mi.	E
SPRR	From eastern boundary to Mikkelsen Drive	4.7 mi.	E
Existing Trails	BLM Lands	6.5 mi.	E
Wise Canal	Mt. Vernon Road to Wise Road	1.5 mi.	E
Russell Road	Lincoln Way to existing trail	.6 mi.	P
		23.6 mi.	
INDEPENDENT SECONDARY	SEGMENT	DIST/MI.	TYPE ¹
Christian Valley Park	Boundary perimeter from Emma Lane to Bellbrook Drive	1.0 mi.	E
P.G.& E. Easement	Halsey Forebay to Halsey	.9 mi.	E
Unnamed Segment	Dry Creek Road to Old Airport Road	.76 mi.	P
Airport Property	Combie-Ophir Canal to the Unnamed Segment	1.5 mi.	E
Rock Creek Lake	North boundary from New Airport Road to Rock Creek	.5 mi.	E
Wise Canal	Rock Creek to Wise Forebay	1.2 mi.	E
Fiddler Green Canal	Millertown Road to Stonehouse Road	.8 mi.	E
Unnamed Drainway	Lincoln Way to American River	.9 mi.	D
Gold Hill Canal Drain	Bell Road to Joeger Road	.9 mi.	D
Black Forest Estates	Joeger Road around subdivision	1.8 mi.	P & E
		10.26 mi.	

There are a total of 33.86 miles of Independent Trails

- ¹D = Drainway
- E = Easement/Public
- P = Private Property

Table 9 continued

PEDESTRIAN/CYCLIST PRIMARY	SEGMENT	DIST/MI	TYPE ¹
Shirland	Shirland Tract Road to Auburn Folsom Road	2.3 mi.	E
Highway 49	Bell River to Bell Road	5.0 mi.	E
Christian Valley Road	Iron Mountain CCC Camp to I-80	4.2 mi.	E
Mt. Vernon Road	Joeger Road to Nevada Street	3.6 mi.	E
Dry Creek Road	Joeger Road to I-80	5.23 mi.	E
Bell Road	Dewitt Center to I-80	3.5 mi.	E
Existing Trail	BLM	1.5 mi.	E
		25.33 mi.	

¹D = Drainway

E = Easement/Public

P = Private Property

Table 9 (continued)

PEDESTRIAN/CYCLIST SECONDARY	SEGMENT	DIST/MI	TYPE ¹
Bell Road/Lone Star	Joeger Road to Highway 49	4.5 mi.	E
Cramer Road	Bell Road to Highway 49	1.5 mi.	E
Lorensen Road	Highway 49 to school site	.6 mi.	E
Joeger Road	Dry Creek to Mt. Vernon	1.7 mi.	E?
North/South Alignment	Edgewood/Mt. Vernon to Dry Creek Road	3.0 mi.	P?
Atwood Road	Mt. Vernon to 3rd Street	1.1 mi.	E
Bean Road	Mt. Vernon to Highway 49	2.0 mi.	P & E
Edgewood Road	Mt. Vernon to Highway 49	1.1 mi.	E
Nevada Street	Highway 49 to city limits	.3 mi.	E
Millertown Road	Mt. Vernon to plan line boundary	.9 mi.	E
Collins Road	Mt. Vernon to city limits	.76 mi.	E & P
Stonehouse	Wise Canal to Forgotten Road	.6 mi.	E
Ophir Road	City limits to Wise Road	.76 mi.	E
Lonestar Road	Highway 49 to Combie-Ophir Canal	1.3 mi.	E & P
Winding Way/Emma	Lonestar Road to Stanely Drive	.9 mi.	E
Stanley Drive	Emma Lane to Combie-Ophir Canal	1.0 mi.	E
Helen Lane	Stanley to Moss Rock Drive	.8 mi.	E
Moss Rock Drive	Virginia Drive to Bluegrass Drive	1.2 mi.	E
Bluegrass Drive	Dry Creek Road to Red Rock Court	1.0 mi.	E
Florence Lane Alignment	Highway 49 to Helen Lane	.76 mi.	E & P
Mary Lane	Christian Valley Road to eastern boundary	2.0 mi.	E & P
Nancy Drive	Christian Valley Road to eastern boundary	.76 mi.	E & P
William Drive	Christian Valley Road	.5 mi.	E & P
Alignment	Nancy Drive to William Drive	.76 mi.	P
Gregg Way	Christian Valley Road to Dry Creek	1.1 mi.	E & P
West Ridge Alignment	Christian Valley Road to unnamed alignment	.8 mi.	P & E
Unnamed Alignment	Oak Road to Pondrex Road alignment	4.0 mi.	P
Pondrex Road Alignment	Westridge to Dry Creek Road	1.1 mi.	P & E
Halsey Forebay Alignment	Christian Valley Road to north boundary	2.0 mi.	P

¹D = Drainway
E = Easement/Public
P = Private Property

Table 9 (continued)

PEDESTRIAN/CYCLIST SECONDARY (continued)	SEGMENT	DIST/MI	TYPE ¹
Bowman Road	Dry Creek Road to Auburn Ravine Road	3.0 mi.	E
Lincoln Way	SPRR to city limits	1.7 mi.	E
Luther Road	I-80 to Highway 49	1.7 mi.	E
SPRR	I-80 to Rock Creek	1.7 mi.	E
Oakridge Way	Oakridge Way to SPRR	.6 mi.	E
Old Airport Road	Bell Road to SPRR	.4 mi.	E
Property Line Alignment	Bell Road to SPRR	.7 mi.	P & E
Old Airport Road	Bell Road to New Airport Road	1.0 mi.	E
New Airport Road	Bell Road to Locksley Lane	.5 mi.	E
Locksley Lane	Highway 49 to New Airport	1.1 mi.	E
Combie-Ophir Canal	Dry Creek Road to Dry Creek Road	1.1 mi.	E & P
		52.30 mi.	

¹D = Drainway
E = Easement/Public
P = Private Property

There are a total of 77.63 miles of Pedestrian/Cyclist Trails

5. Trail Construction Cost Estimates

There are 33.86 miles of Independent Trails and 77.63 miles of Pedestrian/Cyclist Trails recommended on the Trails Plan for a total of 111.49 miles of trails in both categories. As previously discussed, these designations are in addition to those bicycle routes designated by the Transportation Commission in the Placer County Bikeways Master Plan.

In order to estimate construction costs, the following assumptions were used:

- For Independent Trails adjacent to drainageways and other private property
 - the cost of purchasing a 16' easement is \$20,000/mi (based on 2 acres/mi and \$10,000/acre)
 - the cost of developing a 12' trail is \$40,000/mi (\$15,000/mi improvement; \$25,000/mi fencing, signs)
 - costs could be more or less in any given section depending on land costs, available R.O.W., etc.
 - average cost used is \$60,000/mi

For Independent Trails within public lands or easements:

- minimal improvement costs as lands are largely already in use
- costs limited to signs estimated at \$1,500/mi

For Pedestrian/Cyclist Trails - Routes

- no right-of-way requirements
- costs limited to signs estimated at \$1,500/mi

For Pedestrian/Cyclist Trails - Lanes

- right-of-way exists or will be dedicated at no cost
- paving of two 4 foot lanes on road shoulders at same structural integrity as roadway estimated at \$60,000/mi
- striping, signs and intersection controls at \$5,000/mi
- average cost used is \$65,000/mi

For Commuter Trails - Paths

- the cost of purchasing a 12' easement is \$30,000/mi (based on 1.5 acres/mi and \$20,000/acre)
- the cost of developing an 8' paved trail is \$25,000/mi at lesser standard than roadway structural integrity
- striping, signs and intersection controls at \$5,000/mi
- costs could be more or less in any given section depending on land costs, available r.o.w., etc.
- average cost used is \$60,000/mi

The feasibility of developing trail corridors within a reasonable time frame (5-10 years) will be contingent upon requiring either a fee exaction and/or easement dedication during project review. Condemnation will not be used to acquire trail corridors. Development proposals along designated bike routes and trails need to be evaluated in order to provide sufficient rights-of-way and to ensure that new development does not detract from the scenic and aesthetic qualities of the corridor. It will therefore be incumbent upon the County to carefully monitor development proposals which may jeopardize the completion of future trail corridors.

6. Trail Design

The goal of achieving the optimum use of a trail is one which cannot be met unless considerations are made in trail design and construction standards which meet user needs. The identification of trail routes, support facilities and adequate access must also take into account user's needs, including those of the physically disabled. Potential user needs are:

- Pedestrian trails should address senior citizen walkers, jogging loops, and long-distance runners. Throughout the state, hikers and joggers generally use equestrian or bicycle trails which can create conflicts. Pedestrian trails should include a physical separation from cyclists where possible and should have a natural surface.
- Equestrians prefer scenic trails on a natural dirt surface with variations in terrain. These trails are usually six to eight feet in width and should be kept free from motor vehicles and bicycle traffic. Equestrians also require staging areas that include adequate access/parking for vehicles and trailers.
- Non-mountain-bike cyclists require wide trails and a smooth surface to accommodate a number of users, wide ranges of speed and often long distances. An all-weather surface should be provided which can also accommodate the needs of disabled recreationalists.
- Preparation of a trails safety ordinance. In the final planning stages for a trails system, the needs of all recreational users must be kept in mind when designating trail corridors.
- Properly designed natural surface trails are suitable for recreational pedestrian, equestrian, and mountain bike use, but are unsuitable for all weather use in circumstances where said trails are intended to provide a pedestrian or bicycle transportation route in lieu of traditional sidewalk or paved pathway design.

7. Financing

In the case of many projects, a combination of two or more different funding sources would be necessary to complete the development process. Any funding mechanism considered should be considered for the acquisition of both active and passive sites. Of course, additional funding mechanisms should not be ruled out if they can be obtained. The following are provided as examples of some of the types of financing which have been utilized by Park Agencies in different parts of the state.

- a. The Quimby Act (Government Code Section 66477) permits the County to require the dedication of land and/or payment of fees to be used to help meet the demand for recreation created by occupants of new housing units. Land can only be required when a proposed subdivision contains 50 or more units/lots. Land divisions resulting in fewer than 50 units/lots can only be required to pay an "in-lieu" fee. These "in-lieu" fees are collected by Placer County and at the present time are \$1,120 per unit/lot. These funds can be used for acquisition, development or for major repairs. The funds cannot be used for operations and maintenance.

- b. Grant funds continue to be available from the Federal government. The Federal Grants are funded through the Land and Water Conservation Fund. This fund has been greatly reduced in recent years and is now in jeopardy of being eliminated. A match is required and the program is very competitive. This program can be used for acquisition and development.
- c. State Grants can also be used for acquisition and development. The 1988 Park Bond Act measure was defeated at the polls. The 1992 Park Bond Act is being developed. The governor's office is proposing to require a simple majority vote for passage, however, this would be under the condition that no future Park Bond Acts would be placed on the ballot. This funding source is also in jeopardy.
- d. Donations of land or money are sometimes available for park purposes. Organized civic groups are capable of soliciting donations from both private individuals as well as large corporations. Organized athletic leagues frequently donate money and/or labor to assist in the construction of fields which the league can then use.
- e. Although in most cases school districts are not financially able to assist in the development of recreation facilities (other than the bare necessities required for their own physical education programs), they often have land available where such facilities can be located. Tremendous public benefits result from such projects, including reduced cost of land, additional recreation facilities which enable schools to expand their physical education programs, maximization of use of such facilities, joint use of parking lots, access roads, water service, etc.
- f. Mello-Roos Community Facilities Districts can be created to fund recreation projects. This type of assessment district can be used for financing park facilities; including acquisition, development, maintenance and operation. The way in which the assessments are handled is extremely flexible in terms of charges being made per acre, per lot, per house or any other reasonable method. This type of district is most often used in developing areas as opposed to developed areas due to the need for two-thirds voter approval of the assessments. Bonds can be sold to raise capital for improvements and the bonds repaid from the revenue received through assessments. The creation of such a district can be started by either the Board of Supervisors or by petition from residents of the affected area.
- g. Land Trusts (such as the Placer Land Trust) are community based, non-profit corporations which have been organizing throughout the United States to protect and preserve open space. Public agencies have taken advantage of their purchasing abilities when there has not been sufficient public funding.
- h. Bequeaths/Endowments can come in many forms. Individuals can give lands for park purposes and reap tax benefits while saving the space specifically for park uses.

- i. General Obligation Bonds have been successful in some counties to fund large capital improvements. The bonds are paid off over a given number of years and so can be appealing to voters.
- j. Local sales taxes can be charged with proceeds going directly to parks.
- k. The Land Bank program is an acquisition program designed as a tool to assist California School Districts located in growth areas to meet their future school site needs. Parks can be planned on these school grounds. Land can be purchased by a non-profit corporation and interest payments deferred until the sites are projected to be needed or upon completion of actual construction. Any revenue and financing mechanism typically available for construction would be used to purchase the parcel.
- l. Many of the sources of funding cited above for trail financing and construction are also available for the acquisition/construction of other passive and active recreation projects. In addition, assistance can be obtained from regional and/or national organizations who specialize in such matters (the Placer Land Trust, the Trust for Public Lands, the Nature Conservancy, etc.). Placer County also employs a grants coordinator who could serve to alert the County Parks Department or other volunteer groups of the availability of grants and other potential financial aid, as appropriate. Generally speaking, the more benefits a given project or piece of property can provide (environmental, recreational, educational, etc.), the more likely the grant funds can be located and secured. In other words, both public and private funding agencies like to see as much result as possible per dollar of investment in open space protection/preservation. Projects which can provide the greatest amount of benefit (i.e. the broadest range of open space amenities) should be highest on the priority list for acquisition and development.

E. NOISE ELEMENT

1. Introduction

This Background Report section contains information relative to techniques for noise control and noise prediction methodology. Information on existing and future noise environments in the Plan area and criteria for acceptable noise exposure is contained in the Plan's EIR. Another source of noise information is the Environmental Noise Analysis for the Auburn/Bowman Community Plan, Appendix C of the Background Report, which contains, in addition to the information contained below and in the Plan's EIR, acoustical terminology, the Federal Highway Traffic Noise Prediction Model Inputs, and the Model Noise Control Ordinance for the A/BCP.

2. Techniques for Noise Control

Any noise problem may be considered as being composed of three basic elements: the noise source, a transmission path, and a receiver. Local control of noise sources is practical only with respect to fixed sources (e.g., industrial facilities, outdoor activities, etc.), as control of vehicular sources is generally preempted by federal or state law. Control of fixed noise sources is usually best obtained by enforcement of a local noise control ordinance. The emphasis of noise control

in land use planning is therefore placed upon acoustical treatment of the transmission path and the receiving structures.

The appropriate acoustical treatment for a given project should consider the nature of the noise source and the sensitivity of the receiver. The problem should be defined in terms of appropriate criteria (L_{dn} , L_{eq} , or L_{max}), the location of the sensitive receiver (inside or outside), and when the problem occurs (daytime or nighttime). Noise control techniques should then be selected to provide an acceptable noise environment for the receiving property while remaining consistent with local aesthetic standards and practical structural and economic limits. Fundamental noise control techniques include the following:

a. Use of Setbacks

Noise exposure may be reduced by increasing the distance between the noise source and receiving use. Setback areas can take the form of open space, frontage roads, recreational areas, storage yards, etc. The available noise attenuation from this technique is limited by the characteristics of the noise source, but is generally 4 to 6 dB per doubling of distance from the source.

b. Use of Barriers

Shielding by barriers can be obtained by placing walls, berms or other structures, such as buildings, between the noise source and the receiver. The effectiveness of a barrier depends upon blocking line-of-sight between the source and receiver, and is improved with increasing the distance the sound must travel to pass over the barrier as compared to a straight line from source to receiver. The difference between the distance over a barrier and a straight line between source and receiver is called the "path length difference," and is the basis for calculating barrier noise reduction.

Barrier effectiveness depends upon the relative heights of the source, barrier and receiver. In general, barriers are most effective when placed close to either the receiver or the source. An intermediate barrier location yields a smaller pathlength difference for a given increase in barrier height than does a location closer to either source or receiver.

For maximum effectiveness, barriers must be continuous and relatively airtight along their length and height. To ensure that sound transmission through the barrier is insignificant, barrier mass should be about 4 lbs./square foot, although a lesser mass may be acceptable if the barrier material provides sufficient transmission loss in the frequency range of concern. Satisfaction of the above criteria requires substantial and well-fitted barrier materials, placed to intercept line of sight to all significant noise sources. Earth, in the form of berms or the face of a depressed area, is also an effective barrier material.

Transparent noise barriers may be employed, and have the advantage of being aesthetically pleasing in some environments. Transparent barrier materials such as laminated glass and polycarbonate provide adequate transmission loss for most highway noise control applications. Transparent barrier materials may be flammable, and may be easily abraded. Some materials may lose transparency upon extended exposure to sunlight. Maintaining aesthetic values requires that transparent barriers be washed on a

regular basis. These properties of transparent barrier materials require that the feasibility of their use be considered on a case-by-case basis.

The attenuation provided by a barrier depends upon the frequency content of the source. Generally, higher frequencies are attenuated (reduced) more readily than lower frequencies. This results because a given barrier height is relatively large compared to the shorter wavelengths of high frequency sounds, while relatively small compared to the longer wavelengths of the low frequency sounds. The effective center frequency for traffic noise is usually considered to be 550 Hz. Railroad engines, cars and horns emit noise with differing frequency content, so the effectiveness of a barrier will vary for each of these sources. Frequency analyses are necessary to properly calculate barrier effectiveness for noise from sources other than highway traffic.

There are practical limits to the noise reduction provided by barriers. For highway traffic noise, a 5 to 10 dB noise reduction may often be reasonably attained. A 15 dB noise reduction is sometimes possible, but a 20 dB noise reduction is extremely difficult to achieve. Barriers usually are provided in the form of walls, berms, or berm/wall combinations. The use of an earth berm in lieu of a solid wall will provide up to 3 dB additional attenuation over that attained by a solid wall alone, due to the absorption provided by the earth. Berm/wall combinations offer slightly better acoustical performance than solid walls, and are often preferred for aesthetic reasons.

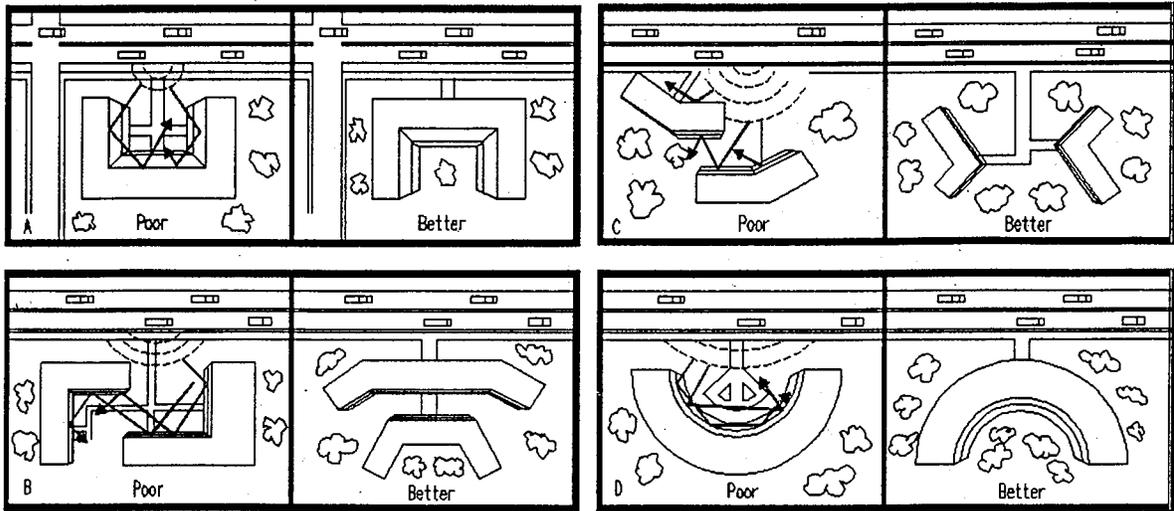
Another form of barrier is the use of a depressed noise source location, such as depressed loading areas in shopping centers or depressed roadways. The walls of the depression serve to break line-of-sight between the source and receiver, and will provide absorption if left in earth or vegetative cover.

c. Site Design

Buildings can be placed on a project site to shield other structures or areas, to remove them from noise-impacted areas, and to prevent an increase in noise level caused by reflections. The use of one building to shield another can significantly reduce overall project noise control costs, particularly if the shielding structure is insensitive to noise. As an example, carports or garages can be used to form or complement a barrier shielding adjacent dwellings or an outdoor activity area. Similarly, one residential unit can be placed to shield another so that noise reduction measures are needed for only the building closest to the noise source. Placement of outdoor activity areas within the shielded portion of a building complex, such as a central courtyard, can be an effective method of providing a quiet retreat in an otherwise noisy environment. Patios or balconies should be placed on the side of a building opposite the noise source, and "wing walls" can be added to buildings or patios to help shield sensitive uses.

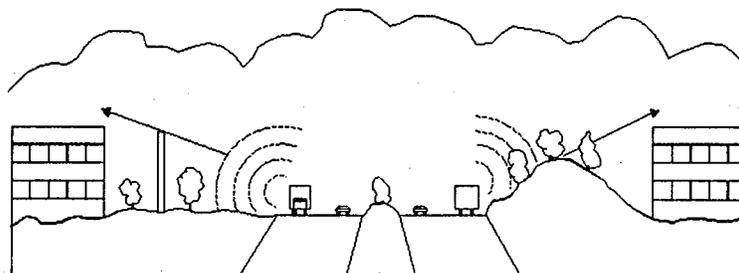
Where project design does not allow using buildings or other land uses to shield sensitive uses, noise control costs can be reduced by orienting buildings with the narrow end facing the noise source, reducing the total area of the building requiring acoustical treatment. Some examples of building orientation to reduce noise impacts are shown in Figure 27.

FIGURE 27



Another option in site design is the placement of relatively insensitive land uses, such as commercial or storage areas, between the noise source and a more sensitive portion of the project. Examples include development of a commercial strip along a busy arterial to block noise affecting a residential area, or providing recreational vehicle storage or travel trailer parking along the noise-impacted edge of a mobile home park. If existing topography or development adjacent to the project site provides some shielding, as in the case of an existing berm, knoll or building, sensitive structures or activity areas may be placed behind those features to reduce noise control costs. (See Figure 28).

FIGURE 28



Site design should also guard against the creation of reflecting surfaces which may increase onsite noise levels. For example, two buildings placed at an angle facing a noise source may cause noise levels within that angle to increase by up to 3 dB. The open end of "U"-shaped buildings should point away from noise sources for the same reason. Landscaping walls or noise barriers located within a development may inadvertently reflect noise back to a noise-sensitive area unless carefully located. Avoidance of these problems while attaining an aesthetic site design requires close coordination between local agencies, the project engineer and architect, and the noise consultant.

Another important aspect of site design is avoiding the creation of noise problems at adjacent noise-sensitive properties. For example, air conditioning units should not be placed adjacent to living areas of adjoining residences unless adequate shielding is provided. Swimming pools and outdoor activity areas such as "tot lots" should be located away from adjoining residences, or should be adequately shielded.

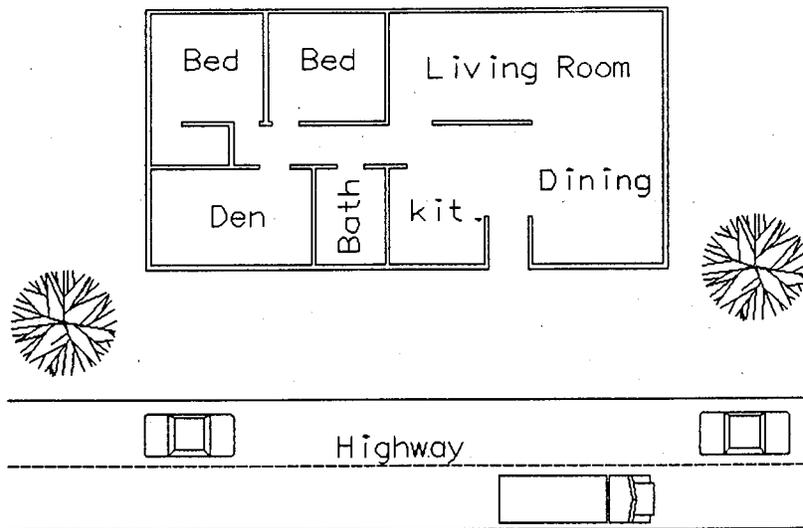
d. Building Design

When structures have been located to provide maximum noise reduction by barriers or site design, noise reduction measures may still be required to achieve an acceptable interior noise environment. The cost of such measures may be reduced by placement of interior dwelling unit features. For example, bedrooms, living rooms, family rooms and other noise-sensitive portions of a dwelling can be located on the side of the unit farthest from the noise source, as shown by Figure 29.

Bathrooms, closets, stairwells and food preparation areas are relatively insensitive to exterior noise sources, and can be placed on the noisy side of a unit. When such techniques are employed, noise reduction requirements for the building facade can be significantly reduced, although the architect must take care to isolate the noise impacted areas by the use of partitions or doors.

In some cases, external building facades can influence reflected noise levels affecting adjacent buildings. This is primarily a problem where high-rise buildings are proposed, and the effect is most evident in urban areas, where an "urban canyon" may be created. Bell-shaped or irregular building facades and attention to the orientation of the building can reduce this effect.

FIGURE 29



e. Noise Reduction by Building Facades

When interior noise levels are of concern in a noisy environment, noise reduction may be obtained through acoustical design of building facades. Standard residential construction practices provide 12-15 dB noise reduction for building facades with open windows, and 20-25 dB noise reduction when windows are closed. Thus a 20 dB exterior-to-interior noise reduction can be obtained by the requirement that building design include adequate ventilation systems, allowing windows on a noise-impacted facade to remain closed under any weather condition.

Where greater noise reduction is required, acoustical treatment of the building facade is necessary. Reduction of relative window area is the most effective control technique, followed by providing acoustical glazing (thicker glass or increased air space between panes) in low air infiltration rate frames, use of fixed (non-movable) acoustical glazing or the elimination of windows. Noise transmitted through walls can be reduced by increasing wall mass (using stucco or brick in lieu of wood siding), isolating wall members by the use of double- or staggered- stud walls, or mounting interior walls on resilient channels. Noise control for exterior doorways is provided by reducing door area, using solid-core doors, and by acoustically sealing door perimeters with suitable gaskets. Roof treatments may include the use of plywood sheathing under roofing materials. Standard energy-conservation double-pane glazing with an 1/8" or 1/4" air-space is not considered acoustical glazing, as its sound transmission loss for some noise sources is actually less than that of single-pane glazing.

Whichever noise control techniques are employed, it is essential that attention be given to installation of weatherstripping and caulking of joints. Openings for attic or subfloor ventilation may also require acoustical treatment; tight-fitting fireplace dampers and glass doors may be needed in aircraft noise-impacted areas.

Design of acoustical treatment for building facades should be based upon analysis of the level and frequency content of the noise source. The transmission loss of each building component should be defined, and the composite noise reduction for the complete facade calculated, accounting for absorption in the receiving room. A one-third octave band analysis is a definitive method of calculating the A-weighted noise reduction of a facade.

A common measure of transmission loss is the Sound Transmission Class (STC). STC ratings are not directly comparable to A-weighted noise reduction, and must be corrected for the spectral content of the noise source. Requirements for transmission loss analyses are outlined by Title 24 of the California Code of Regulations.

f. Use of Vegetation

Trees and other vegetation are often thought to provide significant noise attenuation. However, approximately 100 feet of dense foliage (so that no visual path extends through the foliage) is required to achieve a 5 dB attenuation of traffic noise. Thus the use of vegetation as a noise barrier should not be considered a practical method of noise control unless large tracts of dense foliage are part of the existing landscape.

Vegetation can be used to acoustically "soften" intervening ground between a noise source and receiver, increasing ground absorption of sound and thus increasing the attenuation of sound with distance. Planting of trees and shrubs is also of aesthetic and psychological value, and may reduce adverse public reaction to a noise source by removing the source from view, even though noise levels will be largely unaffected. It should be noted, however, that trees planted on the top of a noise control berm can actually slightly degrade the acoustical performance of the barrier. This effect can occur when high frequency sounds are diffracted (bent) by foliage and directed downward over a barrier.

In summary, the effects of vegetation upon noise transmission are minor, and are primarily limited to increased absorption of high frequency sounds and to reducing adverse public reaction to the noise by providing aesthetic benefits.

g. Sound Absorbing Materials

Absorptive materials such as fiberglass, foam, cloth and acoustical tiles or panels are used to reduce reflections or reverberation in closed spaces. Their use in exterior environmental noise control may reduce reflections between parallel noise barriers or other reflective surfaces. Maintenance of absorptive materials used outdoors may be difficult, as most such materials are easily damaged by

sunlight and moisture. Their application as an outdoor noise control tool is limited to special cases where the control of reflected noise is critical and where the material is sufficiently durable.

3. Noise Prediction

The following noise prediction methodologies are approved for use in acoustical analyses submitted to Placer County for the Auburn/Bowman Community Plan area. Other methodologies may be used if approved by the County Planning Department after review of supporting technical justification.

a. Traffic Noise

- (1) The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) is the preferred traffic noise prediction methodology. The CALVENO standardized noise emission factors must be used (published in FHWA-CA-TL-84/13, "California Vehicle Noise Emission Levels"). Any form of the FHWA Model may be used, such as manual calculation and versions for programmable calculators and computers, including STAMINA.
- (2) Noise barrier insertion loss shall be calculated using the FHWA Model methodology. The effective center frequency of the noise sources shall be assumed to be 550 Hz. Source heights of 0, 2 and 8 feet above roadway centerline shall be assumed for autos, medium trucks and heavy trucks, respectively.
- (3) Noise sensitive receiver locations are assumed to be the back yards of single-family dwellings, and the patios and balconies of multi-family dwellings. The exterior receiver height shall be assumed to be 5 feet above back yard or patio elevation for ground-floor receivers, and 4 feet above balcony elevation for upper-floor receivers. The exterior ground-floor receiver shall be placed 10 feet from the building facade. The exterior upper-floor receiver shall be placed midway from the building facade to the edge of the balcony, and a correction factor of +2 dB shall be applied to account for reflections from the building facade.
- (4) For multi-family developments, common outdoor activity areas are also considered to be noise sensitive receiver locations. The assumed exterior receiver height is 5 feet above ground level, and the assumed receiver location is normally in the center of the recreation area.

- (5) Traffic noise attenuation with distance for ground level receivers should be consistent with an acoustically "soft" site, at 4.5 dB attenuation per doubling of distance. Noise attenuation for receivers and building facades at upper floors, and for receivers overlooking the roadway, should be consistent with an acoustically "hard" site, at 3 dB attenuation per doubling of distance. These assumptions may be modified on the basis of onsite noise measurements at proposed receiver locations and elevations.
- (6) Noise measurements for traffic noise analyses should include at least one 15-minute sample of daytime traffic noise levels (including the L_{eq} value) under free-flowing traffic conditions, with a concurrent traffic count. Nighttime traffic noise levels may be estimated from 24-hour noise measurement data or published hourly traffic distribution data. For major arterials and highways, continuous hourly noise measurements over a 24-hour period are recommended to describe the effective day/night traffic distribution and to supplement the 15-minute sample(s). Noise measurement sites should be selected to represent proposed receiver locations and representative sound propagation conditions.
- (7) Existing traffic volume, truck mix and day/night distribution should be obtained from the Placer County Department of Public Works or Caltrans as appropriate. Projected future traffic volume may be obtained from those agencies or the project traffic consultant. Traffic speed shall be assumed to be the posted or projected design speed, unless shown otherwise by observation or noise measurements. Typical traffic data for the Community Plan area are shown by the FHWA Model input data listed in the Noise Element handbook.

b. Railroad Noise

- (1) The preferred method of predicting railroad noise exposure is to calculate L_{dn} values at the proposed receiver locations based upon onsite single event and cumulative noise level measurements, assuming noise attenuation of 4.5 dB per doubling of distance for all receiver elevations. Alternative methods include the "Simplified Procedure for Developing Railroad Noise Exposure Contours," prepared by Jack W. Swing of the California Office of Noise Control, and the more detailed procedures prescribed in the Assessment of Noise Environments Around Railroad Operations, Wyle Research Report No. WCR 73-5. In the Community Plan area, variations in site topography, railroad grade and use of warning horns may require adjustments to the modeling assumptions. For this reason, onsite noise

measurements and observations are preferred. The Noise Element handbook lists railroad noise measurement results in the Community Plan area.

- (2) Noise barrier insertion loss for railroad noise sources should be calculated using standard methods, such as those described by the FHWA Model or in Noise and Vibration Control, by Leo Beranek. Receiver locations for railroad noise exposures are the same as for traffic noise exposures. To account for differences in source heights and frequency content, it may be necessary to determine the relative contribution of different noise sources, such as wheel/rail interaction, locomotives or horns. For a generalized railroad noise source on smooth rails, the effective center frequency of the source may be assumed to be 1000 Hz with a source height of 10 feet above the rail bed. Other assumptions may be used as supported by published data or experimental results.
- (3) Day/night distribution of railroad freight operations may be assumed to be uniform over a 24-hour day, unless otherwise indicated by noise measurements or information from the railroad company. Passenger train operations should be distributed according to the published schedules. The numbers and distribution of freight operations may be obtained from the railroad company dispatcher. Refer to the Noise Element handbook for typical railroad operations in the Community Plan area.
- (4) Railroad noise measurements should include a representative number of single event noise levels from freight and passenger operations. Noise levels recorded over a 24-hour period are normally sufficient. The data collected should include the Sound Exposure Level (SEL) and maximum sound level (L_{max}) due to the passage of the train, and a notation of whether a warning horn or whistle was used. The noise levels due to bells at rail crossings should also be described.

c. Aircraft Noise

- (1) Noise produced by aircraft operations at an airport may be described by reference to published noise exposure contours for that airport. If the project site is within the 60 dB CNEL contour of an airport, predicted single event aircraft noise levels at the project site should be described. Predicted single event noise levels may be based upon noise measurements at the project site, or by using the FAA's Integrated Noise Model (INM). Aircraft noise levels should be expressed in terms of the Community Noise Equivalent Level (CNEL) and (where applicable) typical SEL and L_{max} values.

- (2) Noise produced by aircraft operations at other than an established airport should be described in terms of predicted Community Noise Equivalent Level (CNEL), SEL and L_{max} values. Predicted noise levels may be based upon noise measurements at the project site or other representative locations, or may be predicted using the FAA's Integrated Noise Model (INM). Helicopter noise level predictions may also be based upon the data reported in Helicopter Noise Exposure Curves for Use in Environmental Impact Assessment, FAA-EE-82-16.

d. Interior Noise Levels

- (1) Interior noise levels should be calculated from the predicted exterior sound level and source spectrum at the affected building facades, and the sound transmission characteristics of the building facades. The calculation should account for the types and sizes of the building elements used in the facade, the amount of exposure of each facade to the noise source, and the cumulative noise exposure from each facade. If detailed building plans are not available, generalized building descriptions may be employed, subject to review when detailed plans are provided.
- (2) One-third octave or 1/1 octave band analysis is preferred, describing the source frequency content and facade transmission loss characteristics from 125 Hz to 4000 Hz. Corrections should also be made for absorption of sound by the receiving room. A safety factor of 3 dB is recommended to allow for potential degradation of acoustical performance from variables in construction and materials. Source spectra and transmission loss values should be obtained from published test results, if available.
- (3) If it is necessary to close windows and doors to achieve the required interior noise level standard, the analysis should indicate that adequate ventilation must be provided to meet the fresh air exchange requirements of the Uniform Building Code. Recommendations should also be made to ensure that the ventilation system does not compromise the acoustical integrity of the building facades, and that it does not create excessive interior noise levels due to its operation.
- (4) The report should cite the assumptions used for building elements and design features. Any building design features required to achieve the interior noise level standard should be clearly specified.

**III. ENVIRONMENTAL
RESOURCES
MANAGEMENT
ELEMENT**

A. REFERENCES

The background information for the natural resources and open space subsections of the Plan's Environmental Resources Management Element is contained in the Draft A/BCP Conservation and Open Space Component of the Environmental Resources Management Element located at Appendix E of this Background Report. The Plan's Environmental Impact Report contains historical and prehistorical background information for the cultural resources section of the Environmental Resources Management Element.

The Environmental Impact Report also evaluates the impacts that can be expected to environmental resources (natural resources, open space, and cultural resources) with implementataion of the Plan.

**IV. TRANSPORTATION
 AND
 CIRCULATION
 ELEMENT**

A. EXISTING TRANSPORTATION SYSTEM

1. Highways and Roads

The major highway serving the region within the Plan area is Interstate 80 (I-80) which is routed from southwest to northeast through the Plan area. At present, there are seven interchanges on I-80 which directly serve the Plan area (Maple/Nevada Street, Highway 49, Elm Avenue, Russell Road, Auburn Ravine Road, Bowman Road, and Bell Road). Another major highway is Highway 49 which is almost as significant as I-80 to the region and the Plan area. It follows a southeast to northwest alignment through the Plan area. Interstate 80 generally serves to move interregional traffic. Highway 49 serves as an arterial for "through" traffic from Nevada County (approximately one-third of total traffic volume) and El Dorado County as well as functioning as a high volume local roadway. Highway 49 is the major connector between the City of Auburn and the unincorporated Plan area; many other minor streets also connect both jurisdictions.

Within the Plan area, other major east-west streets are: Elm/Fulweiler Avenue, Mt. Vernon Road, Luther Road, and Bell Road. Other major north-south streets are: Nevada Street, Highway 49, I-80, and Auburn-Folsom Road. Figure 30 shows existing (1988) traffic volumes on the Plan area's main road network. Most of the roads within the City of Auburn are historical roadways which have been improved to their present standard by maintenance activities. Most of these roads have now been upgraded to current urban standards, including concrete curb, gutter & sidewalk and urban storm drainage. Most of the roads within the unincorporated area have not been upgraded to current urban standards. Typical deficiencies include: lack of shoulders, reduced lane widths, inadequate structural sections, roadside and cross drainage problems, etc. Most of these "country" roads within the unincorporated area provide an adequate level of service for present traffic conditions.

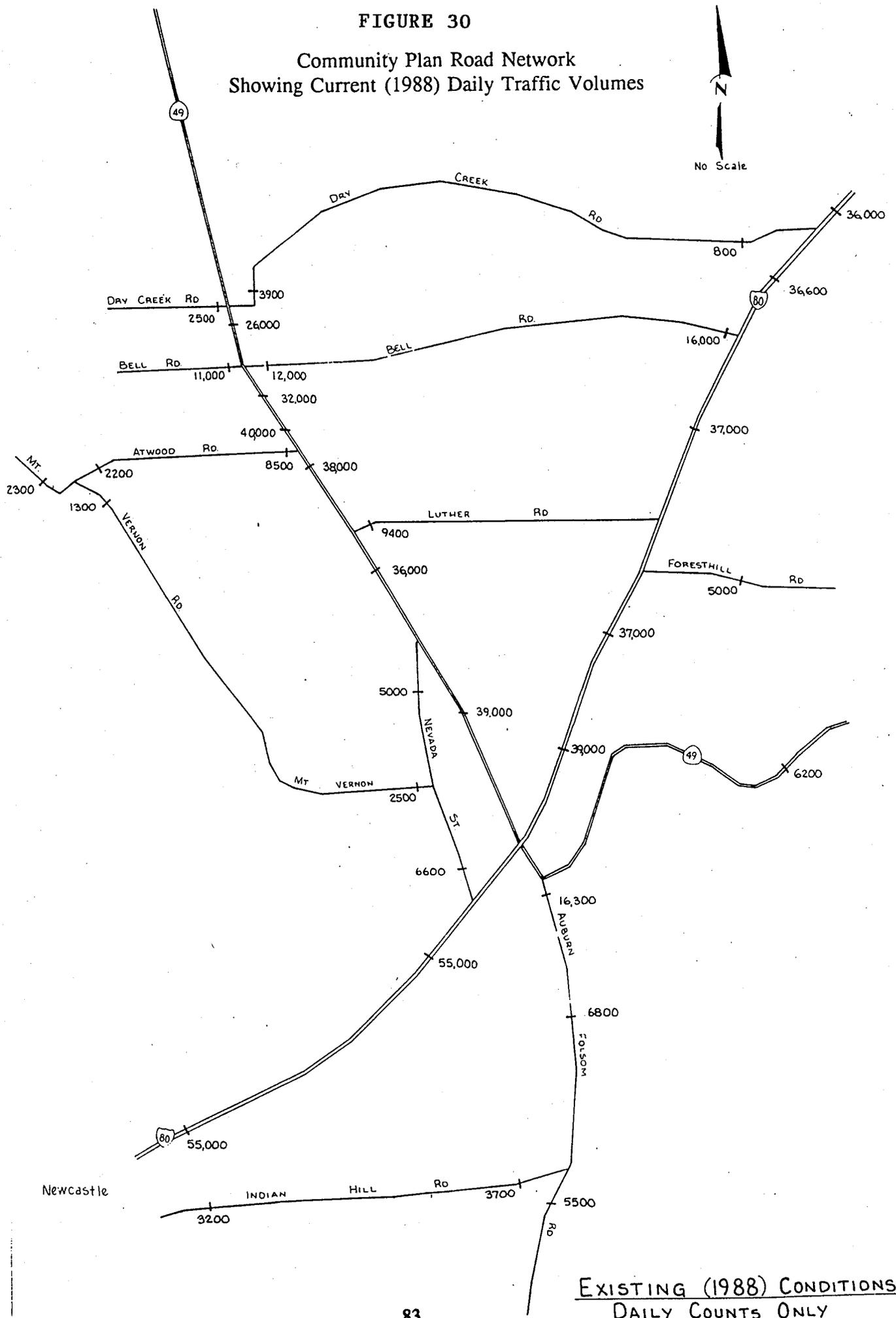
2. Transit

There are presently two public transit services within the Plan area. The first is provided by the City of Auburn within the City limits. This transit system is currently budgeted at approximately \$100,000 per year for capital, operating and maintenance costs. Service is by fixed route with approximately one-hour headways. Placer County Transit (PCT) provides service within both the incorporated and unincorporated areas using both scheduled routes and demand-response methods. The current budget is approximately \$290,000 annually for capital, operating, and maintenance costs for PCT service in the Plan area. Headways average approximately 30 minutes.

A third transit system, Consolidated Transportation Service Agency (CTSA), is available within the Plan area to serve developmentally disabled and elderly clients. School districts that operate within the Plan area also provide transit service to students. Neither the school districts nor CTSA provide service to the general public.

Several State of California vanpools have routes that serve commuters from the Plan area to jobs in Sacramento. Placer County also runs a six-vehicle vanpool service to transport residents of the area to jobs in the greater Sacramento area.

FIGURE 30
Community Plan Road Network
Showing Current (1988) Daily Traffic Volumes



EXISTING (1988) CONDITIONS
DAILY COUNTS ONLY

Private transit services within the Plan area include Greyhound Bus Lines, an "airporter" van (Foothill Flyer), and taxi service (Auburn City Cab).

3. Trails

At present, there is no network of hiking or equestrian trails that has been constructed within the Plan area. However, an informal system of trails has been developed by use within the American River Canyon area. There is no formal maintenance program for these trails, and most construction/maintenance is accomplished by volunteer groups. There is a trail plan for expansion of the existing trail system that was prepared by State Parks and Recreation in 1981; however, there is no construction or other implementation program.

Placer County has a County Bikeways Master Plan which indicates future bike trails to be constructed within road rights-of-way. Some shoulders of existing roadways within the Plan area have been designated as bike lanes (for example, Lincoln Way and Bell Road). Less than one mile of separated bike trails exist at spot locations within the Plan area (Auburn Ravine Road, Wise Road, and Bell Road).

The Placer County Board of Supervisors has adopted a five-year bicycle trail construction program. Auburn-Folsom Road, Luther Road, and Auburn Ravine Road are identified in the program as the top priority routes in the Plan area. Roadway construction projects will be scheduled to widen these roadways for on-street bike lanes.

The City of Auburn has constructed several minor, separated trail improvements. At locations within the City and the unincorporated area where urbanized development has occurred, all-weather surface sidewalks have been standard requirements for residential and commercial uses. However, County policy allows larger lot subdivisions without these urban amenities.

4. Transportation System Management (TSM)

There are five public Park and Ride lots at present that serve the Plan area. These are located at the I-80/Bell Road interchange (2), the I-80/Bowman Road interchange, the I-80/Ophir Road interchange, and the Highway 49/Atwood Road intersection. These five locations all have bicycle storage lockers which are available for commuters.

There is no coordinated program for ridesharing by major employers within the Plan area. There is no formal program requiring or encouraging large employers to allow flex time or schedule shift changes at other than peak times.

5. Airports

Auburn Airport lies within the city limits of Auburn incorporated area (although it is surrounded by unincorporated area). There is presently a small-scale, air transport service from the Auburn Airport which is under contract to the City of Auburn. This is the only serviceable airport within the Plan area. There are approximately 200 private aircraft located primarily at the Auburn Airport. The City anticipates expanding commuter and other commercial service from the airport.

B. EXISTING IMPROVEMENT PROGRAMS

Road maintenance and improvement within the Plan area is presently supported by the County's Road Fund, Transportation Development Act funds, traffic mitigation fees, and other State and Federal sources. Improvements include correction of potential hazards, occasional asphalt overlays, and minor maintenance work. The traditional sources of road improvement funding have in the past few years been used exclusively for maintenance activities. The County's Pavement Management System establishes cost-effective priorities for maintaining the road network; these priorities do not allow resources to be used for major new construction.

The County's Transportation Improvement Program recommends candidate projects for funding from conventional sources. Projects within the Plan area which are included in the five-year transportation improvement programs are shown on Table 10.

There are two special "traffic limitation" zones within the Plan area—one for the Highway 49 corridor and another for the Auburn Ravine/Bowman area. These zones establish traffic mitigation fee requirements as part of the County's zoning ordinance. The current balance of the accounts for these special zones are approximately:

Highway 49	\$460,000
Auburn Ravine/Bowman	\$322,000

The Highway 49 program collects funds for the widening to six lanes at major intersections and for the development of a local street system parallel to Highway 49 which is intended to connect the various land uses along the corridor. The Auburn Ravine/Bowman program collects funds for traffic signal, intersection, and interchange improvements in the commercial area along I-80.

The capital improvement programs for which these traffic mitigation fees are collected are estimated at \$3.6 million for Highway 49 and \$1.1 million for Auburn Ravine/Bowman. These traffic limitation zones were established in an attempt to have land development partially fund the roadway infrastructure required to serve it.

Road improvements are typically required as conditions of approval on land development within the Plan area. In the absence of specific direction by a community plan, required road improvement standards are based on the County's "SCR 93 Highway Deficiency Report." This document establishes the ultimate right-of-way width, road width, structural section, and sidewalk requirements for all County roads. This document is nearing the end of a major revision which incorporates changes from all community plan documents.

As land development occurs within the Plan area, dedication of road and public utility rights-of-way is required along County road frontage. Widening and/or reconstruction of road frontage is required on a case-by-case basis consistent with the SCR 93 Report.

The City of Auburn and Placer County have jointly participated in improvement programs for major facilities that affect both jurisdictions. However, this joint participation is determined project-by-project and follows no master plan. There are no other County road projects which involve joint participation of other jurisdictions, such as Nevada County, within the Plan area. Caltrans has been a source of improvement funding for projects involving Highway 49 and I-80; in some cases, Placer County has required land development projects to make improvements to Highway 49 as well as local roads.

Table 10

**Road Network Improvement Projects
Included in the 5-year Regional Transportation Plan**

Bell Road	Richardson Drive to I-80	Widen to 4 lanes
	Deseret Drive to Tahoe Street	Shoulder widening
	Highway 49 to I-80	Widen to 4 lanes
	Orr Creek	Bridge replacement
	Dry Creek	Bridge replacement
	Highway 49 to Richardson	Widening and sidewalks
	Highway 49	Intersection reconstruction
Mt. Vernon Road	Atwood Road to Baxter Grade	Widen and realign
	Edgewood Road to Merryknoll Drive	Widen and realign
Auburn-Ravine Rd	SPRR to Auburn	Bikelanes
	I-80	Widen overcrossing
Shirland Tract Rd	At Manhattan Bar Road	Realign
Auburn-Folsom Rd	Shirland Tract Road to Auburn	Bikelanes
Live Oak Road	Six intersections	Improve sight distance
Lone Star Road	West of Highway 49	Widen and realign
Highway 49	Willowcreek	Signalization
Luther Road	Bowman Road to Highway 49	Shoulder widening
	Canal Street	Improve sight distance
Atwood Road	Highway 49 to Richardson Drive	Widening and sidewalk
Professional Drive	Heritage Park to Atwood Road	Construct 2 lanes
Wise Road	Auburn Ravine	Replace bridge

C. LEVEL OF SERVICE

The planning of the future road network proposed by the Plan is partially based on the concept of "level of service" (LOS). LOS is a quantitative and qualitative measure of traffic conditions on isolated sections of roadways ("links") or intersections (see Table 11). LOS ranges from Level A, with no congestion, to Level F, where the system fails with "gridlock" or stop-and-go conditions prevailing. The quantitative basis for determining LOS is the ratio between existing traffic volume (V) and the calculated capacity (C), the "V/C ratio." Normally, intersection capacity will be the limiting factor in an area's road network.

The use of a performance standard approach to road network planning assumes that a specified LOS becomes a general standard for the area's road network. Land development projects must satisfy this performance standard in order to receive permit approval; in other words, it must be shown that a certain performance standard for traffic operations will exist after a proposed project is in place. The existing road network in the area of such a project may have sufficient reserve capacity for the project's traffic; or it may be necessary to increase the available capacity by capital improvements (i.e., increasing the number of lanes, signaling an intersection, etc.).

In the past, there has been no adopted level of service standard for the Plan area. The lower limits of LOS C have been adopted for other community plans within Placer County; however, this standard does not presently exist at several locations along the Highway 49 corridor and will not be sustainable in the future--even after significant improvements to the transportation system.

D. COMPUTERIZED TRAFFIC MODEL

A computerized traffic model was developed for the Plan area (as well as the City of Auburn) to forecast future traffic conditions. The model was developed jointly by Omni-Means, Ltd. (consulting traffic engineers) and Placer County staff. This model was developed to be able to evaluate future traffic conditions and the effects of proposed road network improvements and/or land use changes. This model is unusually detailed for the area and population of the area being evaluated--primarily because of the two separate jurisdictions and separate planning efforts. The traffic model has been used by both Placer County and the City of Auburn in preparing their respective circulation elements. Both daily and p.m. peak-period models were developed.

Different trip generation rates were discovered for different areas of the Plan. For example, there are very different trip-generation characteristics for suburban shopping centers than for commercial areas of downtown Auburn on an acreage basis. The traffic model was tested and validated to much better than standard tolerances for existing (1988) conditions. Forecasting considers the effects of buildout of the Plan area together with increased traffic within, into, out of, and through the Plan area on all major roadways. Forecasts of future traffic volumes at the boundaries of the traffic model area for I-80 and Highway 49 were obtained from Caltrans. The traffic model was also used as a basis for evaluating Highway 49 bypass alternatives as part of a separate study. Intersection capacity analysis was performed using future traffic volumes and turning movements projected by the model.

Table 11

Level of Service Definitions

LOS	INTERSECTION	ROADWAY SECTION
A	Uncongested operations all queues clear in a single signal cycle V/C* = 0.00 - 0.60**	Free flow, vehicles unaffected by other vehicles in the traffic stream
B	Uncongested operations, all queues clear in a single cycle V/C = 0.61 - 0.70	Higher speed range of stable flow, volume 50% of capacity or less
C	Light congestion, occasional backups on critical approaches V/C = 0.71 - 0.80	Stable flow with volumes not exceeding 75% capacity
D	Significant congestion of critical approaches, but intersection functional. Cars required to wait through more than one cycle during short peaks. No lone queues formed V/C = 0.81 - 0.90	Upper end of stable flow conditions. Volumes do not exceed 90% of capacity
E	Severe congestion with some long, standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es)	Unstable flow at roadway capacity. Operating speeds 30 to 25 mph or less
F	Total breakdown, stop-and-go operation V/C = 1.00	Stop-and-go traffic with operating speeds less than 30 mph

* V/C ratio same for road sections, except as noted

Traffic forecasts by the computer model indicated the roadway sections and intersections where undesirable levels of service would occur. The effects of different roadway improvements were then tested in order to determine the cost-effectiveness of various "fixes" to the future level of service problems. The most cost-effective set of roadway improvements which corrected future level-of-service deficiencies was then incorporated into the Capital Improvement Program (CIP).

The primary indicator of congestion which is output from the traffic model is "total system delay," which is measured in daily vehicle-hours. Total system delay is a good indicator of overall operating conditions of the area's road network. It avoids the problem of ignoring congestion which is shifted to other areas that can result from focusing on specific locations (such as the Highway 49 corridor, alone).

Within the Plan area, full buildout of residential land use was assumed to be 80% of maximum density--the balance being streets, vacant parcels, larger than minimum lots, etc. This is consistent with Placer County's experience in other community plan areas. Non-residential land use was assumed to buildout to 100% of development potential. The cost of the CIP has been assigned to the increment of future land development which is forecast to occur during the next 20-year period.

The most heavy traffic loadings will occur on I-80 and Highway 49. Because I-80 traffic is mostly interregional, very little can be done by the Plan to improve future traffic conditions. However, over two-thirds of the future traffic on Highway 49 is forecasted to be traffic with either an origin or destination within the Plan area. Therefore, traffic conditions on Highway 49 can be greatly affected by land use in the Plan area.

The 1978 Auburn Area General Plan includes a Highway 49 bypass on the west side of the Plan area. The traffic model was used to analyze several bypass alternatives. In very general terms, a westerly Highway 49 bypass would have the most beneficial effects on traffic congestion and would be the most expensive alternative; an easterly bypass would have fewer environmental problems--such as displacement of existing homes and potential growth inducement. Much can be done to mitigate future traffic problems with a combination of improvements to the existing road network and land use changes without any Highway 49 bypass.

Early in the bypass study, it became apparent that the criteria being used to evaluate the traffic benefits of bypass alternatives were not the best. Using relief of traffic congestion on Highway 49 as the primary criterion ignores what happens elsewhere. It was decided that it is better to evaluate bypass alternatives (and other road network alternatives) in terms of effect on the entire road network for the Auburn area.

The modeling effort also raised questions about the viability of a "no bypass" alternative. The traffic model was used to evaluate the effect of improving the existing road network wherever possible (for example, improving Highway 49 to six lanes, improving Bell Road to four lanes, etc.), both with and without a bypass.

The third issue that changed the evaluation criteria was the development of proposed land use alternatives by the Planning Department. It became apparent that future traffic conditions could be greatly affected by the location, density, distribution, and mix of proposed land uses. Therefore, the traffic model was used to evaluate the effect of such land use changes on traffic conditions with and without a bypass.

In addition to these land use and road network alternatives, the traffic model was used to evaluate several other unconventional solutions to future traffic problems. These include the following:

1. A light or heavy rail corridor adjacent to existing Highway 49 - Such a facility is estimated to have a ridership of about 2% of daily trips within the Highway 49 corridor (Wilbur Smith Associates Study, 1990). Ridership is estimated at 1300 daily, one-way person-trips; this equates to approximately 732 vehicle-trips each direction (out of a projected volume of 36,600). Use of available right-of-way for a rail corridor that carries this volume of passenger traffic would be much less efficient than a similar use of right-of-way for highway lanes. Cost of providing the light and/or heavy rail facilities in this corridor is estimated at \$100 million (including rolling stock, stations, track, etc.). Cost per person-trip that uses the rail facility is orders of magnitude greater than what it would be using roadways or other forms of transit. Total system delay would not be

tangibly reduced by the rail facility; in fact, total delay would be much worse if the limited right-of-way is used for rail facilities instead of additional traffic lanes in the Highway 49 corridor.

2. Construction of a second level of Highway 49 in the existing corridor for through traffic- This facility was modeled at a freeway standard with one lane each direction for through traffic between I-80 and Joeger Road. This elevated section with on-ramps and off-ramps near major Highway 49 intersections would carry such high volumes of traffic that it would itself operate at undesirable levels of service. Significant congestion would be removed from the existing Highway 49 corridor; however, total system delay would be reduced because of lower volumes on existing Highway 49, but would be somewhat offset by congestion on the new facility. Cost is estimated at \$150 million. This would not be a cost-effective improvement.
3. A separated lane for through traffic in each direction with the same grade as the rest of the highway was also evaluated. This could be accomplished with physical barrier separation with interruptions for weaving movements between through traffic and local traffic near major intersections. This alternative provided very little congestion relief because it closely replicates traffic patterns that would exist without the physical barrier separation. In addition, it creates congestion because of the inability of local traffic to make left turns across the through traffic lanes. Construction of grade separated overcrossings at approximately 1/2-mile intervals was the best solution to this problem. However, these overcrossings are very expensive and alter local circulation patterns. Additional congestion and vehicle miles traveled result from the loss of mobility that results from left-turn prohibitions. Cost is estimated at \$28 million for barriers, urban interchanges, and overcrossings; this estimate does not include the cost of highway widening (\$28 million).
4. Grade-separated crossings at major intersections along Highway 49 was still another alternative. The typical cost for an urban interchange is \$6-8 million, depending on the cost of right-of-way. Such urban interchanges would provide significant relief in the Highway 49 corridor. However, the cost of six such interchanges would be approximately equal to that of a westerly bypass but would provide only a small fraction of the delay reduction provided by a bypass. In addition, all the congestion relief from such interchanges would be in the Highway 49 corridor, alone. Cost is estimated at \$45 million--in addition to the \$28 million (estimated) for highway widening.

These cost estimates do not include right-of-way.

E. TRANSPORTATION CAPITAL IMPROVEMENT PROGRAM (CIP)

The proposed CIP, including cost estimates and cost-spread for the traffic mitigation fee program, is shown on Table 12. In addition to road network and intersection improvements, the CIP also includes shoulder widenings for approximately 20 miles of existing roadways to provide much safer roadways for motor vehicles, bicycles, and pedestrians (see Figure 31).

The Circulation Element includes a Highway 49 Bypass to the northeast of Auburn. The Plan includes the bypass as part of a long-term strategy to reduce congestion along the Highway 49 corridor as forecasted in the transportation model. Highway 49 is predicted to still have significant congestion even with the bypass. Travel-time through the Plan area in a north/south direction would be reduced with a bypass.

Highway 49 Bypass alternatives and information regarding their effects on the road network are shown on Figures 33 through 36. The adopted bypass alignment would be to the north and east of Auburn and is shown in its approximate location on Figure 35. The bypass would leave the present alignment of Highway 49 south of Dry Creek Road, pass between the airport and Rock Creek Reservoir, cross Bell Road and connect to I-80 at the Bowman Road interchange. The exact alignment must be approved by the Board of Supervisors based upon a formal "Route Alignment Study." The alignment study will include an engineering and environmental analysis of alternatives and an Environmental Impact Report (EIR). After a route has been selected and adopted, preservation of the corridor and the reduction of land use conflicts adjacent to the route should be a consideration in all land use decisions along the route.

The adopted bypass alternative is estimated to cost \$36 million; however, the many decisions made during the route alignment process will affect the cost. The CIP divides the bypass project into two phases: 1) Route alignment, environmental, engineering, surveying and some initial right-of-way acquisition, and; 2) Right-of-way acquisition and construction. The first phase (estimated at \$4,000,000) is proposed for inclusion in the mitigation fee program. The source of funding for the second phase (estimated at \$32,000,000) is currently unknown and is shown as being financed by the state.

Cooperative planning among Placer County, the City of Auburn, and Caltrans is necessary to ensure that road network improvements do not cause anticipated impacts elsewhere. The road network improvements within the City of Auburn and Placer County must be located and sized with respect to the needs of the other jurisdictions, also.

Typical sections for two-lane, four-lane, and six-lane roadways to be funded by the CIP are shown on Table 13. Minor streets which serve development within the Plan area may be constructed to a much reduced standard.

All streets included in the CIP have a functional classification as arterials or connectors. This means that emphasis is placed on mobility for traffic rather than access to adjacent land. There will be many minor connector roads for the Plan area that are not included in the CIP list. These minor collector roads are necessary to provide access to major collectors and arterials from residential streets. Because they serve this function, they may not be constructed to the reduced standard many residents will favor for streets through a residential area. The minor roadways within residential areas may be designed to discourage "through" traffic by curvilinear alignments (designed to fit existing topography and natural features), cul-de-sacs, etc. On-street parking may be prohibited on these minor residential streets in order to allow a reduction in pavement width and shoulder area.

Future intersection levels of service (given the adopted land use, Capital Improvement Program, and Highway 49 Bypass) are shown on Table 14.

AUBURN/BOWMAN COMMUNITY PLAN
CAPITAL IMPROVEMENT PROGRAM PROJECT LIST

Table 12

NO.	PROJECT	PROJECT LIMITS	APPROX. PROJECT LENGTH (MILES)	STANDARD	TOTAL COST ESTIMATE	STATE	LOCAL/ MISC. PROGRAMS	DEVELOPER FRONTAGE REQMTS.	MIT FEE PROGRAM SHARE
	I. ROAD NETWORK IMPROVEMENTS								
1	SR 49	NEVADA ST. TO JOEGER RD.	4.47	6 LANE	\$12,272,000	\$6,000,000	\$167,000	\$1,500,000	\$4,605,000
2	BELL RD.	SR 49 TO I-80	2.81	4 LANE	\$2,226,000	\$0	\$0	\$560,000	\$1,666,000
3	CHRISTIAN VALLEY RD.	FLORENCE DR. TO SR 49	0.64	2 LANE	\$507,000	\$0	\$207,000	\$150,000	\$150,000
4	BILL FRANCIS DR.	EXIST. END TO OLD AIRPORT	0.42	2 LANE	\$313,000	\$0	\$0	\$250,000	\$63,000
5	LOCKSLEY LANE	SR 49 TO CITY LIMIT	0.59	2 LANE	\$467,000	\$0	\$117,000	\$117,000	\$233,000
6	RICHARDSON DR.	DRY CREEK RD. TO BELL RD.	0.70	2 LANE	\$554,000	\$0	\$54,000	\$400,000	\$100,000
7	QUARTZ DR.	GALENA DR. TO RICHARDSON DR.	0.10	2 LANE	\$80,000	\$0	\$20,000	\$20,000	\$40,000
8	GALENA DR.	QUARTZ DR. TO BELL RD.	0.20	2 LANE	\$158,000	\$0	\$83,000	\$50,000	\$25,000
9	EDUCATION ST.	PROFESSIONAL DR. TO RICHARDSON DR.	0.16	2 LANE	\$127,000	\$0	\$27,000	\$50,000	\$50,000
10	QUARTZ DR.	SR 49 SE TO BELL RD.	0.51	2 LANE	\$404,000	\$0	\$101,000	\$202,000	\$101,000
11	UNNAMED ROAD	DRY CREEK TO EAST OF SR 49	0.60	2 LANE	\$475,000	\$0	\$158,000	\$158,000	\$159,000
12	PROFESSIONAL DR.	SOUTH TO QUARTZ DR. EXIT	0.38	2 LANE	\$301,000	\$0	\$200,000	\$0	\$101,000
13	WILLOWCREEK RD.	BELL RD. TO ATWOOD RD.	0.37	4 LANE	\$592,000	\$0	\$60,000	\$266,000	\$266,000
14	BELL RD. WEST OF SR 49	THIRD ST. TO SR 49 AT AUBURN HONDA	0.60	4 LANE	\$480,000	\$0	\$0	\$130,000	\$350,000
15	RICHARDSON DR. SO. EXT.	SR 49 TO RICHARDSON ATWOOD RD. TO EDGEWOOD/ MT. VERNON	1.45	2 LANE	\$1,160,000	\$0	\$0	\$580,000	\$580,000
16	MT. VERNON ROAD	.3 MI. WEST OF NEVADA ST. TO EDGEWOOD RD.	0.70	2 LANE	\$600,000	\$0	\$0	\$100,000	\$500,000
17	LUTHER ROAD	SR 49 TO CANAL STREET	0.15	4 LANE	\$120,000	\$0	\$0	\$60,000	\$60,000
18	LUTHER ROAD	BOWMAN RD. TO CARRIAGE LN.	0.23	4 LANE	\$184,000	\$0	\$0	\$92,000	\$92,000
19	LINCOLN WAY	RUSSELL RD. TO FERGUSON RD.	0.41	4 LANE	\$328,000	\$0	\$0	\$66,000	\$262,000
20	NEW AIRPORT RD.	SR 49 TO BELL RD.	1.09	2 LANE	\$872,000	\$0	\$120,000	\$349,000	\$403,000
21	NEW AIRPORT RD.	BELL RD. TO AUBURN AIRPORT	0.69	2 LANE	\$552,000	\$0	\$138,000	\$276,000	\$138,000
22	OLD AIRPORT RD.	BELL RD. TO NEW AIRPORT RD.	1.02	2 LANE	\$555,000	\$0	\$0	\$505,000	\$50,000
23	MISC. SHOULDER ADDITIONS	VARIED LOCATIONS - 4' MIN. WIDTH (SEE A/B/C/P TEXT)	20.00	2 SIDES	\$4,000,000	\$0	\$1,000,000	\$1,000,000	\$2,000,000
24	SHALE RIDGE ROAD	EAST OF SR 49	0.32	2 LANE	\$256,000	\$0	\$0	\$100,000	\$156,000
25	ATWOOD ROAD	RICHARDSON DRIVE TO PROFESSIONAL	0.42	2 LANE	\$350,000	\$0	\$0	\$0	\$350,000
26	LINCOLN WAY	SILVER BEND TO SYLVAN VISTA	0.20	4 LANES	\$240,000	\$0	\$0	\$0	\$240,000
27	LINCOLN WAY	SYLVAN VISTA TO BOWMAN	0.43	2 LANES	\$344,000	\$0	\$0	\$172,000	\$172,000
28	INDIAN HILL ROAD	AUBURN FOLSOM ROAD TO NEWCASTLE	2.40	4 LANES	\$3,336,000	\$0	\$2,508,000	\$728,000	\$100,000
29	EDUCATION STREET	PROFESSIONAL TO SR 49	0.17	2 LANES	\$136,000	\$0	\$0	\$0	\$136,000
30	BOWMAN ROAD	AUBURN RAVINE ROAD TO LUTHER ROAD	0.30	2 LANES	\$240,000	\$0	\$80,000	\$0	\$160,000
	ROADS SUBTOTAL				\$32,229,000	\$6,000,000	\$5,040,000	\$7,881,000	\$13,308,000
	II. STATE ROUTE 49 BYPASS				\$4,000,000	\$0	\$0	\$0	\$4,000,000
		STATE ROUTE 49 TO I-80 ROUTE ALIGNMENT, ENGINEERING, ENVIRONMENTAL REVIEW, INITIAL RIGHT-OF-WAY ACQUISITION	3.10	4 LANE	\$4,000,000	\$0	\$0	\$0	\$4,000,000

AUBURN/BOWMAN COMMUNITY PLAN
CAPITAL IMPROVEMENT PROGRAM PROJECT LIST

Table 12 (continued)

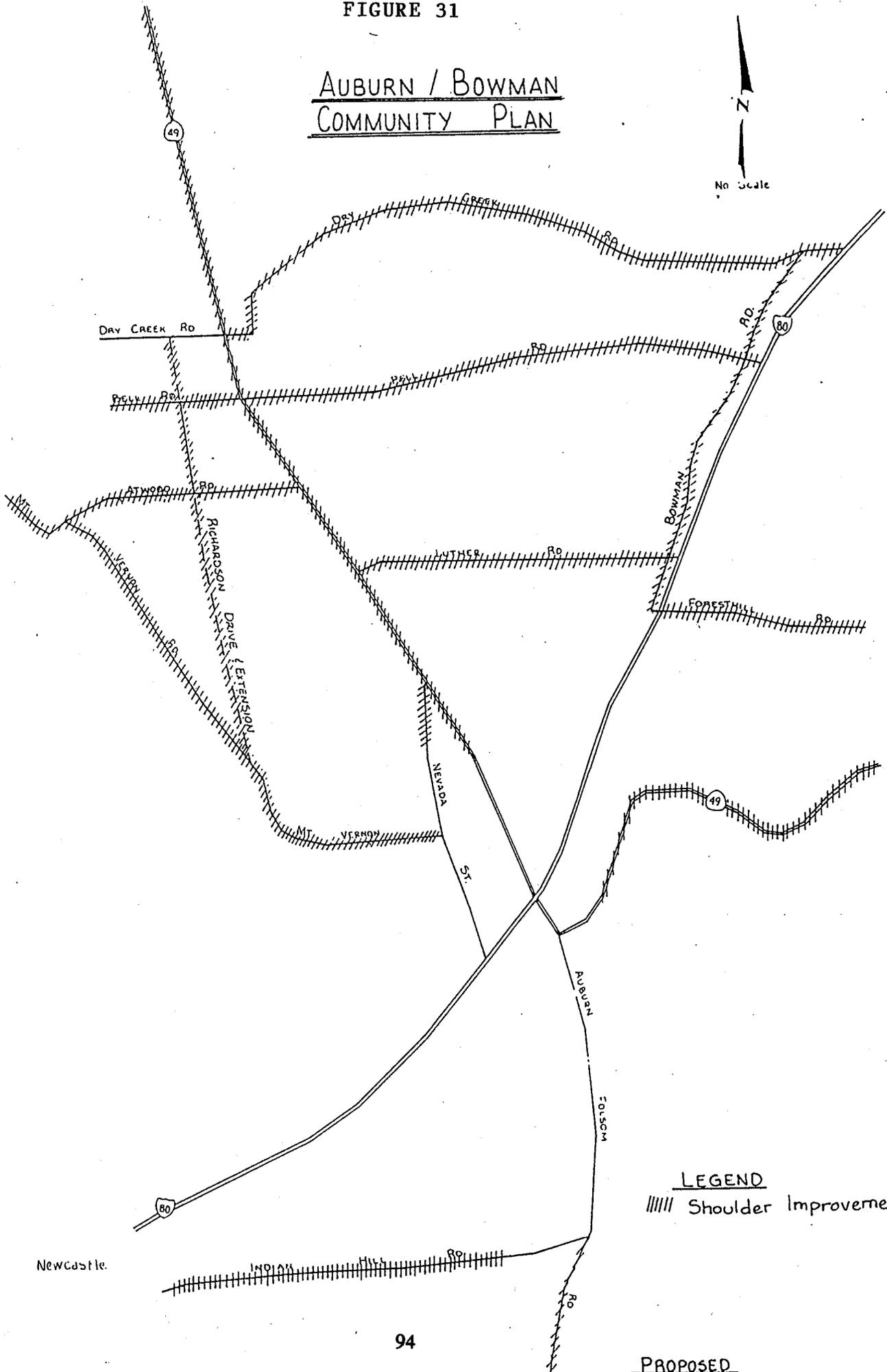
NO.	PROJECT	PROJECT LIMITS	PROJECT LENGTH (MILES)	STANDARD	TOTAL COST ESTIMATE	STATE	LOCAL/ MISC. PROGRAMS	DEVELOPER FRONTAGE REQMTS.	MIT FEE PROGRAM SHARE
	III. SIGNALIZATION AND INTERSECTION IMPROVEMENTS								
31	SR 49/SIGNAL COORDINATIONS	NEVADA ST TO DRY CREEK RD			\$450,000	\$300,000	\$0	\$65,000	\$85,000
32	SR49/FLORENCE				\$150,000	\$75,000	\$0	\$0	\$75,000
33	SR49/DRY CREEK				\$175,000	\$75,000	\$25,000	\$0	\$75,000
34	SR49/BELL				\$250,000	\$125,000	\$90,000	\$0	\$35,000
35	SR49/WILLOWCREEK				\$275,000	\$50,000	\$115,000	\$0	\$110,000
36	SR49/ATWOOD				\$150,000	\$75,000	\$25,000	\$0	\$50,000
37	SR49/NEW AIRPORT				\$150,000	\$75,000	\$25,000	\$25,000	\$25,000
38	SR49/LUTHER				\$150,000	\$75,000	\$0	\$50,000	\$25,000
39	SR49/LIVE OAK				\$150,000	\$0	\$0	\$100,000	\$50,000
40	SR49/EDGEWOOD				\$150,000	\$75,000	\$0	\$0	\$75,000
41	SR49/NEVADA				\$150,000	\$75,000	\$0	\$0	\$75,000
42	AUBURN RAVINE INTER/I-80	WIDEN OVERXING TO 5 LANES			\$1,875,000	\$1,025,000	\$460,000	\$0	\$390,000
43	BOWMAN/LUTHER				\$150,000	\$0	\$50,000	\$50,000	\$50,000
44	BELL RD. INTERCHANGE/I-80				\$950,000	\$0	\$0	\$0	\$950,000
45	ATWOOD RD./RICHARDSON DR.				\$150,000	\$0	\$0	\$50,000	\$100,000
46	ATWOOD RD./PROFESSIONAL DR.				\$150,000	\$0	\$50,000	\$0	\$100,000
47	BELL RD./RICHARDSON DR.				\$150,000	\$0	\$20,000	\$80,000	\$50,000
48	BELL RD./GALENA DR.				\$150,000	\$0	\$50,000	\$50,000	\$50,000
49	LUTHER RD./CANAL ST.				\$150,000	\$0	\$0	\$75,000	\$75,000
50	S. OLD AIRPORT RD./BELL RD.				\$235,000	\$0	\$115,000	\$80,000	\$40,000
	INTERSECTION SUBTOTAL				\$6,160,000	\$2,025,000	\$1,025,000	\$625,000	\$2,485,000
	GRAND TOTAL				\$42,389,000	\$8,025,000	\$6,065,000	\$8,506,000	\$19,793,000

Note: 1. Above estimates include the costs of construction, engineering, environmental review, and administration but do not include right-of-way acquisition (except as noted) costs.

2. Improvements generally include 12' wide traffic lanes, 8' wide paved shoulders, and concrete curb, gutter, and sidewalk.

FIGURE 31

AUBURN / BOWMAN
COMMUNITY PLAN



Newcastle.

FIGURE 32

AUBURN ; BOWMAN
COMMUNITY PLAN

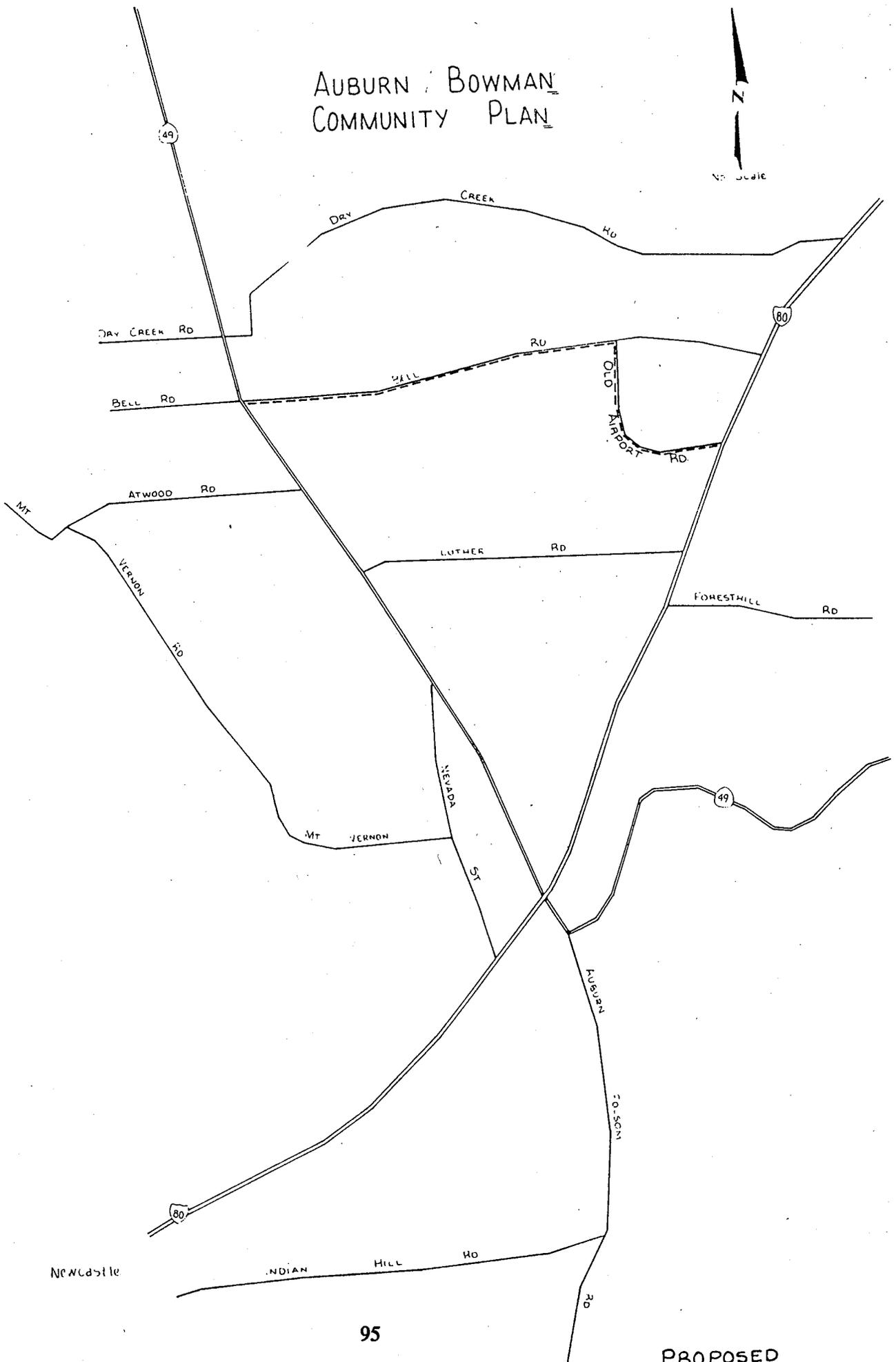
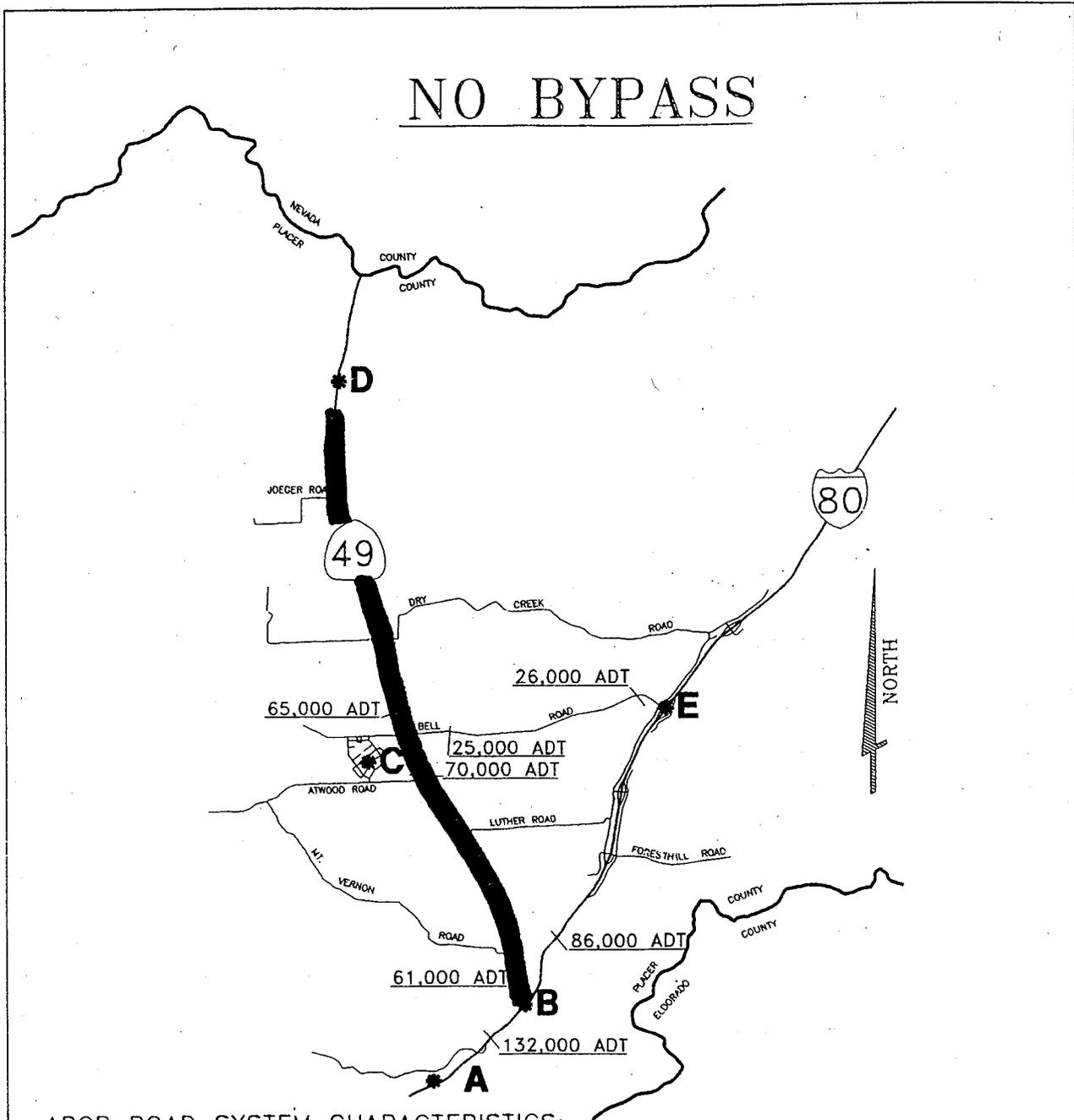


FIGURE 33



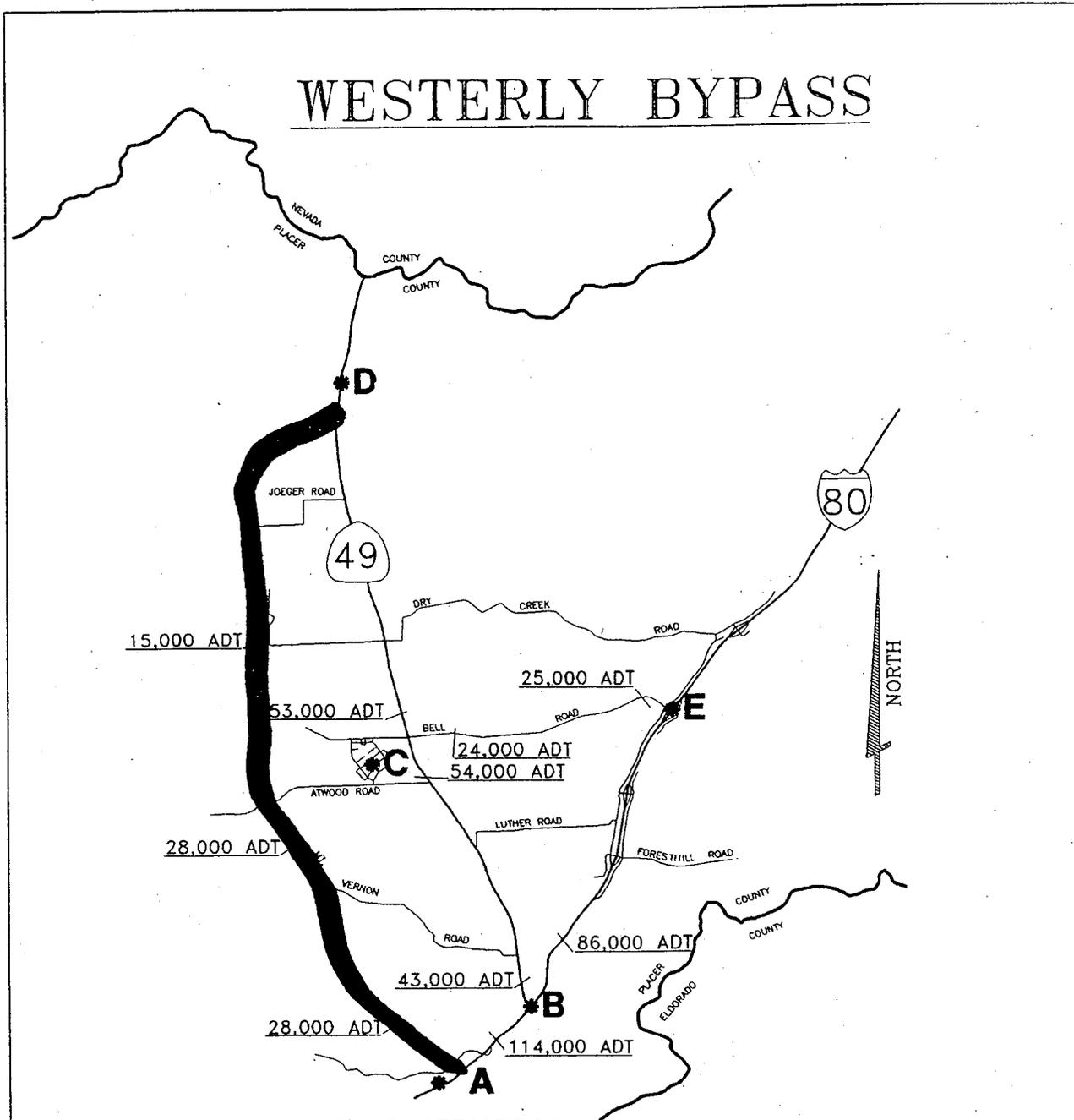
ABCP ROAD SYSTEM CHARACTERISTICS:

1. TOTAL DAILY VEHICLE-MILES TRAVELED:
 - A) TOTAL ROAD SYSTEM 2,040,393 MILES
 - B) ROAD SYSTEM W/OUT I-80 1,228,402 MILES
2. DAILY HOURS OF VEHICLE DELAY FROM TRAFFIC (DOES NOT INCLUDE INTERSECTIONS):
 - A) TOTAL ROAD SYSTEM 10,127 HOURS
 - B) ROAD SYSTEM W/OUT I-80 5,874 HOURS
3. COST (C.I.P. + NO BYPASS):
 - A) TOTAL \$46.5 MILLION
 - B) TRAFFIC MITIGATION FEES SHARE \$17.3 MILLION
4. ESTIMATED TRAVEL TIMES:
 - A) **A — D** 30.09 MINUTES
 - B) **C — B** 18.67 MINUTES
 - C) **C — E** 6.28 MINUTES

NOTES:

1. ADT = AVERAGE DAILY TRAFFIC.
2. BUILDOUT OF PLANNING COMMISSION LAND USE PLAN.
3. RECOMMENDED C.I.P. (CAPITAL IMPROVEMENT PROGRAM) IN PLACE.

FIGURE 34



ABCP ROAD SYSTEM CHARACTERISTICS:

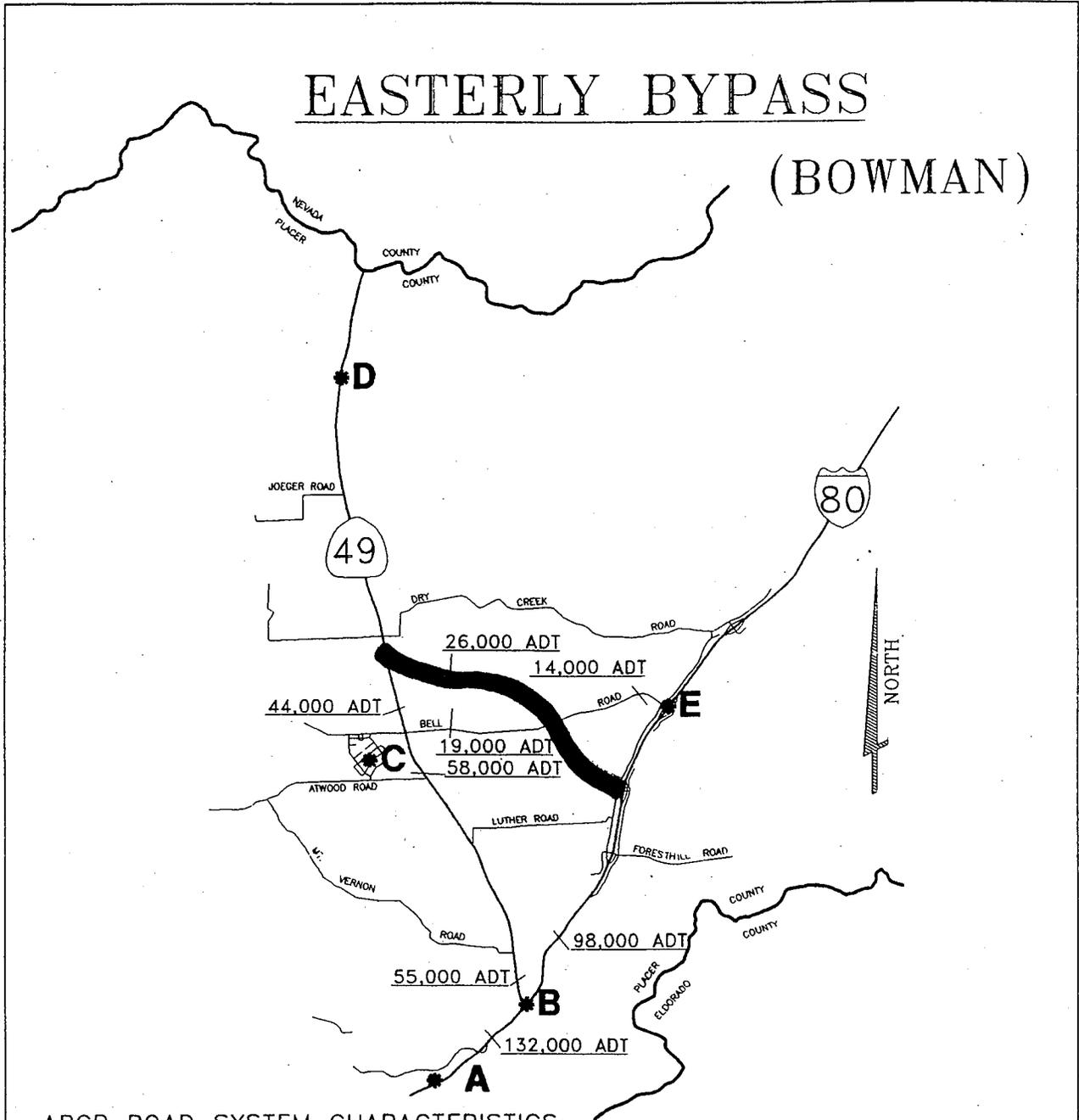
1. TOTAL DAILY VEHICLE-MILES TRAVELED:	
A) TOTAL ROAD SYSTEM	<u>2,053,214 MILES</u>
B) ROAD SYSTEM W/OUT I-80	<u>1,261,335 MILES</u>
2. DAILY HOURS OF VEHICLE DELAY FROM TRAFFIC (DOES NOT INCLUDE INTERSECTIONS):	
A) TOTAL ROAD SYSTEM	<u>7,978 HOURS</u>
B) ROAD SYSTEM W/OUT I-80	<u>4,625 HOURS</u>
3. COST (C.I.P. + WESTERLY BYPASS):	
A) TOTAL	<u>\$94 MILLION</u>
B) TRAFFIC MITIGATION FEES SHARE	<u>\$64.8 MILLION</u>
4. ESTIMATED TRAVEL TIMES:	
A) A - D	<u>.11.36 MINUTES</u>
B) C - B	<u>9.20 MINUTES</u>
C) C - E	<u>5.74 MINUTES</u>

NOTES:

1. ADT = AVERAGE DAILY TRAFFIC.
2. BUILDOUT OF PLANNING COMMISSION LAND USE PLAN.
3. RECOMMENDED C.I.P. (CAPITAL IMPROVEMENT PROGRAM) IN PLACE.

FIGURE 35

(ADOPTED)



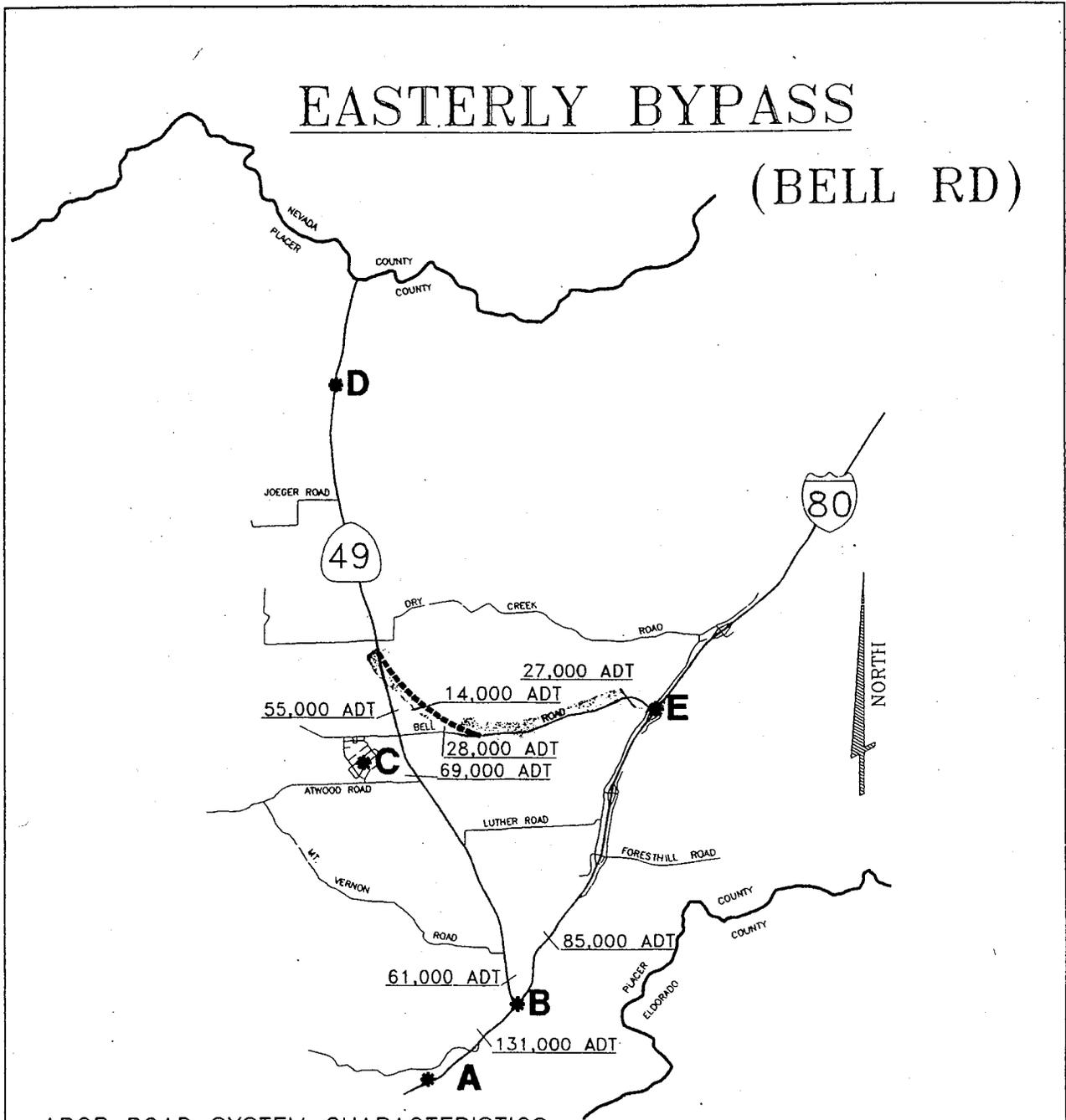
ABCP ROAD SYSTEM CHARACTERISTICS:

1. TOTAL DAILY VEHICLE-MILES TRAVELED:	
A) TOTAL ROAD SYSTEM	<u>2,070,413 MILES</u>
B) ROAD SYSTEM W/OUT I-80	<u>1,230,291 MILES</u>
2. DAILY HOURS OF VEHICLE DELAY FROM TRAFFIC (DOES NOT INCLUDE INTERSECTIONS):	
A) TOTAL ROAD SYSTEM	<u>9,534 HOURS</u>
B) ROAD SYSTEM W/OUT I-80	<u>5,008 HOURS</u>
3. COST (C.I.P. + EASTERLY BYPASS):	
A) TOTAL	<u>\$82 MILLION</u>
B) TRAFFIC MITIGATION FEES SHARE	<u>\$52.8 MILLION</u>
4. ESTIMATED TRAVEL TIMES:	
A) A — D	<u>18.62 MINUTES</u>
B) C — B	<u>14.61 MINUTES</u>
C) C — E	<u>6.10 MINUTES</u>

NOTES:

1. ADT = AVERAGE DAILY TRAFFIC.
2. BUILDOUT OF PLANNING COMMISSION LAND USE PLAN.
3. RECOMMENDED C.I.P. (CAPITAL IMPROVEMENT PROGRAM) IN PLACE.

FIGURE 36



ABCP ROAD SYSTEM CHARACTERISTICS:

1. TOTAL DAILY VEHICLE-MILES TRAVELED:
 - A) TOTAL ROAD SYSTEM 2,050,872 MILES
 - B) ROAD SYSTEM W/OUT I-80 1,228,198 MILES
2. DAILY HOURS OF VEHICLE DELAY FROM TRAFFIC (DOES NOT INCLUDE INTERSECTIONS):
 - A) TOTAL ROAD SYSTEM 9.805 HOURS
 - B) ROAD SYSTEM W/OUT I-80 5.536 HOURS
3. COST (C.I.P. + EASTERLY BYPASS):
 - A) TOTAL \$67.7 MILLION
 - B) TRAFFIC MITIGATION FEES SHARE \$38.5 MILLION
4. ESTIMATED TRAVEL TIMES:
 - A) **A → D** 27.96 MINUTES
 - B) **C → B** 18.49 MINUTES
 - C) **C → E** 5.87 MINUTES

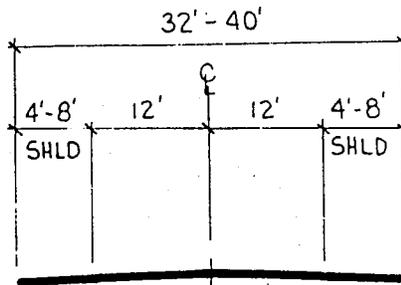
NOTES:

1. ADT = AVERAGE DAILY TRAFFIC.
2. BUILDOUT OF PLANNING COMMISSION LAND USE PLAN.
3. RECOMMENDED C.I.P. (CAPITAL IMPROVEMENT PROGRAM) IN PLACE.

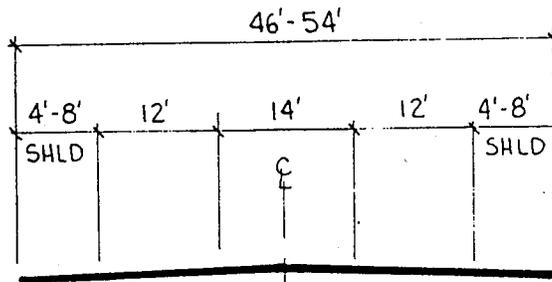
Table 13

AUBURN/BOWMAN COMMUNITY PLAN

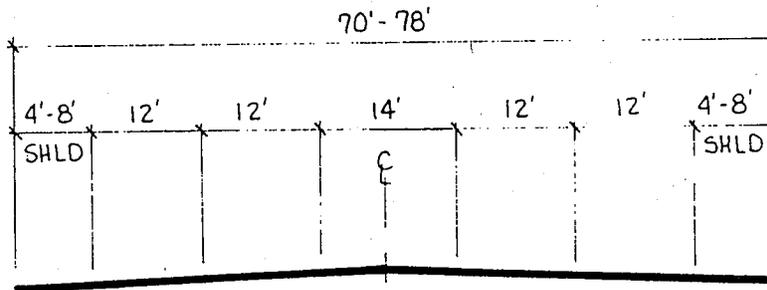
TYPICAL ROAD SECTIONS FOR ROAD NETWORK



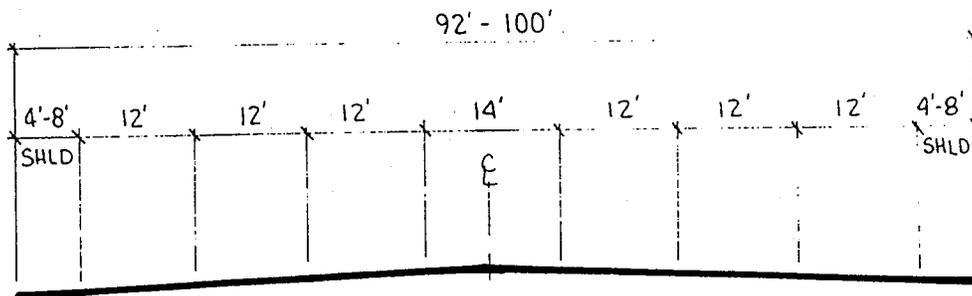
2 LANE (60' R/W)



2 LANE (72' R/W)



4 LANE (96' R/W)



6 LANE (120' R/W)

Note: Roadways forecast to have less than 750 vehicles average daily traffic (ADT) may have reduced road width and right-of-way requirements.

Table 14

Intersection Level of Service Estimates for Year 2010+
 Given Adopted Land Use Plan and Construction of
 Road Network CIP and Easterly Highway 49 Bypass

NO.	N-S STREET	E-W STREET	V/C	LOS
1	HIGHWAY 49	DRY CREEK	.80	C
2	HIGHWAY 49	BELL ROAD	.81	D
3	HIGHWAY 49	ATWOOD DR	.67	B
4	HIGHWAY 49	LUTHER ROAD	.99	E
5	HIGHWAY 49	ELM AVE	.96	E
6	HIGHWAY 49	I-80 WB	1.03	F
7	HIGHWAY 49	I-80 EB	1.24	F
8	HIGHWAY 49	LINCOLN WAY	.79	C
9	HIGHWAY 49	WILLOWBUSH	.78	C
10	HIGHWAY 49	NEW AIRPORT	.73	C
11	HIGHWAY 49	BOHEMIA	.77	C
12	HIGHWAY 49	LIVE OAK	.76	C
13	I-80 WB	BELL RD	.25	A
14	I-80 EB	BELL RD	.49	A
15	HIGHWAY 49	EDGEWOOD	.77	C
16	HIGHWAY 49	NEVADA	.95	E
17	HIGHWAY 49	PALM	.82	D
18	MAPLE AVE	LINCOLN WAY	1.31	F
19	AUBURN-FOLSOM	HIGH ST/SACTO	.95	E
20	HIGH STREET	LINCOLN WAY	.50	A
21	HIGHWAY 49	QUARTZ	.70	C
22	LIN WAY/BORLAND	HIGHWAY 49	1.14	F
23	LINCOLN WAY	RUSSELL RD	.67	B
24	HIGHWAY 49	LOREN/FLORENCE	.96	E
25	BOWMAN	LUTHER	.38	A
26	BOWMAN	BELL	.32	A
27	N AIRPORT	BELL	.56	A
28	BYPASS	I80EB At Bowman Interchange	.86	D
29	BYPASS	I80WB At Bowman Interchange	.63	B
30	BYPASS	OPHIR RD	N/A	N/A
31	NEVADA	FULWEILER	.29	A
32	NEVADA	PALM	.22	A
33	AUB-FOLSOM	INDIAN HILL	1.01	F
34	AUB-FOLSOM	MAIDU	.85	D
35	BYPASS	BOWMAN ROAD	.84	D
36	BYPASS	BELL	.82	D
37	QUARTZ EXTEN	BELL	.41	A
38	RICHARDSON	BELL	.26	A
39	BYPASS	HIGHWAY 49	1.17	F

The bikeway facilities proposed by this Community Plan are consistent with the Placer County Bikeways Master Plan in that all Master Plan routes are included. However, many more miles of bikeways are provided by the Community Plan, and many such facilities will be provided at an upgraded standard (refer to the Parks and Recreation Element trails section of the Plan for a discussion of Plan area trails). In no case does the Community Plan reduce standards of the Bikeway Master Plan.

F. FINANCING PLAN

Funding for the projects included in the CIP will likely be provided from several sources. However, the financing plan and fee schedule assume that the Plan area's share of these projects will be funded in the amounts shown in Table 12 by land development as it builds out the Plan area. In general, the CIP included in the Plan should allow LOS C to be maintained on the area's road network excepting only sections of I-80, Highway 49, the Highway 49 Bypass and a few signalized intersections.

Table 12 indicates that only a portion of the cost of the CIP would be funded by future land development. Other sources of funding include the County Road Fund, TDA monies, existing mitigation fee programs, and contributions from other jurisdictions, such as Caltrans and the City of Auburn.

The best way to fund equitably the major road improvements for the area is to spread the cost by a fee program to all future land development which receives benefit. If this overall approach is not taken, a single development project often ends up being responsible for an entire improvement as a mitigation measure. This creates disproportionate windfalls and burdens. The fee program approach also has the advantage of collecting fees from many land development projects so that the required road improvements can be made under a single construction contract instead of having a series of piecemeal frontage improvements.

Future land development within the Plan area will fund portions of road improvement projects by contributing traffic mitigation fees. Most improvements projects will be funded by a uniform fee collected from all future land development within the Plan area.

The Department of Public Works recommends that the amount of traffic mitigation fees paid by a given project be based on road network usage in accordance with an implementing Ordinance. Future land development from which fees will be collected includes all land development activities for which Placer County issues a permit approval (including subdivision, use permits, building permits, expansion or change of use permits, design reviews, etc.). Conditions of approval placed on all such permits will require contribution of such fees. Traffic mitigation fees will be collected at the time building permits are issued or when subdivision final maps are filed for record.

The cost estimates of improvement projects to be funded by the fee program do not include the costs of right-of-way or right-of-way acquisition (except in case of the Highway 39 bypass).

However, they do include the costs of urban improvements such as concrete curb, gutter and sidewalk, and urban storm drainage. Additional improvements to the road network may be required as conditions of approval for land development projects. However, such "frontage" improvements are not considered to be of the same general benefit as those shown on the CIP list and would not be funded by all land development within large areas of benefit.

A land development project may be required to actually construct a road improvement from the CIP instead of just contributing fees. The requirement for such construction would be made a condition of approval and would be based on considerations such as traffic conditions at the time of permit approval, effect of project traffic on the road network, public safety and convenience, etc. A potential credit for such construction against the fee obligation will be provided by the implementing Ordinance. Similarly, if the value of required improvements from the CIP exceeds a project's fee obligation, a reimbursement agreement may be executed.

A separate County Ordinance establishes the traffic mitigation fee program which will collect funds from future land development.

G. OTHER FUTURE TRANSPORTATION MEASURES

1. Future Transit

Over the next seven years, Placer County Transit is planning to change and expand transit service for the Auburn/Bowman Community Plan area. The service will be changed by adding two 25-30 passenger buses that operate on deviated-fixed routes with 30-minute headways. These buses will provide local transit service and accomplish timed-transfers to other transit systems such as intercity rail, vanpools, etc. This will require more coordination among transit systems than presently exists.

This service would operate 12 hours per day for five days per week for the first year. In the second year, service would operate for 12 hours each day for six days per week. In the third year (and thereafter), service would be expanded to 16 hours each day for six days each week.

Initial capital costs for this expanded service are estimated at \$810,000 (three buses at 110,000 each with replacement every seven years; \$500,000 for garages, maintenance bays, office space, etc.). These capital costs would come from the recommended CIP; operating costs (a larger sum) would come from TDA funding through the Placer County Transportation Commission.

The Placer County Transportation Commission and Placer County have recently completed a Short Range Transit Plan (SRTP) for the Placer County Transit (PCT) area. The Plan covers a five-year period and indicates the need for a major restructuring of the current operation.

The new system operates express, main line, fixed route service on I-80 between Auburn and Roseville. Local services are provided in communities with a timed transfer to the main line. The local buses are a deviated-fixed route type of service which is flexible in meeting community needs.

The new service generally provides time-savings for riders and an increased level of available service.

The transit system will most probably have only a small effect upon congestion based upon current and projected ridership. There is potential, however, for increased level of usage which could help reduce congestion and improve air quality.

Transit stops and shelters would become standard development requirements at appropriate locations in the Plan area.

2. Future Rail

Intercity rail services are planned between Colfax and San Jose via Sacramento. Trains currently run from Roseville to San Jose and service will be expanded if rolling stock, stations, and funding become available. A station is planned within the City of Auburn near the intersection of Nevada Street and Fulweiler Avenue. Although the purpose of the system is to provide intercity and not commuter service, there will be one morning and one evening train that could serve this function. If intercity rail service proves to be successful, expanded service for commuters could be added.

3. Future Transportation Systems Management (TSM)

Placer County will implement the following TSM measures during the Plan lifetime:

a. Trip Reduction Ordinance

Placer County adopted a countywide Trip Reduction Ordinance in August, 1993. This Ordinance requires all businesses, government agencies, etc. to reduce anticipated trip generation. Small employers have only a minimal posting of notice requirement. Larger employers have requirements for a designated coordinator, performance monitoring, and reporting.

b. Park and Ride Lots

Private land development (both residential and commercial/office) will be required to designate parking areas for commuter parking at appropriate additional locations. Public Park and Ride lots will be constructed within surplus road rights-of-way and adjacent to interchanges on I-80.

c. Signal Coordination

Under certain circumstances, through-movement highway capacities can be improved on a major corridor (such as Highway 49) by signal coordination. To be effective, this coordination requires high traffic volumes, certain minimum spacing between signals, and relatively high through-traffic/cross-traffic ratios. All signal controllers installed in the last 10 years along Highway 49 have the capability of being coordinated by a master controller.

Conditions in the Highway 49 corridor are now approaching the point where signal coordination could be effective. Caltrans has initiated a study to determine the first locations where coordination would be established. There may be problems with a reliable power source for the signal system if coordination is established for the full length of the Highway 49 corridor. A solution to this appears to be several separate blocks of signals with separate power sources. Under ideal conditions, signal coordination can improve effective capacity (10-15%) during peak periods.

Other measures that could be implemented that would reduce peak-period traffic generation include the following: "flex-time" for employees, non-peak shift changes, parking fees or parking limitations, telecommuting, financial incentives/disincentives by employers, a safe network of bike trails and pedestrian walkways, "guaranteed ride home" carpooling, etc.

H. MEMORANDUM OF JANUARY 3, 1994, REGARDING HIGHWAY 49 BYPASS ALTERNATIVES

The memorandum on page 107 from Department of Public Works Director Jack Warren to Supervisor Ron Lichau summarizes available information regarding bypass alternatives, their costs, and their effects on the road network. This information was made available prior to Board of Supervisors action on the Auburn/Bowman Community Plan. As a result of the Board's selection of an easterly bypass, several changes in the recommended CIP and cost estimates were made after preparation of this memorandum. The current CIP is shown at Table 12.

I. SUMMARY AND CONCLUSION

If the assumptions of this Circulation Element are correct regarding land use development patterns, road improvements, etc., traffic conditions will be significantly worse in the future than at present. This will be the case despite major road improvements to improve capacity. There will be more traffic signals, increased delay on the road network and intersections, and generally, less overall mobility. Travel time will increase for most routes within the Plan area--particularly on heavily-travelled routes such as the Highway 49 corridor. The miles of roadway which will operate at undesirable levels of service (at peak periods) will more than double, as

will the number of intersections operating at undesirable levels of service. Total vehicle miles travelled will double. Within the City of Auburn, conditions would be much worse. Road improvement solutions to congestion problems (such as additional lanes) which work at most places in the unincorporated area, may be impossible to implement in the City where surplus rights-of-way and setbacks are minimal.

On the positive side, many existing safety deficiencies will be corrected. More and better facilities will be available for pedestrians and bicyclists. Alternative transportation opportunities will be improved by an expanded local transit service, coordination with other transit services, and intercity rail service.

It should be noted that without the proposed CIP, traffic conditions on the road network would be much worse. Within financial constraints, the CIP includes all improvement projects (excepting only I-80 improvements) which would significantly reduce delay on the Plan area's road network. The traffic mitigation fee program should ensure that sufficient funding is available for road improvements made necessary by land development. There is a great deal of uncertainty about the timing, location, and land use mix of future development; these factors will largely determine the timing and sequence of proposed road improvements.

The Highway 49 Bypass is part of a long-term strategy to reduce congestion along major arterial highways in the north Auburn area. It is predicted to be only partially successful at reducing congestion and will require continuing political and financial support in order to become a reality. The first step is to determine and formally adopt the route alignment, then implement measures to preserve the corridor. Funding for construction and land acquisition has not been identified.

At full buildout of the Plan area, traffic conditions will be worse than at present but should remain within the level of service standards described in the Circulation Element.

MEMORANDUM
DEPARTMENT OF PUBLIC WORKS
COUNTY OF PLACER

To: Ron Lichau

Date January 3, 1994

From: Jack Warren *JB*

Subject: AUBURN AREA HIGHWAY 49 BYPASS STUDIES

SYNOPSIS

The concept of a State Highway 49 bypass around the urbanized area of Auburn has been studied at great length during the past four years. Many different alignments have been evaluated in terms of traffic congestion relief, cost, engineering feasibility, environmental impact, effects on the existing community, etc. All these studies indicate that a westerly alignment for such a bypass would be the most effective in relieving traffic congestion.

Much of the future traffic congestion in the Auburn area will occur on Interstate 80. If we consider only that traffic congestion which occurs on roads other than Interstate 80, bypasses to the east or west of Auburn would be nearly equally effective. However, the cost of such bypasses would be excessive--particularly for the amount of congestion relief any such bypass would "purchase".

The widening of Highway 49 to six lanes will be needed whether or not a bypass is ever constructed.

A short history of the County's involvement with State Highway 49 bypass proposals is included at the end of this memorandum as Attachment 5.

SPINK CORPORATION STUDY

Placer County entered into an agreement with The Spink Corporation to evaluate bypass alternatives in May, 1991; the contract amount was established at \$65,000. Ten alternatives were initially identified; these ten were eventually consolidated and reduced to three. (See Attachment 1 for a more intense evaluation using a detailed matrix.) Of these three "finalists", one was a westerly alignment, the second was a relatively minor realignment in the northeasterly quadrant of the State Route 49/Bell Road intersection (approximately the same as that selected by the Citizens Advisory Committee in 1988), and the third was a new easterly alignment that intersected I-80 at the Bowman undercrossing interchange. Each of the three alternatives had relative strengths and weaknesses in terms of what it would do for levels of traffic congestion, costs, environmental impacts, and engineering feasibility. In general, the westerly alignment did the most for traffic conditions but was the most expensive to build (\$48 million[±]), had the greatest environmental impacts, and would have the greatest effect on existing homes. The easterly alignments were less expensive (\$30 million[±]), easier to build, affected fewer existing homes, involved areas with less environmental sensitivity, and did very little to relieve overall traffic congestion.

AUBURN BOWMAN COMMUNITY PLAN TRAFFIC ANALYSIS

As The Spink Corporation study progressed, some new questions became apparent. Instead of the narrow issue of which bypass alternative should be selected, we began to ask: How much good would a bypass accomplish, how much does it cost, and can we afford it?

We reviewed the traffic analysis, which was part of the Spink study, and used our new traffic model to test the effects of bypass alignments on the existing Highway 49 corridor and the overall road network. We examined the effects of different bypass alignments on traffic congestion within the I-80 corridor, State Route 49, major local arterials, and major collector roads throughout the Auburn area. We examined the effects of different bypasses with both four lane and six lane improvements in the existing Highway 49 corridor. We looked at the effects of the recommended Capital Improvement Program from the Auburn Bowman Community Plan on the existing street network with no bypass at all. We also evaluated the effect of improvements above and beyond our recommended Capital Improvement Program (See Attachment 2.) in order to see if there was any feasible "package" of street improvements that would be as effective as either a bypass or the six-laning of Highway 49.

The summary results of these analyses are shown on Attachment 3. The best overall measure of traffic congestion on the area's road network is total vehicle delay. This is the difference between total time spent by vehicles travelling on an uncongested road network ("free-flow" conditions) and total time spent by vehicles on a road network with forecast levels of traffic congestion. The traffic model is used to sum the delay on all "links" of the road network for either a peak-period or an entire day. This indicator allows a comparison of the effects of road improvement and/or land use changes on overall operating conditions. We have used the traffic model to forecast total vehicle delay for several classes of roads (I-80, SR 49, arterials, major collectors, etc.). This refinement allows an analysis of the effects of a given improvement or set of improvements on each type of roadway.

The general conclusion which may be reached is that a westerly bypass would be the most beneficial. No other bypass alignment--even when combined with other improvements--could approach the benefit of that provided by a westerly alignment. No easterly bypass alternative would be of much benefit for overall congestion relief--although conditions within the existing Highway 49 corridor alone could be improved by easterly bypass alignments. One of the reasons that easterly bypass alignments are so unsuccessful at reducing overall congestion is that traffic which would use them will be forced to use several miles of what will be a heavily congested I-80 corridor through Auburn. Attachments 3 and 4 show the effects of easterly and westerly bypasses on traffic congestion. Each attachment shows the effects on the overall road network and on the road network other than I-80.

Ron Lichau
January 3, 1994
Page 3

The effects of easterly and westerly bypasses are much more nearly equal if I-80 congestion is removed from consideration. Only with a westerly bypass would level of service standards adopted elsewhere in the county be achievable in the Auburn area. With either an easterly bypass or none at all, segments of Highway 49 and major intersections along Highway 49 will operate at what are normally unacceptable levels of service. The widening of Highway 49 to six lanes is needed with or without a bypass.

Improvements to the street system and the six-laning of Highway 49 (both are proposed in the Auburn Bowman Community Plan) provide, by far, the most improvement in congestion and are the most cost-effective expenditure of funds. This recommended set of improvements would do more than the westerly bypass to relieve traffic congestion.

BENEFIT-COST ANALYSIS

In preparing a Capital Improvement Program (CIP) and financing plan for the Auburn Bowman Community Plan, many possible road improvement projects were evaluated. We have attempted to include in this CIP only those projects which are the most cost-effective among alternative "fixes" for future problems. The recommended set of improvements is estimated to cost approximately \$46.5 million; \$17.3 million of this would be funded by traffic mitigation fees paid by future development.

The congestion relief which would result from the recommended CIP (and alternative improvements--including bypasses) was determined by use of the traffic model and discussed in Attachment 3. The measure of this cost-effectiveness is the cost per daily hour of vehicle delay eliminated. (See Attachment 4.) This analysis shows that compared to the vehicle delay reduction which is projected by our recommended CIP, additional delay reduction could be provided by a westerly bypass but at a unit cost more than 14 times greater than that of the recommended CIP. In the case of easterly bypasses, additional vehicle delay could be provided but at a unit cost approximately 32 times greater than that of the recommended CIP. The incremental cost of the benefits from either westerly or easterly bypasses are so high that they are not recommended.

If the congestion on I-80 is disregarded, the unit cost of congestion relief from the westerly bypass becomes even more expensive and the unit cost of congestion relief from the easterly bypass is reduced to roughly that of the westerly bypass. However, the cost is still very high for limited benefits.

DEPARTMENT OF PUBLIC WORKS RECOMMENDATION

We believe that the issue of the Highway 49 bypass has been sufficiently studied in terms of engineering feasibility, cost, and cost-effectiveness. It is clear that major benefits in terms

Ron Lichau
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of congestion relief would be obtained from a westerly bypass and a fairly small amount of such benefit from an easterly bypass. Our recommended CIP includes those road improvement projects which provide congestion relief at reasonable cost. The cost of congestion relief benefits derived from either an easterly or westerly bypass is too great for the relatively slight benefit received. In addition, the best alternative from a traffic standpoint (westerly bypass) is also the most disruptive to both residents and the environment while costing the most money.

The financing plan for our recommended CIP establishes traffic mitigation fees which are affordable by the development industry and are consistent with fees charged elsewhere in the county (\$1,500 to \$2,000 per single family dwelling unit). To add the cost of a bypass (\$35 million easterly, or \$50 million westerly) to the program would approximately triple our recommended fee. We believe this large increase could not be sustained by future land development; also, this amount would be much greater than that used anywhere else in the county.

There is no other source of funds we have been able to identify for a bypass project. We do not believe that it is prudent to include a bypass in the plan without a funding source that is reasonably assured. With the State funding a significant portion of the six lane widening of Highway 49, we do not foresee further State participation in a bypass. In addition, none of our projects included in the CIP should be eliminated if a bypass were added. The six-laning of Highway 49 is necessary to serve future traffic in the existing Highway 49 corridor--even with a bypass.

Therefore, our recommendation is that the proposed road network CIP and financing plan be adopted by the Board at the conclusion of hearings on the Auburn Bowman Community Plan. We recommend that no Highway 49 bypass alternative be included in this program. If the Board chooses to not accept this recommendation and pursues a bypass, we believe that only westerly alignments would be of significant benefit. At a minimum, any such bypass alignment should be officially adopted; funds should be immediately allocated for preservation of the corridor; and the cost of the bypass should be included in the traffic mitigation fee program. The route adoption process and corridor preservation is estimated to initially cost \$2 million over the next 5 years.

I would be pleased to sit down and go over this report with you at your convenience.

JW/JK/rwr

Attachments (1, 2, 3, 4, and 5)

PRELIMINARY EVALUATION OF ALTERNATIVES

PRELIMINARY EVALUATION OF ALTERNATIVES

ALTERNATIVES RANKING

The following is a description of the overall ranking given for each alternative. Similarities exist between alternatives and therefore, rankings were assigned on a relative basis.

The alternatives are ranked in the following table. For environmental and planning criteria, the average score was 42 and the median score was 40. For traffic and engineering criteria, the average score was 57, and the median score was 52.5.

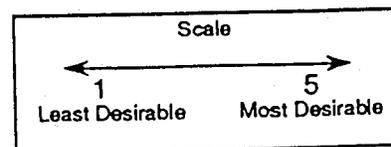
WEIGHTED SCORE TOTALS			
<u>Environmental</u>		<u>Traffic and Engineering</u>	
Alternative	Score	Alternative	Score
D	63	B	76
F	57	C	73
E	47	A	70
G	44	D	57
I	43	G	54
-----	Median	-----	Median
H	37	H	51
J	35	E	51
C	34	F	48
B	32	J	45
A	28	I	40

As the table shows, Alternative D and Alternative G both rank above median for both sets of criteria, and Alternative H and Alternative J rank below median for both criteria.

EVALUATION MATRIX

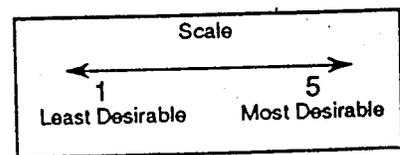
Highway 49 Bypass Feasibility Study Preliminary Alignment Evaluation Matrix (continued)

Evaluation Criteria	Weight	Alternative E		Alternative F		Alternative G	
		Unweighted Score	Weighted Score	Unweighted Score	Weighted Score	Unweighted Score	Weighted Score
Environmental and Socioeconomic Evaluation							
Wetlands / Riparian Habitat	3	4	12	5	15	3	9
Cultural/Historical/Archaeological Resources	2	3	6	3	6	3	6
Land Use Compatibility	4	3	12	4	16	3	12
Growth Inducing Effects	1	5	5	5	5	5	5
Displacement of Homes and Businesses	3	4	12	5	15	4	12
Total Score			47		57		44
Traffic and Engineering Evaluation							
Total Link Miles with V/C > 1.0	5	2	10	1	5	2	10
Total Daily Hours of Delay	5	2	10	1	5	2	10
Compatibility with Future Rail Service Expansion	1	4	4	4	4	4	4
Compatibility with State Route Adoption Criteria	3	5	15	4	12	5	15
Cost of Construction	2	3	6	5	10	3	6
Availability and Cost of Right-of-Way	3	2	6	4	12	3	9
Total Score			51		48		54



Highway 49 Bypass Feasibility Study Preliminary Alignment Evaluation Matrix (continued)

Evaluation Criteria	Weight	Alternative H		Alternative I		Alternative J	
		Unweighted Score	Weighted Score	Unweighted Score	Weighted Score	Unweighted Score	Weighted Score
Environmental and Socioeconomic Evaluation							
Wetlands / Riparian Habitat	3	3	9	4	12	3	9
Cultural/Historical/Archaeological Resources	2	3	6	3	6	3	6
Land Use Compatibility	4	2	8	3	12	2	8
Growth Inducing Effects	1	5	5	4	4	3	3
Displacement of Homes and Businesses	3	3	9	3	9	3	9
Total Score			37		43		35
Traffic and Engineering Evaluation							
Total Link Miles with VC > 1.0	5	2	10	1	5	2	10
Total Daily Hours of Delay	5	2	10	1	5	2	10
Compatibility with Future Rail Service Expansion	1	4	4	4	4	4	4
Compatibility with State Route Adoption Criteria	3	5	15	4	12	3	9
Cost of Construction	2	3	6	4	8	3	6
Availability and Cost of Right-of-Way	3	2	6	2	6	2	6
Total Score			51		40		45



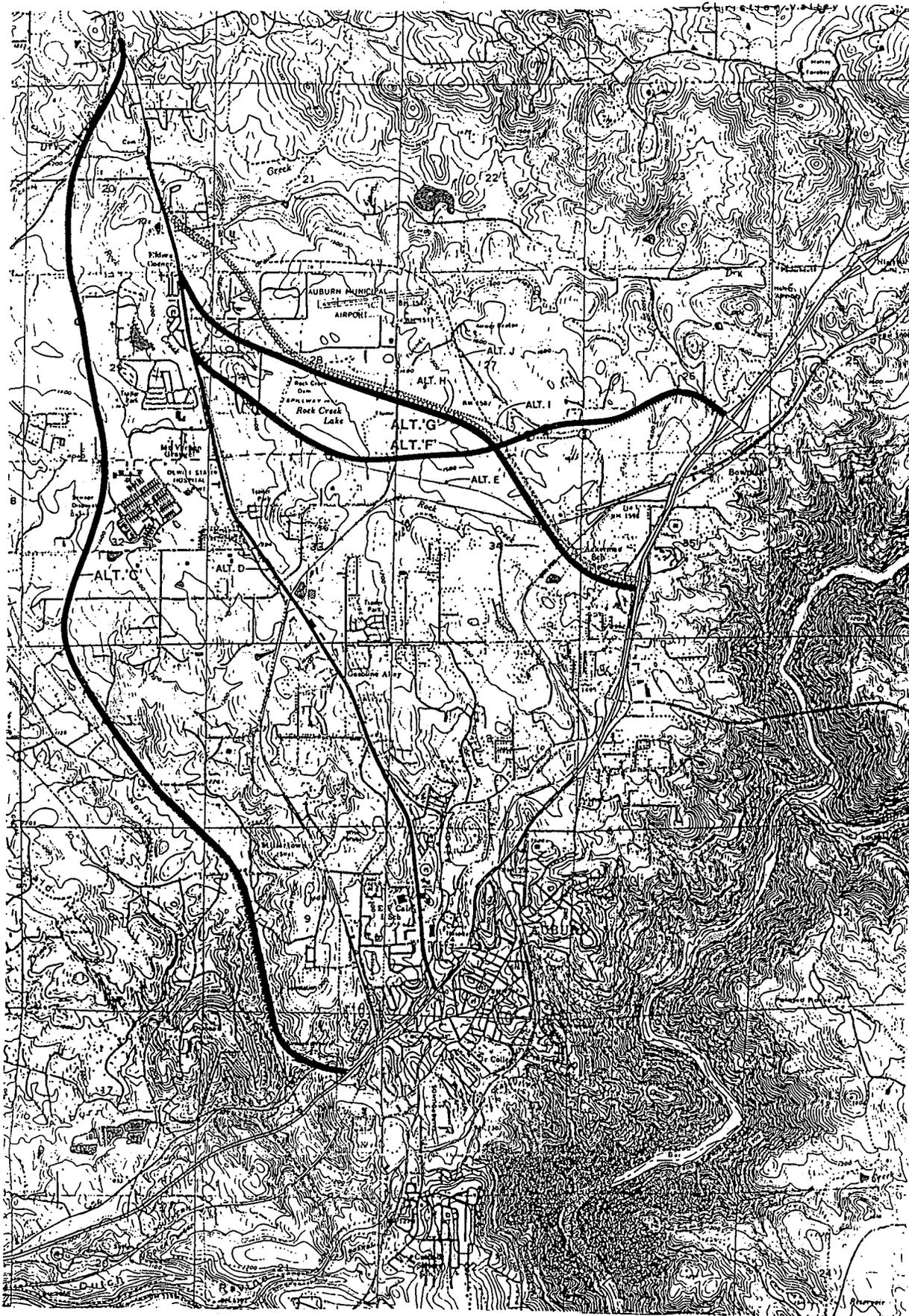


FIGURE 1

**HIGHWAY 49 BYPASS FEASIBILITY
DETAILED STUDY**

LEGEND:

ALTERNATIVE A	ALTERNATIVE H	BOUNDARY	○
ALTERNATIVE B	ALTERNATIVE I	RAILROAD	—
ALTERNATIVE C	ALTERNATIVE J	ROAD	—
ALTERNATIVE D		WATER	—
ALTERNATIVE E			
ALTERNATIVE F			
ALTERNATIVE G			

ROUTES CHOSEN FOR ADDITIONAL STUDY: ALTERNATIVE C, ALTERNATIVE F, ALTERNATIVE G

AUBURN/BOWMAN COMMUNITY PLAN
CAPITAL IMPROVEMENT PROGRAM PROJECT LIST

NO. PROJECT	PROJECT LIMITS	APPROX. PROJECT LENGTH (MILES)	STANDARD	TOTAL COST ESTIMATE	STATE	LOCAL/MISC. PROGRAMS	DEVELOPER FRONTAGE REQNTS.	MIT FEE PROGRAM SHARE
****	*****	*****	*****	*****	*****	*****	*****	*****
I. ROAD NETWORK IMPROVEMENTS								
1	SR 49	4.47	6 LANE	\$12,472,000	\$6,000,000	\$167,000	\$500,000	\$5,805,000
	NEVADA ST. TO JOEGER DR. (INCLUDES SIDEWALKS)							
2	SR 49	3.75	4 LANE	\$11,000,000	\$11,000,000	\$0	\$0	\$0
	JOEGER RD. TO NEVADA CO. SR 49 TO I-80							
3	BELL RD.	2.81	4 LANE	\$2,226,000	\$0	\$0	\$560,000	\$1,666,000
4	CHRISTIAN VALLEY RD.	0.64	2 LANE	\$507,000	\$0	\$207,000	\$150,000	\$150,000
5	BILL FRANCIS DR.	0.42	2 LANE	\$333,000	\$0	\$0	\$167,000	\$166,000
6	LOCKSLEY LANE	0.59	2 LANE	\$467,000	\$0	\$117,000	\$117,000	\$233,000
7	RICHARDSON DR.	0.70	2 LANE	\$554,000	\$0	\$100,000	\$227,000	\$227,000
8	QUARTZ DR.	0.20	2 LANE	\$158,000	\$0	\$25,000	\$50,000	\$83,000
9	GALENA DR.	0.20	2 LANE	\$158,000	\$0	\$25,000	\$50,000	\$83,000
10	EDUCATION ST.	0.16	2 LANE	\$127,000	\$0	\$27,000	\$50,000	\$50,000
	PROFESSIONAL DR. TO RICHARDSON DR.							
11	QUARTZ DR.	0.51	2 LANE	\$404,000	\$0	\$101,000	\$202,000	\$101,000
12	UNNAMED ROAD	0.60	2 LANE	\$475,000	\$0	\$158,000	\$158,000	\$159,000
	DRY CREEK TO EAST OF SR 49 SOUTH TO QUARTZ DR. EXIT							
13	PROFESSIONAL DR.	0.38	2 LANE	\$301,000	\$0	\$200,000	\$0	\$101,000
14	WILLOWBUSH RD.	0.37	4 LANE	\$592,000	\$0	\$60,000	\$266,000	\$266,000
	BELL RD. TO ATWOOD RD. THIRD ST. TO SR 49 AT AUBURN HONDA							
15	PLAZA WAY	0.20	2 LANE	\$158,000	\$0	\$158,000	\$0	\$0
16	BELL RD. WEST OF SR 49	0.60	4 LANE	\$480,000	\$0	\$0	\$130,000	\$350,000
	BELL RD. TO NEW AIRPORT RD. SR 49 TO RICHARDSON FULWEILER AVE.							
17	RICHARDSON DR. SO. EXT.	1.45	2 LANE	\$1,160,000	\$0	\$0	\$580,000	\$580,000
	ATWOOD RD. TO EDGEWOOD/ MT. VERNON							
18	MT. VERNON ROAD	0.70	2 LANE	\$600,000	\$0	\$0	\$100,000	\$500,000
	.3 MI. WEST OF NEVADA ST. TO EDGEWOOD RD.							
19	LUTHER ROAD	0.15	4 LANE	\$120,000	\$0	\$0	\$60,000	\$60,000
20	LUTHER ROAD	0.23	4 LANE	\$184,000	\$0	\$0	\$92,000	\$92,000
21	LINCOLN WAY	0.41	4 LANE	\$328,000	\$0	\$0	\$66,000	\$262,000
22	BOWMAN UNDERCROSSING	0.12	4 LANE	\$100,000	\$0	\$50,000	\$0	\$50,000
23	NEW AIRPORT RD.	1.09	2 LANE	\$872,000	\$0	\$120,000	\$349,000	\$403,000
24	NEW AIRPORT RD.	0.69	2 LANE	\$552,000	\$0	\$276,000	\$138,000	\$138,000
25	OLD AIRPORT RD.	1.02	2 LANE	\$555,000	\$0	\$272,000	\$183,000	\$100,000
26	MISC. SHOULDER ADDITIONS	20.00	2 SIDES	\$4,000,000	\$0	\$1,000,000	\$1,000,000	\$2,000,000
	VARIED LOCATIONS - 4' MIN. WIDTH (SEE TEXT)							
ROADS SUBTOTAL				\$38,883,000	\$17,000,000	\$3,063,000	\$5,195,000	\$13,625,000

AUBURN/BOWMAN COMMUNITY PLAN
CAPITAL IMPROVEMENT PROGRAM PROJECT LIST

NO.	PROJECT	PROJECT LIMITS	PROJECT LENGTH (MILES)	STANDARD	ESTIMATE	STATE	LOCAL/MISC. PROGRAMS	DEVELOPER FRONTAGE REQMTS.	MIT FEE PROGRAM SHARE
****	*****	*****	*****	*****	*****	*****	*****	*****	*****
II. SIGNALIZATION AND INTERSECTION IMPROVEMENTS									
27	SR49/FLORENCE				\$150,000	\$75,000	\$0	\$0	\$75,000
28	SR49/DRY CREEK				\$150,000	\$75,000	\$25,000	\$0	\$50,000
29	SR49/QUARTZ				\$150,000	\$75,000	\$25,000	\$25,000	\$25,000
30	SR49/BELL				\$250,000	\$125,000	\$90,000	\$0	\$35,000
31	SR49/AUBURN HONDA				\$150,000	\$75,000	\$75,000	\$0	\$0
32	SR49/ATWOOD				\$150,000	\$75,000	\$25,000	\$0	\$50,000
33	SR49/NEW AIRPORT				\$150,000	\$75,000	\$25,000	\$25,000	\$25,000
34	SR49/LUTHER				\$150,000	\$75,000	\$0	\$50,000	\$25,000
35	SR49/LIVE OAK				\$150,000	\$0	\$0	\$100,000	\$50,000
36	SR49/EDGEWOOD				\$150,000	\$75,000	\$0	\$0	\$75,000
37	SR49/NEVADA				\$150,000	\$75,000	\$0	\$0	\$75,000
38	AUBURN RAVINE INTER/1-80				\$2,000,000	\$1,000,000	\$0	\$0	\$75,000
39	BOWMAN/LUTHER				\$150,000	\$0	\$500,000	\$0	\$500,000
40	BOWMAN INTERCHANGE/1-80				\$250,000	\$0	\$50,000	\$50,000	\$50,000
41	BELL RD. INTERCHANGE/1-80				\$250,000	\$0	\$75,000	\$75,000	\$100,000
42	ATWOOD RD./RICHARDSON DR.				\$150,000	\$0	\$0	\$0	\$250,000
43	ATWOOD RD./PROFESSIONAL DR.				\$150,000	\$0	\$0	\$50,000	\$100,000
44	BELL RD./RICHARDSON DR.				\$150,000	\$0	\$50,000	\$0	\$100,000
45	BELL RD./GALENA DR.				\$150,000	\$0	\$50,000	\$50,000	\$50,000
46	BELL RD./PROFESSIONAL DR.				\$150,000	\$0	\$50,000	\$50,000	\$50,000
47	EDUCATION/RICHARDSON DR.				\$150,000	\$0	\$70,000	\$20,000	\$60,000
48	LUTHER RD./CANAL ST.				\$150,000	\$0	\$0	\$100,000	\$50,000
49	S. OLD AIRPORT RD./BELL RD.				\$235,000	\$0	\$115,000	\$75,000	\$40,000
INTERSECTION SUBTOTAL					\$5,685,000	\$1,800,000	\$1,225,000	\$750,000	\$1,910,000
ROADS & INTERSECTION SUBTOTAL					\$44,568,000	\$18,800,000	\$4,288,000	\$5,945,000	\$15,535,000
III. BIKETRAILS									
46	SEPARATED BIKETRAILS	BELL RD./OLD AIRPORT RD.	3.00	SEPARATED	\$750,000	\$0	\$0	\$188,000	\$562,000
IV. TRANSIT									
49	CAPITAL COSTS ONLY (SEE TEXT)				\$1,170,000	\$0	\$0	\$0	\$1,170,000
GRAND TOTAL					\$46,488,000	\$18,800,000	\$4,288,000	\$6,133,000	\$17,267,000

Note: 1. Above estimates include the costs of construction, engineering, environmental review, and administration but do not include right-of-way or acquisition costs.
2. Improvements generally include 12' wide traffic lanes, 8' wide paved shoulders, and concrete curb, gutter, and sidewalk.

Comparison of Future Traffic Congestion Resulting from Different Road Network Configurations in Auburn-Bowman Community Plan Area

12/3/93

DELAY (SHOWN IN VEHICLE HOURS PER DAY)

TYPE OF ROADWAY	A		B		C		D		E		F		G		H		I		
	1988 LAND USE & ROAD NETWORK		PROPOSED LAND USE PLAN BUILDOUT & 1988 ROAD NETWORK		NO BYPASS		WEST 49 BYPASS		EAST 49 BYPASS		NO BYPASS-4 LANE 49								
	1988 LAND USE	& ROAD NETWORK	PROPOSED LAND USE	PLAN BUILDOUT & 1988 ROAD NETWORK	6 Lane 49	4 Lane 49	6 Lane 49	4 Lane 49	6 Lane 49	4 Lane 49	6 Lane 49	4 Lane 49	6 Lane 49	4 Lane 49	6 Lane 49	4 Lane 49	6 Lane 49	4 Lane 49	Maximum additional improvements for existing streets (See Note 6)
I-80 Ramps	132 (10%)	1 (0%)	6238 (16%)	130 (0%)	4191 (41%)	3993 (28%)	3327 (42%)	3208 (30%)	4486 (47%)	4627 (35%)	3983 (34%)	70 (1%)	52 (0%)	40 (0%)	40 (0%)	40 (0%)	40 (0%)	40 (0%)	70 (1%)
SR 49 (I-80 to Nevada Co.)	1070 (80%)	104 (8%)	23385 (59%)	5521 (14%)	2530 (25%)	5514 (39%)	1181 (15%)	3621 (34%)	1757 (19%)	4542 (35%)	4568 (39%)	1976 (17%)	1845 (14%)	1825 (19%)	1845 (14%)	1825 (19%)	1845 (14%)	1845 (14%)	1976 (17%)
Arterials	0 (0%)	0 (0%)	3264 (8%)	1241 (3%)	1126 (11%)	1950 (13%)	1206 (15%)	1533 (15%)	1101 (12%)	1372 (11%)	1076 (9%)	147 (1%)	263 (2%)	230 (2%)	230 (2%)	263 (2%)	263 (2%)	147 (1%)	1076 (9%)
Major Collectors	25 (2%)	0 (0%)	1241 (3%)	0 (0%)	211 (2%)	358 (3%)	227 (3%)	121 (1%)	95 (1%)	347 (3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	147 (1%)
Minor Collectors	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	42 (1%)	121 (1%)	95 (1%)	347 (3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	147 (1%)
SR 49 Bypass	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	42 (1%)	121 (1%)	95 (1%)	347 (3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	147 (1%)
TOTAL ALL ROADS	1332	1332	39794	39794	10127	14174	7978	10655	9534	13050	11820	11820	11820	11820	11820	11820	11820	11820	11820
TOTAL LOCAL ROADS (EXCLUDES I-80 & I-80 RAMPS)	1199(90%)	1199(90%)	33426(84%)	33426(84%)	5874(58%)	10099(71%)	4625(58%)	7401(69%)	5008(52%)	8371(64%)	7767(66%)	7767(66%)	7767(66%)	7767(66%)	7767(66%)	7767(66%)	7767(66%)	7767(66%)	7767(66%)

LEVEL OF SERVICE DEFICIENCIES (SHOWN IN MILES OF ROADWAY)

MILES OF ROAD NETWORK AT LEVEL OF SERVICE (LOS)	A		B		C		D		E		F		G		H		I		
	1988 LAND USE & ROAD NETWORK		PROPOSED LAND USE PLAN BUILDOUT & 1988 ROAD NETWORK		NO BYPASS		WEST 49 BYPASS		EAST 49 BYPASS		NO BYPASS-4 LANE 49								
	1988 LAND USE	& ROAD NETWORK	PROPOSED LAND USE	PLAN BUILDOUT & 1988 ROAD NETWORK	6 Lane 49	4 Lane 49	6 Lane 49	4 Lane 49	6 Lane 49	4 Lane 49	6 Lane 49	4 Lane 49	6 Lane 49	4 Lane 49	6 Lane 49	4 Lane 49	6 Lane 49	4 Lane 49	Maximum additional improvements for existing streets
F	14	14	76	76	35	54	27	39	32	47	40	40	40	40	40	40	40	40	40
D, E, OR F	23	23	100	100	59	81	56	72	53	67	63	63	63	63	63	63	63	63	63
MILES OF LOCAL ROADS AT LEVEL OF SERVICE (LOS)																			
F	13	13	66	66	28	45	20	32	23	34	32	32	32	32	32	32	32	32	32
D, E, OR F	21	21	84	84	48	67	45	59	42	53	50	50	50	50	50	50	50	50	50

ATTACHMENT 3

- Notes:
1. Traffic congestion is measured in total vehicle hours of delay for both the City and County Plan area.
 2. "delay" includes only congestion on links of the road networks - not intersection delay.
 3. Columns C through H assume that the County's recommended road network Capital Improvement Program is in place.
 4. All future road networks assume buildout of the County's and City's recommended land use within their respective jurisdictional limits.
 5. Approximately 335 miles of the Auburn area road network are simulated by the traffic model.
 6. Column I information assumes an additional set of improvements to the existing road network in order to test whether the congestion relief benefits of widening SR 49 to six lanes could be accomplished by some other set of improvements. The additional improvements tested include: four lane Nevada Street; four lane Auburn-Ravine Road, four lane Mt. Vernon Road, four lane Luther Road; four lane Richardson extension; four lane Bowman Road; four lane Lincoln Way; Luther extension; Radcliffe-Oakridge extension, etc.

COST-EFFECTIVENESS OF ROAD NETWORK AND LAND USE ALTERNATIVES

1. Delay is expressed in daily hours of vehicle delay which results from traffic congestions on the road links within the Auburn/Bowman Community Plan area. It does not include intersection delay.
2. Assumes full buildout of Proposed Plan.

	Total Road Network Delay	Without I-80 Delay
A. <u>Effect of Base Set of Road Improvements</u>		
Existing (1988) road network delay	39,794 hours	33,426
With recommended Capital Improvement Program road improvements, delay	- <u>10,127 hours</u>	- <u>5,874</u>
Delay reduction	29,677 hours	27,552
Cost of recommended Capital Improvement Program = \$46.5 million		
Unit cost of delay reduction:		
\$46.5 million ÷ 29,667 hours =	<u>\$1,567</u> per hour	
of delay reduction		
\$46.5 million ÷ 27,552 hours =		<u>\$1,688</u> per hour
of delay reduction		
B. <u>Effect of Westerly Bypass</u>		
Recommended Capital Improvement Program, delay	10,127 hours	5,874
With westerly bypass, delay	- <u>7,978 hours</u>	- <u>4,625</u>
Delay reduction	2,149 hours	1,249
Cost of westerly bypass = \$48 million		
Unit cost of delay reduction:		
\$48 million ÷ 2,149 hours =	<u>\$22,336</u> per hour	
of delay reduction		
\$48 million ÷ 1,249 hours =		<u>\$38,431</u> per hour
of delay reduction		
C. <u>Effect of Easterly Bypass</u>		
Recommended Capital Improvement Program, delay	10,127 hours	5,874
With easterly bypass, delay	- <u>9,534 hours</u>	- <u>5,008</u>
Delay reduction	593 hours	866
Cost of easterly bypass = \$30 million		
Unit cost of delay reduction:		
\$30 million ÷ 593 hours =	<u>\$50,590</u> per hour	
of delay reduction		
\$30 million ÷ 866 hours =		<u>\$34,642</u> per hour
of delay reduction		

HISTORY, ATTACHMENT 5

Although Caltrans has long-considered the concept, the first official County involvement in any Highway 49 bypass proposal for the Auburn area appears to have been in 1978. While preparing the 1978 City/County General Plan for the Auburn area, it became apparent that the existing Highway 49 corridor would have severe capacity problems given the amount of potential land development served by the corridor. The solution to this future problem was to designate a new bypass corridor to the west of Auburn from approximately the Dry Creek Road area to a connection with I-80 between Newcastle and Auburn. An alignment for this bypass was designated on official plan maps and made a part of the adopted Auburn General Plan. No funding mechanism for the proposed bypass was provided by the General Plan or by any other measure.

In 1987, a Highway 49 Citizens Advisory Committee was established by the Board of Supervisors to develop and study alternate routes for a westerly bypass. The array of possible routes was expanded to include alignments to the east of Auburn, also. In July 1988, the committee formally recommended a bypass alternative that used Bell Road between Highway 49 and I-80 with a new alignment through the northeast quadrant of the Bell Road/Highway 49 intersection. The selection by the citizens committee was made without benefit of a traffic analysis to examine the benefits and other repercussions of the different alternatives. It was also made without any information regarding environmental impacts, costs, or cost-effectiveness. The Board of Supervisors conducted public hearings and workshops regarding the committee's recommendation but did not adopt the recommendation.

In early 1990 the Department of Public Works came to the Board of Supervisors asking for policy direction regarding the proposed bypass alignment. A number of proposed land development projects in the area would have been affected by the easterly bypass alignment; therefore, quick action would have been necessary to protect the corridor. The Board expressed concerns regarding whether the easterly bypass alignment recommended by the committee would function as well as other bypass alignments. The Board also questioned whether planning efforts for a bypass should more appropriately be undertaken by Caltrans.

Following a public workshop regarding the proposed bypass alternatives, the Board directed staff to work with Caltrans and determine if an alignment selected by the County could be adopted by the State without further study. Caltrans informed us that the only way for the State to adopt the route selected by the County was if the County followed the formal Route Alignment Study process. The State's Route Alignment Study process requires years of procedure with no guarantee that the final adopted route would be the same as that originally recommended by the County.

The Board then directed staff to proceed simultaneously with two efforts: the first was to initiate the first steps of the project development process with Caltrans; the second was to hire a consultant to evaluate bypass alternatives in terms of engineering, economic, and environmental feasibility. The Board directed that information developed by this consultant be used in preparing the transportation element of the Auburn/Bowman Community Plan which was then getting underway. The consultant selected was The Spink Corporation. Because the study resulted in a staff recommendation to not pursue a bypass, the route adoption process has not been started.